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ENCYCLOPÆDIA.

CICERO, (Marcus Tullius) the celebrated Roman orator, was born in the year of Rome 647, about 107 years before Chriſt. His father Marcus Tullius, who was of the equeſtrian order, took great care of his education, which was directed particularly with a view to the bar. Young Tully, at his firſt appearance in public, declaimed with ſuch vehemence againſt Sylla's party, that it became expedient for him to retire into Greece; where he heard the Athenian orators and philoſophers, and greatly improved both in eloquence and knowledge. Here he met with T. Pomponius, who had been his ſchool-fellow; and who, from his love to Athens, and ſpending a great part of his days in it, obtained the ſurname of *Atticus;* and here they revived and confirmed that noted friendſhip which ſubſiſted between them through life with ſo celebrated a conſtancy and affection. From Athens he paſſed into Aſia; and after an excurſion of two years came back again into Italy.

Cicero was now arrived at Rome; and, after one year more ſpent at the bar, obtained, in the next place, the dignity of quæſtor. Among the cauſes which he pleaded before his quæſtorſhip, was that of the famous comedian Roſcius, whom a ſingular merit in his art had recommended to the familiarity and friendſhip of the greateſt men in Rome. The quæſtors were the general receivers or treaſurers of the republic, and were ſent annually into the provinces diſtributed to them, as they always were, by lot. The iſland of Sicily happened to fall to Cicero's ſhare; and that part of it, for it was conſiderable enough to be divided into two provinces, which was called *Lilybæum.* This office he received, not as a gift, but a truſt; and he acquitted himſelf ſo well in it, that he gained the love and admiration of all the Sicilians. Before he left Sicily, he made the tour of the iſland, to ſee every thing that was curious, and eſpecially the city of Syracuſe; where he diſcovered the tomb of Archimedes to the magiſtrates who were ſhowing him the curioſities of the place, but who, to his ſurpriſe, knew nothing of any ſuch tomb.

We have no account of the preciſe time of Cicero's marriage with Terentia; but it is ſuppoſed to have been celebrated immediately after his return from his travels to Italy, when he was about 30 years old. He was now diſengaged from his quæſtorſhip in Sicily, by which firſt ſtep, in the legal gradation and aſcent of public honours, he gained an immediate right to the ſenate, and an actual admiſſion into it during life; and ſettled again in Rome, where he employed himſelf conſtantly in defending the perſons and properties of its citizens, and was indeed a general patron. Five years were almoſt elapſed ſince Cicero's election to the quæſtorſhip, which was the proper interval preſcribed by law before he could hold the next office of ædile; to which he was now, in his 37th year, elected by the unanimous ſuffrages of all the tribes, and preferably to all his competitors. After Cicero's election to the ædileſhip, but before his entrance upon the office, he undertook the famed proſecution of C. Verres, the late prætor of Sicily; who was charged with many flagrant acts of injuſtice, rapine, and cruelty, during his triennial government of that iſland. This was one of the moſt memorable tranſactions of his life; for which he was greatly and juſtly celebrated by antiquity, and for which he will, in all ages, be admired and eſteemed by the friends of mankind. The reſult was, that, by his diligence and addreſs, he ſo confounded Hortenſius, though the reigning orator at the bar, and uſually ſtyled *the king of the forum,* that he had nothing to ſay for his client. Verres, deſpairing of all defence, ſubmitted immediately, without expecting the ſentence, to a voluntary exile; where he lived many years, forgotten and deſerted by all his friends. He is ſaid to have been relieved in this miſerable ſituation by the generoſity of Cicero; yet was proſcribed and murdered after all by Mark Antony, for the ſake of thoſe fine ſtatues and Corinthian veſſels of which he had plundered the Sicilians.

After the uſual interval of two years from the time of his being choſen ædile, Cicero offered himſelf a candidate for the prætorſhip; and, in three different aſſemblies convened for the choice of prætors, two of which were diſſolved without effect, he was declared every time the firſt prætor by the ſuffrages of all the centuries He was now in the career of his fortunes; and in ſight, as it were, of the conſulſhip, the grand object of his ambition: and therefore, when his prætorſhip was at an end, he would not accept any foreign province, the uſual reward of that magiſtracy, and the chief fruit which the generality propoſed from it. He had no particular love for money, nor genius for arms; ſo that thoſe governments had no charms for him: the glory which he purſued was to ſhine in the eyes of the city as the guardian of its laws; and to teach the magiſtrates how to execute, the citizens how to obey them.

Being now in his 43d year, the proper age required by law, he declared himſelf a candidate for the conſulſhip along with ſix competitors, L. Sculpicius Galba, L. Sergius Catilina, C. Antonius, L. Caſſius Longinus, Q. Cornificius, and C. Licinius Sacerdos. The two firſt were patricians ; the two next plebeians, yet noble ; the two laſt the ſons of fathers who had firſt imported the public honours into their families : Cicero was the only *new man*, as he was called, among them, or one of equeſtrian rank. Theſe were the competitors ; and in this competition the practice of bribing was carried on as openly and as ſhamefully by Antonius and Catiline as it uſually is at the elections in Britain. However, as the election approached, Cicero's intereſt appeared to be ſuperior to that of all the candidates : for the nobles themſelves, though always envious and deſirous to depreſs him, yet out of regard to the dangers which threatened the city from many quarters, and ſeemed ready to burſt out into a flame, began to think him the only man qualified to preſerve the republic, and break the cabals of the deſperate by the vigour and prudence of his adminiſtration. The method of chooſing conſuls was not by an open vote ; but by a kind of ballot, or little tickets of wood diſtributed to the citizens, with the names of the ſeveral candidates inſcribed upon each : but in Cicero's caſe the people were not content with this ſecret and ſilent way ; but, before they came to any ſcrutiny, loudly and univerſally proclaimed Cicero the firſt conſul : ſo that, as he himſelf ſays, " he was not choſen by the votes of particular citizens, but the common ſuffrage of the city ; nor declared by the voice of the crier, but of the whole Roman people."

Cicero had no ſooner entered upon his office than he had occaſion to exert himſelf againſt P. Servilius Rullus, one of the new tribunes, who had been alarming the ſenate with the promulgation of an Agrarian law ; the purpoſe of which was to create a decemvirate, or ten commiſſioners, with abſolute power for five years over all the revenues of the republic, to diſtribute them at pleaſure to the citizens, &c. Theſe laws uſed to be greedily received by the populace, and were propoſed therefore by factious magiſtrates as oft as they had any point to carry with the multitude againſt the public good ; ſo that Cicero's firſt buſineſs was to quiet the apprehenſions of the city, and to baffle, if poſſible, the intrigues of the tribune. Accordingly, in an artful and elegant ſpeech from the roſtra, he gave ſuch a turn to the inclination of the people, that they rejected this law with as much eagerneſs as they had ever received one. But the grand affair of all, which conſtituted the glory of his conſulſhip, and has tranſmitted his name with ſuch luſtre to poſterity, was the ſkill he ſhowed, and the unwearied pains he took, in ſuppreſſing that horrid conſpiracy which was formed by Catiline and his accomplices for the ſubverſion of the commonwealth. For this great ſervice he was honoured with the glorious title of *pater, patriæ*, " the father of his country," which he retained for a long time after.

Cicero's adminiſtration was now at an end ; but he had no ſooner quitted his office, than he began to feel the weight of that envy which is the certain fruit of illuſtrious merit. He was now, therefore, the common mark, not only of all the factious, againſt whom he had declared perpetual war, but of another party not leſs dangerous, the envious too : whoſe united ſpleen never left him from this moment till they had driven him out of that city which he had ſo lately preſerved. Cicero, upon the expiration of his conſulſhip, took care to ſend a particular account of his whole adminiſtration to Pompey, who was finiſhing the Mithridatic war in Aſia ; in hopes to prevent any wrong impreſſions there from the calumnies of his enemies, and to draw from him ſome public declaration in praiſe of what he had been doing. But Pompey being informed by Metellus and Cæſar of the ill humour that was riſing againſt Cicero in Rome, anſwered him with great coldneſs ; and inſtead of paying him any compliment, took no notice at all of what had paſſed in the affair of Catiline ; upon which Cicero expoſtulates with him in a letter which is ſtill extant.

About this time Cicero bought a houſe of M. Craſſus on the Palatine-hill, adjoining to that in which he had always lived with his father, and which he is now ſuppoſed to have given up to his brother Quintus. The houſe coſt him near L. 30,000, and ſeems to have been one of the nobleſt in Rome. It was built about 30 years before by the famous tribune M. Livius Druſus : on which occaſion we are told, that when the architect promiſed to build it for him in ſuch a manner that none of his neighbours ſhould overlook him ; " But if you have any ſkill (replied Druſus), contrive it rather ſo that all the world may ſee what I am doing." The purchaſe of ſo expenſive a houſe raiſed ſome cenſure on his vanity ; and eſpecially as it was made with borrowed money. This circumſtance he himſelf does not diſſemble ; but ſays merrily upon it, that " he was now plunged ſo deeply in debt, as to be ready for a plot, only that the conſpirators ſhould not truſt him."

The moſt remarkable event that happened in this year, which was the 45th of Cicero's life, was the pollution of the myſteries of the *bona dea* by P. Clodius : which, by an unhappy train of conſequences, involved Cicero in a great and unexpected calamity. Clodius had an intrigue with Cæſar's wife Pompeia, who, according to annual cuſtom, was now celebrating in her houſe thoſe awful ſacrifices of the goddeſs, to which no male creature ever was admitted, and where every thing maſculine was ſo ſcrupulouſly excluded, that even pictures of that ſort were covered during the ceremony. It flattered Clodius's imagination greatly to gain acceſs to his miſtreſs in the midſt of her holy miniſtry ; and with this view he dreſſed himſelf in a woman's habit, that by the benefit of his ſmooth face, and the introduction of one of the maids, he might paſs without diſcovery : but by ſome miſtake between him and his guide, he loſt his way when he came within the houſe, and fell in unluckily among the other female ſervants. Here he was detected by his voice, and the ſervants alarmed the whole company by their ſhrieks, to the great amazement of the matrons, who threw a viel over their ſacred myſteries, while Clodius found means to eſcape. The ſtory was preſently ſpread abroad, and raiſed a general ſcandal and horror throughout the city. The whole defence which Clodius made when, by order of the ſenate, he was brought to a trial, was to prove himſelf abſent at the time of the fact ; for which purpoſe he produced two men to ſwear that he was then at Interamna, about two or three days journey from the city. But Cicero being called upon to give his teſtimony, depoſed, that Clodius had been with him that very morning

ing at his houſe in Rome. Irritated by this, Clodius formed a ſcheme of revenge. This was to get himſelf choſen tribune, and in that office to drive Cicero out of the city, by the publication of a law, which, by ſome ſtratagem or other, he hoped to obtrude upon the people. But as all patricians were incapable of the tribunate by its original inſtitution, ſo his firſt ſtep was to make himſelf a plebian, by the pretence of an adoption into a plebian houſe, which could not yet be done without the ſuffrage of the people. The firſt triumvirate was now formed; which was nothing elſe in reality but a traiterous conſpiracy of three of the moſt powerful citizens of Rome, to extort from their country by violence what they could not obtain by law. Pompey's chief motive was to get his acts confirmed by Cæſar in his conſulſhip, which was now coming on; Cæſar, by giving way to Pompey's glory, to advance his own; and Craſſus, to gain that aſcendence by the authority of Pompey and Cæſar, which he could not ſuſtain alone. Cicero might have made what terms he pleaſed with the triumvirate; and been admitted even a partner of their power, and a fourth in their league: but he would not enter into any engagements with the three whoſe union he and all the friends of the republic abhorred. Clodius, in the mean time, had been puſhing on the buſineſs of his adoption: which at laſt he effected; and began ſoon after to threaten Cicero with all the terrors of his tribunate, to which he was now advanced without any oppoſition. Both Cæſar and Pompey ſecretly favoured his ſcheme: not that they intended to ruin Cicero, but only to keep him under the laſh; and if they could not draw him into their meaſures, or make him at leaſt keep quiet, to let Clodius looſe upon him. Cæſar, in particular, wanted to diſtreſs him ſo far as to force him to a dependence on himſelf: for which end, while he was privately encouraging Clodius to purſue him, he was propoſing expedients to Cicero for his ſecurity. But though his fortunes ſeemed now to be in a tottering condition, and his enemies to gain ground daily upon him; yet he was unwilling to owe the obligation of his ſafety to any man, far leſs to Cæſar, whoſe deſigns he always ſuſpected, and whoſe ſchemes he never approved. This ſtiffneſs in Cicero ſo exaſperated Cæſar, that he reſolved immediately to aſſiſt Clodius with all his power to oppreſs him; while Pompey was all the while giving him the ſtrongeſt aſſurances that there was no danger, and that he would ſooner be killed himſelf than ſuffer him to be hurt.

Clodius, in the mean time, was obliging the people with ſeveral new laws, contrived chiefly for their advantage; the deſign of all which was only to introduce, with a better grace, the ground-plot of the play, the baniſhment of Cicero. In ſhort, having cauſed a law to be enacted, importing, that any who had condemned a Roman citizen unheard ſhould himſelf be baniſhed, he ſoon after impeached Cicero upon it. It was in vain that this great man went up and down the city ſoliciting his cauſe in the habit of a ſuppliant, and attended by many of the firſt young noblemen whom he had taught the rules of eloquence; thoſe powers of ſpeaking which had ſo often been ſucceſsful in defending the cauſe of others, ſeemed totally to forſake his own: he was baniſhed by the votes of the people 400 miles from Italy; his houſes were ordered to be demoliſhed, and his goods ſet up to ſale. It cannot be denied, that in this great calamity he did not behave himſelf with that firmneſs which might reaſonably be expected from one who had borne ſo glorious a part in the republic; conſcious of his integrity, and ſuffering in the cauſe of his country: for his letters are generally filled with ſuch lamentable expreſſions of grief and deſpair, that his beſt friends, and even his wife, were forced ſometimes to admoniſh him to rouſe his courage, and remember his former character. Atticus was conſtantly putting him in mind of it; and ſent him word of a report that was brought to Rome by one of Caſſius's freed-men, that his affliction had diſordered his ſenſes. He was now indeed attacked in his weakeſt part; the only place in which he was vulnerable. To have been as great in affliction as he was in proſperity, would have been a perfection not given to man: yet this very weakneſs flowed from a ſource which rendered him the more amiable in all the other parts of his life; and the ſame tenderneſs of diſpoſition which made him love his friends, his children, and his country, more paſſionately than other men, made him feel the loſs of them more ſenſibly. When he had been gone a little more than two months, a motion was made in the ſenate by one of the tribunes, who was his friend, to recal him, and repeal the laws of Clodius; to which the whole houſe readily agreed. Many obſtructions, as may be eaſily imagined, were given to it by the Clodian faction; but this made the ſenate only more reſolute to effect it. They paſſed a vote, therefore, that no other buſineſs ſhould be done till Cicero's return was carried: which at laſt it was: and in ſo ſplendid and triumphant a manner, that he had reaſon, he ſays, to fear, leſt people ſhould imagine that he himſelf had contrived his late flight for the ſake of ſo glorious a reſtoration.

Cicero, now in his 50th year, was reſtored to his former dignity, and ſoon after to his former fortunes; ſatisfaction being made to him for the ruin of his eſtates and houſes; which laſt were built up again by himſelf with more magnificence than before. But he had domeſtic grievances about this time which touched him very nearly; and which, as he ſignifies obſcurely to Atticus, were of too delicate a nature to be expreſſed in a letter: They aroſe chiefly from the petulant humour of his wife, which began to give him frequent occaſions of chagrin; and, by a ſeries of repeated provocations, confirmed in him that ſettled diſguſt which at laſt ended in a divorce.

In the 56th year of his age, he was made proconſul of Cilicia; and his adminiſtration there gained him great honour. About this time the expectation of a breach between Cæſar and Pompey engaged the general attention. Craſſus had been deſtroyed with his army ſome years before in the war with the Parthians; and Julia the daughter of Cæſar, whom Pompey married, and who, while ſhe lived, was the cement of their union, was alſo dead in child-bed. Cæſar had put an end to the Gallic war, and reduced the whole province to the Roman yoke: but though his commiſſion was near expiring, he ſeemed to have no thoughts of giving it up and returning to the condition of a private ſubject. He pretended that he could not poſſibly be ſafe if he parted with his army; eſpecially while Pompey held the province of Spain prolonged to him for five years. This diſpoſition to a breach Cicero ſoon learned from his friends, as he was returning from his province of Cilicia. But as he foreſaw the conſequences of a war more clearly and fully than any of them, ſo his firſt reſolution was to apply all his endeavours and authority to the mediation of a peace; though, in the event of a breach, he was determined within himſelf to follow Pompey. He clearly foreſaw, what he declared without ſcruple to his friends, that which ſide ſoever got the better, the war muſt neceſſarily end in a tyranny. The only difference, he ſaid, was, that if their enemies conquered, they ſhould be proſcribed; if their friends, they would be ſlaves.

He no ſooner arrived at the city, however, than he fell, as he tells us, into the very flame of civil diſcord, and found the war in effect proclaimed: for the ſenate had juſt voted a decree, that Cæſar ſhould diſband his army by a certain day, or be declared an enemy; and Cæſar's ſudden march towards Rome effectually confirmed it. In the midſt of all this hurry and confuſion, Cæſar was extremely ſolicitous about Cicero; not ſo much to gain him, for that was not to be expected, as to prevail with him to ſtand neuter. He wrote to him ſeveral times to that effect; and employed all their common friends to preſs him with letters on that ſubject: all which was done; but in vain, for Cicero was impatient to be gone to Pompey. In the mean time, theſe letters give us a moſt ſenſible proof of the high eſteem and credit in which Cicero flouriſhed at this time in Rome; when, in a conteſt for empire, which force alone was to decide, we ſee the chiefs on both ſides ſo ſolicitous to gain a man to their party, who had no peculiar ſkill in arms or talents for war. Purſuing, however, the reſult of all his deliberations, he embarked at length to follow Pompey, who had been obliged to quit Italy ſome time before, and was then at Dyrrachium; and arrived ſafely in his camp with his ſon, his brother, and his nephew, committing the fortunes of the whole family to the iſſue of that cauſe. After the battle of Pharſalia, in which Pompey was defeated, Cicero returned into Italy, and was afterwards received into great favour by Cæſar, who was now declared dictator the ſecond time, and Mark Antony his maſter of horſe. We may eaſily imagine, what we find indeed from his letters, that he was not a little diſcompoſed at the thoughts of an interview with Cæſar, and the indignity of offering himſelf to a conqueror againſt whom he had been in arms: for though upon many accounts he had reaſon to expect a kind reception from Cæſar, yet he hardly thought his life, he ſays, worth begging; ſince what was given by a maſter might always be taken away again at pleaſure. But at their meeting he had no occaſion to ſay or do any thing that was below his dignity: for Cæſar no ſooner ſaw him than he alighted, ran to embrace him; and walked with him alone, converſing very familiarly, for ſeveral furlongs.

Cicero was now in his 61ſt year, and forced at laſt to part with his wife Terentia; whoſe humour and conduct had been long uneaſy to him. She was a woman of an imperious and turbulent ſpirit: and though he had borne her perverſeneſs in the vigour of health, and flouriſhing ſtate of his fortunes; yet, in a declining life, ſoured by a continual ſucceſſion of mortifications from abroad, the want of eaſe and quiet at home was no longer tolerable to him. But he was immediately oppreſſed by a new and moſt cruel affliction, the death of his beloved daughter Tullia, who died in child-bed ſoon after her divorce from her third huſband Dolabella. She was about 32 years old at the time of her death; and, by the few hints which are left of her character, appears to have been an excellent and admirable woman. She was moſt affectionately and piouſly obſervant of her father; and, to the uſual graces of her ſex, having added the more ſolid accompliſhments of knowledge and polite letters, was qualified to be the companion and delight of his age; and was juſtly eſteemed not only as one of the beſt, but the moſt learned, of the Roman ladies. His affliction for the death of this daughter was ſo great, that, to ſhun all company as much as he could, he removed to Atticus's houſe, where he lived chiefly in his library, turning over every book he could meet with on the ſubject of moderating grief. But finding his reſidence here too public, and a greater reſort to him than he could bear, he retired to Aſturia, one of his ſeats near Antium; a little iſland on the Latian ſhore, at the mouth of a river of the ſame name, covered with woods and groves cut into ſhady walks; a ſcene of all others the fitteſt to indulge melancholy, and where he could give a free courſe to his grief. "Here (ſays he to Atticus) I live without the ſpeech of man; every morning early I hide myſelf in the thickeſt of the wood, and never come out till the evening. Next to yourſelf, nothing is ſo dear to me as this ſolitude; and my whole converſation is with my books." Indeed his whole time was employed in little elſe than reading and writing during Cæſar's adminiſtration, which he could never chearfully ſumbit to; and it was within this period that he drew up one of the graveſt of thoſe philoſophical pieces which are ſtill extant in his works.

Upon the death of Cæſar, Octavius his nephew and heir coming into Italy, was preſented to Cicero by Hirtius and Panſa, with the ſtrongeſt profeſſions on the part of the young man that he would be governed entirely by his direction. Indeed Cicero thought it neceſſary to cheriſh and encourage Octavius, if for nothing elſe yet to keep him at a diſtance from Antony; but could not yet be perſuaded to enter heartily into his affairs. He ſuſpected his youth and want of experience; and that he had not ſtrength enough to deal with Antony; and, above all, that he had no good diſpoſition towards the conſpirators. He thought it impoſſible he ſhould ever be a friend to them; and was perſuaded rather, that if ever he got the upper hand, his uncle's acts would be more violently enforced, and his death more cruelly revenged, than by Antony himſelf. And when Cicero did conſent at laſt to unite himſelf to Octavius's intereſts, it was with no other view but to arm him with a power ſufficient to oppreſs Antony; yet ſo checked and limited, that he ſhould not be able to oppreſs the republic.

In the hurry of all theſe politics, he was ſtill proſecuting his ſtudies with his uſual application; and, beſides ſome philoſophical pieces, now finiſhed his book of offices, or the duties of man, for the uſe of his ſon: A work admired by all ſucceeding ages as the moſt perfect ſyſtem of Heathen morality, and the nobleſt effort and ſpecimen of what reaſon could do in guiding man through life with innocence and happineſs. However, he paid a conſtant attention to public affairs; miſſed no opportunities, but did every thing that human prudence could do for the recovery of the republic: for all that vigour with which it was making this laſt effort for itſelf, was entirely owing to his counſels and authority. This appears from thoſe memorable Philippics which from time to time he publiſhed againſt Antony, as well as from other monuments of antiquity. But all was in vain: for though Antony's army was entirely defeated at the ſiege of Modena, which made many people imagine that the war was at an end, and the liberty of Rome eſtabliſhed; yet the death of the conſuls Panſa and Hirtius in that action gave the fatal blow to all Cicero's ſchemes, and was the immediate cauſe of the ruin of the republic.

Octavius having ſubdued the ſenate to his mind, marched towards Gaul to meet Antony and Lepidus; who had already paſſed the Alps, and brought their armies into Italy, in order to have a perſonal interview with him; which had been privately concerted for ſettling the terms of a triple league, and dividing the power and provinces of Italy among themſelves. The place appointed for this interview was a ſmall iſland about two miles from Bononia, formed by the river Rhenus which runs near that city. Here they met, and ſpent three days in a cloſe conference to adjuſt the plan of their accommodation: and the laſt thing they adjuſted was the liſt of a proſcription which they were determined to make of their enemies. This, as the writers tell us, occaſioned much difficulty and warm conteſts among them; till each in his turn conſented to ſacrifice ſome of his beſt friends to the revenge and reſentment of his colleagues. Cicero was at his Tuſculan villa, when he firſt received the news of the proſcription, and of his being included in it. It was the deſign of the triumvirate to keep it a ſecret, if poſſible, to the moment of execution; in order to ſurpriſe thoſe whom they had deſtined to deſtruction, before they were aware of their danger, or had time to make their eſcape. But ſome of Cicero's friends found means to give him early notice of it; upon which he ſet forward to the ſea-ſide, with a deſign to tranſport himſelf out of the reach of his enemies. There, finding a veſſel ready, he preſently embarked; but the winds being adverſe, and the ſea uneaſy to him, after he had ſailed about two leagues along the coaſt, he was obliged to land, and ſpend the night on ſhore. From thence he was forced, by the importunity of his ſervants, on board again; but was ſoon afterwards obliged to land at a country-ſeat of his a mile from the ſhore, weary of life, and declaring he was reſolved to die in that country which he had ſo often ſaved. Here he ſlept ſoundly for ſome time, till his ſervants once more forced him away in a litter towards the ſhip, having heard that he was purſued by Antony's aſſaſſins. They were ſcarce departed when the aſſaſſins arrived at his houſe; and, perceiving him to be fled, purſued him immediately towards the ſea, and overtook him in a wood that was near the ſhore. Their leader was one Popilius Lenas, a tribune of the army, whoſe life Cicero had formerly defended and ſaved. As ſoon as the ſoldiers appeared, the ſervants prepared to defend their maſter's life at the hazard of their own; but Cicero commanded them to ſet him down and make no reſiſtance. They ſoon cut off his head and his hands, returning with them to Rome as the moſt agreeable preſent to their cruel employer. Antony, who was than at Rome, received them with extreme joy, rewarding the murderer with a large ſum of money, and ordering the head to be fixed upon the roſtra between the two hands: a ſad ſpectacle to the city; and what drew tears from every eye, to ſee thoſe mangled members which uſed to exert themſelves ſo gloriouſly from that place in defence of the lives, the fortunes, and the liberties of the Roman people, ſo lamentably expoſed to the ſcorn of ſycophants and traitors. The deaths of the reſt, ſays an hiſtorian of that age, cauſed only a private and particular ſorrow; but Cicero's an univerſal one. It was a triumph over the republic itſelf; and ſeemed to confirm and eſtabliſh the perpetual ſlavery of Rome.

A modern writer,* however, is of opinion, that "poſterity has been too much ſeduced by the name of Cicero, and that better citizens were ſacrificed to the jealouſy of the triumvirs without exciting ſo much indignation. If we take an impartial ſurvey of Cicero's conduct and principles, avowed in his own epiſtolary correſpondence, and trace him through all the labyrinths of his contradictory letters, we ſhall find more to blame than to admire; and diſcover, that the deſire of advancing his fortunes, and making himſelf a name, were, from his outſet in life, the only objects he had in view. The good of his country, and the dictates of ſtern ſteady virtue, were not, as in Brutus and Cato, the conſtant ſprings of his actions. The misfortunes that befel him after his conſulſhip, developed his character, and ſhowed him in his true colours; from that time to his death, puſillanimity, irreſolution, and unworthy repining, tainted his judgment, and perplexed every ſtep he wiſhed to take. He flattered Pompey and cringed to Cæſar, while in his private letters he abuſed them both alternately. He acknowledges in a letter to his friend, the time-ſerving Atticus, that, although he was at preſent determined to ſupport the cauſe of Rome and liberty, and to bear misfortune like a philoſopher, there was one thing, which would gain him over to the triumvirs, and that was their procuring for him the vacant augurſhip; ſo pitiful was the bribe to which he would have ſacrified his honour, his opinion, and the commonwealth. By his wavering imprudent conduct, he contributed greatly towards its deſtruction. After reproaching the conſpirators for leaving him out of the ſecret, and loading them with the moſt flattering compliments on their delivering Rome from Cæſar's tyranny, he calls Caſca an *aſſaſſin*, to pay his court to the boy Octavius, by whom he was completely duped. His praiſes of this triumvir are in the higheſt ſtrain of panegyric. Mark Antony well knew, that the virulent abuſe which Cicero was continually pouring out againſt him, was not an effuſion of patriotic zeal or virtuous indignation, but merely the ebullitions of perſonal hatred. He therefore cauſed Cicero to be killed, as an angry man that has been ſtung ſtamps on a venomous animal that comes within reach of his foot. The cloak he threw over the body of Brutus, and the ſpeech he pronounced at the ſight of that hero when dead, differ widely from the threatment he gave the remains of Cicero; and ſhow, that he made

* *Swinburne, Travels in Sicily*, vol. ii. p. 502.

made a diſtinction between a Roman who oppoſed him from political motives, and one whoſe enmity aroſe from private pique."

Cicero's death happened on the 7th of December, in the 64th year of his age, about ten days from the ſettlement of the firſt triumvirate; and with him expired the ſhort empire of eloquence among the Romans. As an orator he is thus characteriſed by Dr Blair. "In all his orations his art is conſpicuous. He begins commonly with a regular exordium; and with much addreſs prepoſſeſſes the hearers, and ſtudies to gain their affections. His method is clear, and his arguments are arranged with exact propriety. In a ſuperior clearneſs of method, he has an advantage over Demoſthenes. Every thing appears in its proper place. He never tries to move till he has attempted to convince; and in moving, particularly the ſofter paſſions, he is highly ſucceſsful. No one ever knew the force of words better than Cicero. He rolls them along with the greateſt beauty and magnificence; and in the ſtructure of his ſentences is eminently curious and exact. He is always full and flowing, never abrupt. He amplifies every thing; yet though his manner is generally diffuſe, it is often happily varied and accommodated to the ſubject. When an important public object rouſed his mind, and demanded indignation and force, he departs conſiderably from that looſe and declamatory manner to which he at other times is addicted, and becomes very forcible and vehement. This great orator, however, is not without his defects. In moſt of his orations there is too much art, even carried to a degree of oſtentation. He ſeems often deſirous of obtaining admiration rather than of operating conviction. He is ſometimes, therefore, ſhowy rather than ſolid, and diffuſe where he ought to have been urgent. His ſentences are always round and ſonorous. They cannot be accuſed of monotony, ſince they poſſeſs variety of cadence; but from too great a fondneſs for magnificence, he is on ſome occaſions deficient in ſtrength. Though the ſervices which he had performed to his country were very conſiderable, yet he is too much his own panegyriſt. Ancient manners, which impoſed fewer reſtraints on the ſide of decorum, may in ſome degree excuſe, but cannot entirely juſtify, his vanity."

CICHORIUM, SUCCORY: A genus of the polygamia æqualis order, belonging to the ſyngeneſia claſs of plants; and in the natural method ranking under the 49th order, *Compoſitæ*. The receptacle is a little paleaceous; the calyx calyculated; the pappus almoſt quinquedentated, and indiſtinctly hairy.

Species. 1. The intybus, or wild ſuccory, grows naturally by the ſides of roads, and in ſhady lanes, in many places of Britain. It ſends out long leaves from the roots, from between which the ſtalks ariſe, growing to the height of three or four feet, and branching out into ſmaller ones. The flowers come out from the ſides of the ſtalks, and are of a fine blue colour. They are ſucceeded by oblong ſeeds covered, incloſed in a down. 2. The ſpinoſum, with a prickly forked ſtalk, grows naturally on the ſea-coaſts in Sicily, and the iſlands of the Archipelago. This ſends out from the root many long leaves which are indented on their edges, and ſpread flat on the ground; from between theſe ariſe the ſtalks, which have very few leaves, and thoſe are ſmall and entire: theſe ſtalks are divided in forks upward, and from between them come out the flowers, which are of a pale blue colour, and are ſucceeded by ſeeds ſhaped like thoſe of the common ſorts. The ends of the ſmaller branches are terminated by ſtar like ſpines which are very ſharp. 3. The endivia, or ſuccory, with broad crenated leaves, differs from the wild ſort in its duration, being only annual, whereas the wild ſort is perennial.

Culture, &c. The laſt ſpecies may be conſidered both as an annual and biennial plant. If ſown early in the ſpring, or even any time before the beginning of June, the plants very commonly fly up to ſeed the ſame ſummer, and periſh in autumn. If ſown in June and July, they acquire perfection in autumn, continue till the next ſpring, then ſhoot up ſtalks for flower and ſeed, and ſoon after periſh. The inner leaves are the uſeful parts. Theſe when blanched white to render them criſp and tender, and reduce them from their natural ſtrong taſte to an agreeably bitter one, are then fit for uſe. They are valued chiefly as ingredients in autumn and winter ſalads, and for ſome culinary uſes. The principal ſeaſon of them is from the latter end of Auguſt till Chriſtmas or longer, according to the temperature of the ſeaſon; though the curled kinds generally reſiſt the froſts of our ordinary winters, and remain in tolerable perfection till March or April. They are propagated by ſeeds ſown in an open ſpot of ground, from which the plants are to be removed into open beds or borders, where they may remain to grow to full ſize. The ſeaſon for ſowing theſe ſeeds is from the beginning of June to the end of July; and to have a regular ſupply of plants, it is proper to perform three different ſowings at about three weeks or a month's interval. The great excellence of endive is to have its inner leaves finely whitened or blanched. They naturally incline to whiteneſs of themſelves; but this may be greatly improved by art when the plants are arrived at full growth. Different methods are practiſed for this purpoſe, ſuch as tying the leaves together; or taking up the plants, and replanting them directly, almoſt to their tops, in ridges of dry earth, laying boards or tiles flat-ways on the top of the plants; but the firſt is found to anſwer the purpoſe moſt effectually. The proper time for beginning this work is, when the leaves are almoſt full grown; that is, when they are ſo far advanced that the leaves of the different plants interfere with one another, and their hearts are full and buſhy: but they are not all to be tied up at once, only a due ſupply of the largeſt and forwardeſt plants, once every ten or twelve days according to the demand; for the blanching takes up about three weeks. Blanching in ridges of earth, however, is ſometimes practiſed in winter when a ſevere froſt is ſetting in; for by burying them in the earth almoſt to their tops, they are more out of the power of the cold. In November, or December, when hard weather is approaching, let a piece of light ground, that lies warm, be trenched up in one or more ſharp ridges, two or three feet wide at bottom, and near as much in height, ſideways to the ſun, making the ſides as ſteep as poſſible, that the wet may run quickly off; then, in a dry day, take up a quantity of your full grown plants, with their roots entire, and diveſting them of damaged leaves, gather each plant cloſe in your hand, placing them horizontally in the ſunny ſide of the ridge of earth almoſt to their tops, and about ſix or eight inches each way diſtant. In ſevere froſt, it will be proper to beſtow ſome covering on the plants.

Medicinal uſes. The roots and leaves of the wild ſuccory, and ſeeds of the endive, are articles of the materia medica. The firſt has a moderately bitter taſte, with ſome degree of roughneſs; the leaves are ſomewhat leſs bitter; and the darker coloured and more deeply jagged they are, the bitterer is their taſte. Wild ſuccory is an uſeful detergent, aperient, and attenuating medicine, acting without much irritation, tending rather to cool than to heat the body; and, at the ſame time, corroborating the tone of the inteſtines. All the parts of the plant, when wounded, yield a milky ſaponaceous juice. This, when taken in large quantities, ſo as to keep up a gentle diarrhœa, and continued for ſome weeks, has been found to produce excellent effects in ſcorbutic and other chronical diſorders. The qualities of the endive are nearly of the ſame kind. The ſeeds are ranked among the four leſſer cold ones.

CICINDELA, the Sparkler, in zoology, a genus of inſects belonging to the order of coleoptera. The antennæ are ſetaceous; the jaws are prominent; and furniſhed with teeth; the eyes are a little prominent; and the breaſt is roundiſh and marginated. There are 14 ſpecies. The campeſtris, or field-ſparker, is one of the moſt beautiful of the genus. The upper part of its body is of a fine green colour, rough, and rather bluiſh. The under ſide, as alſo the legs and antennæ, are of a ſhot colour, gold and red, of a copperiſh caſt. The eyes are very prominent, and give the head a broad appearance. The thorax is angular, and narrower than the head; which conſtitutes the character of the cicindelæ. It is rough, and of a green colour tinged with gold, as well as the head. The elytra are delicately and irregularly dotted. Each of them has ſix white ſpots, viz. one on the top of the elytrum, at its outward angle: three more along the outward edge, of which the middlemoſt forms a kind of lunula; a fifth, on the middle of the elytra, oppoſite the lunula; and that one is broader, and tolerably round; laſtly, a ſixth, at the extremity of the elytra. There is alſo ſometimes ſeen a black ſpot on the middle of each elytrum, oppoſite to the ſecond white ſpot. The upper lip is alſo white, as is the upper ſide of the jaws, which are very prominent and ſharp. This inſect runs with great ſwiftneſs, and flies eaſily. It is found in dry ſandy places, eſpecially in the beginning of ſpring. In the ſame places its larva is met with, which reſembles a long, ſoft, whitiſh worm, armed with ſix legs, and a brown ſcaly head. It makes a perpendicular round hole in the ground, and keeps its head at the entrance of the hole to catch the inſects that fall into it; a ſpot of ground is ſometimes entirely perforated in this manner. The inſects belonging to this genus are generally very beautiful, and merit the attention of the curious in their microſcopic obſervations; ſome are minute, though not inferior in ſplendor, therefore beſt ſuited for the amuſement. Living ſubjects are ever preferable to dead ones. The larvæ of all this genus live under ground; and are, as well as the perfect inſects, tigers in their nature, attacking and deſtroying all they can overcome.

Plate cxxxviii.

Barbut's Inſects.

CICISBEO, an Italian term, which in its etymology ſignifies a *whiſperer;* which has been beſtowed in Italy both on lovers, and on thoſe who to outward appearance act as ſuch, attending on married ladies with as much attention and reſpect as if they were their lovers. This Italian cuſtom has been ſpoken of very reproachfully by ſome writers: Mr Baretti has taken great pains to vindicate it. He aſcribes it to a ſpirit of gallantry, derived from the ages of chivalry, and much heightened and refined by the revival of the Platonic philoſophy in Italy, about the thirteenth century; and by the verſes of Petrarch in compliment to the beautiful Laura, and his numerous imitators.

CICLUT, or Cicluch, a ſtrong frontier town of Dalmatia, ſituated on the river Norentha, in E. Long. 17. 40. N. Lat. 45. 20. It is ſurrounded with walls built in the ancient manner, and was taken by the Venetians from the Turks in 1694.

CICONES, a people of Thrace near the Hebrus. Ulyſſes at his return from Troy conquered them, and plundered their chief city Iſmarus. They tore to pieces Orpheus for his obſcene indulgencies.

CICUTA, properly ſignifies an hollow intercepted between two knots, of the ſtalks or reeds of which the ancient ſhepherds uſed to make their pipes. It is now, however, generally uſed to ſignify the water hemlock, and alſo the common ſort; but Linnæus has deſcribed the latter under the old name of Conium. See that article.

There are three ſpecies of water-hemlock; the viroſa, the bulbifera, and the maculata. Of theſe the firſt is the only one remarkable, and that for the poiſonous qualities of its roots, which have been often known to deſtroy children who eat them for parſnips.

Cicuta is alſo uſed, chiefly among the ancients, for the juice or liquor expreſſed from the above plant, being the common poiſon wherewith the ſtate criminals at Athens were put to death: Though ſome have ſuggeſted, that the poiſonous draught to which the Athenians doomed their criminals was an inſpiſſated juice compounded of the juice of *cicuta* and ſome other corroſive herbs.

Socrates drank the *cicuta.*—Plato, in his dialogue on the immortality of the ſoul, obſerves, that "The executioner adviſed Socrates not to talk, for fear of cauſing the *cicuta* to operate too ſlowly." M. Petit in his *Obſervationes Miſcellaneæ,* remarks, that this advertiſement was not given by the executioner out of humanity, but to ſave the *cicuta:* for he was only allowed ſo much poiſon *per ann.* which, if he exceeded, he was to furniſh at his own expence. This conſtruction is confirmed by a paſſage in Plutarch: the executioner who adminiſtered the *cicuta* to Phocion not having enough, Phocion gave him money to buy more; obſerving by the way, "that it was odd enough, that at Athens a man muſt pay for every thing, even his own death."

CID (Roderigo Dias le), a Caſtilian officer, who was very ſucceſsful againſt the Moors, under Ferdinand II. king of Caſtile; but whoſe name would hardly have been remembered, if Corneille had not made his paſſion for Chimene the ſubject of an admired tragedy, founded on a ſimple but affecting incident. The Cid is deſperately in love with Chimene, daughter of the Count de Gomes: but he is at variance with the Count; and being challenged by him, kills him in a duel. The conflict between love and honour in the breaſt of Chimene, who at length pardons and marries the Cid, forms the beauty of the piece. He died in 1098.

CIDARIS, in antiquity, the mitre uſed by the Jewiſh high prieſts. The Rabbins ſay, that the bonnet uſed by prieſts in general was made of a piece of linen cloth 16 yards long, which covered their heads like a helmet or turban: and they allow no other difference between the high-prieſt's bonnet and that of other prieſts, than that the one is flatter, and more in the form of a turban; whereas that worn by ordinary prieſts roſe ſomething more in a point.

CIGNANI, (Carlo) an Italian painter, was born at Bologna in 1628; and was the diſciple of Albani. He was eſteemed by pope Clement XI. who nominated him prince of the academy of Bologna, and loaded him with favours. Cignani died at the Forli. 1719. The cupola of la Madona del Fuoco at Forli, in which he repreſented Paradiſe, is an admirable work. His principal pictures are at Rome, Bologna, and Forli.

CIGOLI, or Civoli, the painter. See Civoli.

CILIA, the Eye-lashes. See Anatomy, p. 766. col. i.

CILIATED leaf, among botanical writers, one ſurrounded with parallel filaments ſomewhat like the hairs of the eye-lids.

CILICIA, an ancient kingdom of Aſia, lying between the 36th and 40th degree of north latitude: bounded on the eaſt by Syria, or rather by Mount Amanus, which ſeparates it from that kingdom; by Pamphylia, on the weſt; by Iſauria, Cappadocia, and Armenia Minor, on the north; and by the Mediterranean ſea, on the ſouth. It is ſo ſurrounded by ſteep and craggy mountains, chiefly the Taurus and Amanus, that it may be defended by a handful of reſolute men againſt a numerous army, there being but three narrow paſſes leading into it, commonly called *Pylæ Ciliciæ*, or the gates of Cilicia; one on the ſide of Cappadocia, called the *Paſs of Mount Taurus;* and the other two called the *Paſs of Mount Amanus*, and the *Paſs of Syria*. The whole country was divided by the ancients into Cilicia Aſpera, and Cilicia Campeſtris; the former called by the Greeks *Trachæa* or *Stony*, from its abounding ſo with ſtones; and to this day the whole province is called by the Turks, *Tas Wilcieth*, or *the Stony Province*.

According to Joſephus, Cilicia was firſt peopled by Tarſhiſh the ſon of Javan, and his deſcendents, whence the whole country was named *Tarſus*. The ancient inhabitants were in proceſs of time driven out by a colony of Phœnicians, who, under the conduct of *Cilix*, firſt ſettled in the iſland of Cyprus, and from thence paſſed into the country which, from the leader, they called *Cilicia*. Afterwards, ſeveral other colonies from different nations ſettled in this kingdom, particularly from Syria and Greece; whence the Cilicians in ſome places uſed the Greek tongue, in others the Syriac; but the former greatly corrupted by the Perſian, the predominant language of the country being a dialect of that tongue. We find no mention of the kings of Cilicia after the ſettlement in that country, till the time of Cyrus, to whom they voluntarily ſubmitted, continuing ſubject to the Perſians till the overthrow of that empire; but governed to the time of Artaxerxes Mnemon, by kings of their own nation. After the downfal of the Perſian empire, Cilicia became a province of that of Macedon; and, on the death of Alexander, fell to the ſhare of Seleucus, and continued under his deſcendents till it was reduced to a Roman province by Pompey. As a proconſular province, it was firſt governed by Appius Claudius Pulcher; and after him by Cicero, who reduced ſeveral ſtrong holds on mount Amanus, in which ſome Cilicians had fortified themſelves, and held out againſt his predeceſſor. It was on this occaſion that the diviſion, formerly mentioned, into Trachæa and Campeſtris, took place. The latter became a Roman province; but the former was governed by kings appointed by the Romans, till the reign of Veſpaſian, when the family of Tracondementus being extinct, this part alſo made a province of the empire, and the whole divided into Cilicia *Prima*, Cilicia *Secunda*, and Iſauria; the firſt took in all Cilicia Campeſtris, the ſecond the coaſt of Cilicia Trachæa, and the laſt the inland parts of the ſame diviſion. It is now a province of Aſiatic Turkey; and is called *Caramania*, having been the laſt province of the Caramanian kingdom which held out againſt the Ottoman race.

That part of Cilicia called by the ancients *Cilicia Campeſtris*, was, if we believe Ammianus Marcellinus, one of the moſt fruitful countries of Aſia; but the weſtern part equally barren, though famous, even to this day for an excellent breed of horſes, of which 600 are yearly ſent to Conſtantinople for the ſpecial uſe of the Grand Signior. The air in the inland parts is reckoned wholeſome; but that on the ſea-coaſt very dangerous, eſpecially to ſtrangers.

The rivers of any note are the Pyramus, which riſes on the north ſide of mount Taurus, and empties itſelf into the Mediterranean between Iſſus and Magaraſſus; and the Cydnus, which ſprings from the Antitaurus, paſſes through Tarſus, and diſembogues itſelf into the Mediterranean. This laſt is famous for the rapidity of its ſtream, and the coldneſs of its waters, which proved very dangerous to Alexander the Great.

The Cicilians, if we believe the Greek and Roman hiſtorians, were a rough unpoliſhed race of people, unfair in their dealings, cruel, and liars even to a proverb. In the Roman times, they became greatly addicted to piracy. They firſt began, in the time of the Mithridatic war, to infeſt the neighbouring provinces along with the Pamphylians; and, being emboldened with ſucceſs, they ſoon ventured as far as the coaſts of Greece and Italy, where they took a vaſt number of ſlaves, whom they ſold to the Cypriots and the kings of Egypt and Syria. They were, however, at laſt defeated and entirely ſuppreſſed by Pompey the Great. See *(Hiſtory of)* Rome.

Cilicia Terra, in the natural hiſtory of the ancients, a bituminous ſubſtance improperly called an earth, which, by boiling, became tough like bird-lime, and was uſed inſtead of that ſubſtance to cover the ſtocks of the vines for preſerving them from the worms. It probably ſerved in this office in a ſort of double capacity,

pacity, driving away theſe animals by its nauſeous ſmell, and entangling them if they chanced to get amongſt it.

CILICIUM, in Hebrew antiquity, a ſort of habit made of coarſe ſtuff, formerly in uſe among the Jews in times of mourning and diſtreſs. It is the ſame with what the Septuagint and Hebrew verſions call ſackcloth.

CILLEY, an ancient and famous town of Germany, in the circle Auſtria, and in Upper Carniola. It is the capital of a county of the ſame name, and is ſituated on the river Saan, in E. Long. 15. 45. N. Lat. 46. 28.

CILURNUM, (Notitia;) a town of Britain: thought to be Collerton, or Collerford, in Northumberland; but Walwic, or Scilicheſter, according to Cambden.

CIMA, or SIMA, in architecture, the ſame with Cymatium, or OGEE.

CIMABUE, (Giovani) a renowned painter, born at Florence in 1240, and the firſt who revived the art of painting in Italy. He painted, according to the cuſtom of thoſe times, in freſco and in diſtemper; colours in oil not being then found out. He excelled in architecture as well as in painting; and was concerned in the fabric of Sancta Maria del Fior at Florence: during which employment he died at the age of 60, and left many diſciples.

CIMBRI, an ancient Celtic nation, inhabiting the northern parts of Germany. They are ſaid to have been deſcended from the Aſiatic *Cimmerians*, and to have taken the name of *Cimbri* when they changed their old habitations. When they firſt became remarkable, they inhabited chiefly the peninſula now called *Jutland*, and by the ancients *Cimbrica Cherſoneſus*. About 113 years before Chriſt, they left their peninſula with their wives and children; and joining the Teutones, a neighbouring nation, took their journey ſouthward in queſt of a better country. They firſt fell upon the Boii, a Gauliſh nation ſituated near the Hercynian foreſt. Here they were repulſed, and obliged to move nearer the Roman provinces. The republic being then alarmed at the approach of ſuch multitudes of barbarians, ſent an army againſt them under the conſul Papirius Carbo. On the approach of the Roman army, the Cimbri made propoſals of peace. The conſul pretended to accept it; but having thrown them into a diſadvantageous ſituation, treacherouſly attacked their camp. His perfidy was rewarded as it deſerved; the Cimbri ran to arms, and not only repulſed the Romans, but, attacking them in their turn, utterly defeated them, and obliged the ſhattered remains of their forces to conceal themſelves in the neighbouring foreſts. After this victory the Cimbri entered Tranſalpine Gaul, which they quickly filled with ſlaughter and deſolation. Here they continued five or ſix years, when another Roman army under the conſul Silanus marched againſt them. This general met with no better ſucceſs than Carbo had done. His army was routed at the firſt onſet; in conſequence of which, all Narbonne Gaul was expoſed at once to the ravages of theſe barbarians.

About 105 years before Chriſt, the Cimbri began to threaten the Roman empire itſelf with deſtruction. The Gauls marched from all parts with a deſign to join them, and to invade Italy. The Roman army was commanded by the proconſul Cæpio, and the conſul Mallius; but as theſe two commanders could not agree, they were adviſed to ſeparate, and divide their forces. This advice proved the ruin of the whole army. The Cimbri immediately fell upon a ſtrong detachment of the conſular army commanded by M. Aurelius Scaurus, which they cut off to a man, and made Scaurus himſelf priſoner. Mallius being greatly intimidated by this defeat, deſired a reconciliation with Cæpio, but was haughtily refuſed. He moved nearer the conſul, however, with his army, that the enemy might not be defeated without his having a ſhare in the action. The Cimbri, by this movement, imagining the commanders had made up their quarrel, ſent ambaſſadors to Mallius with propoſals of peace. As they could not help going through Cæpio's camp, he ordered them to be brought before him; but finding they were empowered to treat only with Mallius, he could ſcarce be reſtrained from putting them to death. His troops, however, forced him to confer with Mallius about the propoſals ſent by the barbarians: but as Cæpio went to the conſuls tent againſt his will, ſo he oppoſed him in every thing; contradicted with great obſtinacy, and inſulted him in the groſſeſt manner. The deputies on their return acquainted their countrymen that the miſunderſtanding between the Roman commanders ſtill ſubſiſted; upon which the Cimbri attacked the camp of Cæpio, and the Gauls that of Mallius. Both were forced, and the Romans ſlaughtered without mercy. Eighty thouſand citizens and allies of Rome, with 40,000 ſervants and ſutlers, periſhed on that fatal day. In ſhort, of the two Roman armies only 10 men, with the two generals, eſcaped to carry the news of ſo dreadful a defeat The conquerors deſtroyed all the ſpoil, purſuant to a vow they had made before the battle. The gold and ſilver they threw into the Rhone, drowned the horſes they had taken, and put to death all the priſoners.

The Romans were thrown into the utmoſt conſternation on the news of ſo terrible an overthrow. They ſaw themſelves threatened with a deluge of Cimbri and Gauls, numerous enough to over-run the whole country. They did not, however, deſpair. A new army was raiſed with incredible expedition; no citizen whatever who was fit to bear arms being exempted. On this occaſion alſo, fencing-maſters were firſt introduced into the Roman camp; by which means the ſoldiers were ſoon rendered in a manner invincible. Marius, who was at that time in high reputation on account of his victories in Africa, was choſen commander, and waited for the Cimbri in Tranſalpine Gaul: but they had reſolved to enter Italy by two different ways; the Cimbri over the eaſtern, and the Teutones and other allies over the weſtern Alps. The Roman general therefore marched to oppoſe the latter, and defeated the Ambrones and Teutones with great ſlaughter*. The Cimbri, in the mean time, entered Italy, and ſtruck the whole country with terror. Catullus and Sylla attempted to oppoſe them; but their ſoldiers were ſo intimidated by the fierce countenances and terrible appearance of theſe barbarians, that nothing could prevent their flying before them. The city of Rome was now totally defenceleſs;

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* See *Ambrones* and *Teutones*.

leſs; and, had the Cimbri only marched briſkly forwards, they had undoubtedly become maſters of it; but they waited in expectation of being joined by their allies the Ambrones and Teutones, not having heard of their defeat by Marius, till the ſenate had time to recal him to the defence of his country. By their order he joined his army to that of Catullus and Sylla; and upon that union was declared commander in chief. The Roman army conſiſted of 52,300 men. The cavalry of the Cimbri were no more than 15,000, but their foot ſeemed innumerable; for, being drawn up in a ſquare, they are ſaid to have covered 30 furlongs. The Cimbri attacked the Romans with the utmoſt fury; but, being unaccuſtomed to bear the heats of Italy, they ſoon began to loſe their ſtrength, and were eaſily overcome. But they had put it out of their power to fly; for, that they might keep their ranks the better, they had, like true barbarians, tied themſelves together with cords faſtenened to their belts, ſo that the Romans made a moſt terrible havock of them. The battle was therefore ſoon over, and the whole day employed only in the moſt terrible butchery. An hundred and twenty thouſand were killed on the field of battle, and 60,000 taken priſoners. The victorious Romans then marched to the enemy's camp; where they had a new battle to fight with the women, whom they found more fierce than even their huſband's had been. From their carts and waggons, which formed a kind of fortification, they diſcharged ſhowers of darts and arrows on friends and foes without diſtinction. Then they firſt ſuffocated their children in their arms, and then they put an end to their own lives. The greateſt part of them hanged themſelves on trees. One was found hanging at a cart with two of her children at her heels. Many of the men, for want of trees and ſtakes, tied ſtrings in running knots about their necks, and faſtened them to the tails of their horſes, and the horns and feet of their oxen, in order to ſtrangle themſelves that way; and thus the whole multitude was deſtroyed.

The country of the Cimbri, which, after this terrible cataſtrophe, was left a mere deſart, was again peopled by the Scythians; who, being driven by Pompey out of that vaſt ſpace between the Euxine and the Caſpian ſea, marched towards the north and weſt of Europe, ſubduing all the nations they met with in their way. They conquered Ruſſia, Saxony, Weſtphalia, and other countries as far as Finland, Norway, and Sweden. It is pretended that Wodin their leader traverſed ſo many countries, and endeavoured to ſubdue them, only with a view to excite the people againſt the Romans; and that the ſpirit of animoſity which he had excited operated ſo powerfully after his death, that the northern nations combined to attack it, and never ceaſed their incurſions till it was totally ſubverted.

Plate CXXXVIII.

CIMEX, or Bug, in zoology, a genus of inſects belonging to the order of hemiptera. The roſtrum is inflected. The antennæ are longer than the thorax. The wings are folded together croſs-wiſe; the upper ones are coriaceous from their baſe towards their middle. The back is flat; the thorax margined. The feet are formed for running.

This genus is divided into different ſections, as follows: 1. Thoſe without wings. 2. Thoſe in which the eſcutcheon is extended ſo far as to cover the abdomen and the wings. 3. The coleoptrati, whoſe elytra are wholly coriaceous. 4. Thoſe whoſe elytra are membranaceous; theſe are very much depreſſed like a leaf. 5. In which the thorax is armed on each ſide with a ſpine. 6. Thoſe which are of an oval form, without ſpines on the thorax. 7. In which the antennæ become ſetaceous towards their point. 8. Thoſe of an oblong form. 9. Thoſe whoſe antennæ are ſetaceous, and as long as the body. 10. Thoſe which have their thighs armed with ſpines. 11. Thoſe whoſe bodies are long and narrow. Linnæus enumerates no fewer than 121 ſpecies, to which ſeveral have been added by other naturaliſts. A very peculiar ſpecies was diſcovered by Dr Sparman at the cape, which he has named *Cimex paradoxus*. He obſerved it as at noon-tide he ſought for ſhelter among the branches of a ſhrub from the intolerable heat of the ſun. "Tho' the air (ſays he) was extremely ſtill and calm, ſo as hardly to have ſhaken an aſpen leaf, yet I thought I ſaw a little withered, pale, crumpled leaf, eaten as it were by caterpillars, flittering from the tree. This appeared to me ſo very extraordinary, that I thought it worth my while ſuddenly to quit my verdant bower in order to contemplate it; and I could ſcarcely believe my eyes, when I ſaw a live inſect, in ſhape and colour reſembling the fragment of a withered leaf, with the edges turned up and eaten away, as it were, by caterpillars, and at the ſame time all over beſet with prickles. Nature, by this peculiar form, has certainly extremely well defended and concealed, as it were in a maſk, this inſect from birds and its other diminutive foes: in all probability with a view to preſerve it, and employ it for ſome important office in the ſyſtem of her economy; a ſyſtem with which we are too little acquainted, in general too little inveſtigate, and, in every part of it, can never ſufficiently admire with that reſpect and veneration which we owe to the great Author of nature and Ruler of the univerſe."

The larvæ of bugs only differ from the perfect inſect by the want of wings; they run over plants; grow and change to chryſalids, without appearing to undergo any material difference. They have only rudiments of wings, which the laſt transformation unfolds, and the inſect is then perfect. In the two firſt ſtages they are unable to propagate their ſpecies. In their pefect ſtate, the female, fecundated, lays a great number of eggs, which are often found upon plants, placed one by the ſide of another; many of which, viewed through a glaſs, preſent ſingular varieties of configuration. Some are crowned with a row of ſmall hairs, others have a circular fillet; and moſt have a piece which forms a cap; this piece the larva puſhes off when it forces open the egg. Releaſed by nature from their priſon, they overſpread the plant on which they feed, extracting, by the help of the roſtrum, the juices appropriated for their nouriſhment; even in this ſtate, the larvæ are not all ſo peaceably inclined; ſome are voracious in an eminent degree, and ſpare neither ſex nor ſpecies they can conquer. In their perfect ſtate they are mere cannibals, glutting themſelves with the blood of animals; they deſtroy caterpillars, flies, and even the coleopterous tribe, whoſe hardneſs of elytra one would imagine was proof againſt

gainſt their attacks, have fallen an eaſy prey to the ſharp piercing nature of the roſtrum of the bug, and the uncautious naturaliſt may experience a feeling ſeverity of its nature. The cimex lectularius or houſe-bug, is particularly acceptable to the palate of ſpiders in general, and is even ſought after by wood-bugs; which is not indeed ſurprizing, when the general voracity of this genus is conſidered.

The methods of expelling houſe-bugs are various, as oil of turpentine, the ſmoke of corn-mint, of narrow-leaved wild creſs, of herb-robert, of the reddiſh agaric, of muſtard, Guinea pepper, peats or turf, *&c.* (See alſo Bug and Cimicifuga).

CIMICIFUGA, in botany: A genus of the polyandria order, belonging to the diœcia claſs of plants. The male calyx is almoſt pentaphyllous; there is no corolla; the ſtamina are 20 in number; the female calyx is almoſt pentaphyllous; no corolla; the ſtamina 20, and barren; the capſules from 4 to 7, polyſpermous. Meſſerſchmidius, in the Iſis Siberica, gives it the following character and name: *Cimicifuga fœtida*, with the leaves of the herb Chriſtopher, bearing a thyrſis of yellow male flowers with a red villous ſeed, the ſeed-veſſel in form of a horn. This whole plant ſo reſembles the actea racemoſa, that it is difficult to diſtinguiſh them when not in flower; but in the fructification it greatly differs from it, the cimicifuga having four piſtils, the actea but one. Jacquin ſays, that it is a native of the Carpathian mountains. It has obtained the name of *cimicifuga*, or *bugbane*, both in Siberia and Tartary, from its property of driving away thoſe inſects; and the botaniſts of thoſe parts of Europe which are infeſted by them, have long deſired to naturaliſe it in their ſeveral countries. Gmelin mentions, that in Siberia the natives alſo uſe it as an evacuant in dropſy; and that its effects are violently emetic and draſtic.

CIMMERII, anciently a people near the Palus Mæotis. They invaded Aſia Minor 1284 years before Chriſt, and ſeized upon the kingdom of Cyaxares. After they had been maſters of the country for 28 years, they were driven back by Alyattes king of Lydia.—The name alſo of another nation on the weſtern coaſt of Italy. The country which they inhabited was ſuppoſed to be ſo gloomy, that to expreſs a great obſcurity the expreſſion of *Cimmerian darkneſs* has proverbially been uſed; and Homer, according to Plutarch, drew his images of hell and Pluto from the gloomy and diſmal country where they dwelt.

CIMMERIUM, (anc. geog.) a town at the mouth of the Palus Mæotis; from which the Boſphorus Cimmerius is named; that ſtrait which joins the Euxine and the Palus Mæotis. *Cimmerii* was the name of the people, (Homer): and here ſtood the Promontorium Cimmerium, (Ptolemy); and hence probably the modorn appellation *Crim*.

Cimmerium, (anc. geog.) a place near Baiae, in Campania, where formerly ſtood the cave of the ſibyl. The people were called *Cimmerii*; who living in ſubterraneous habitations, from which they iſſued in the night to commit robberies and other acts of violence, never ſaw the light of the ſun (Homer). To give a natural account of his fable, Feſtus ſays, there was a valley ſurrounded with a pretty high ridge, which precluded the morning and evening ſun.

CIMOLIA terra, in natural hiſtory; a name by which the ancients expreſſed a very valuable medicinal earth; but which latter ages have ſuppoſed to be on other than our tobacco-pipe clay and fuller's earth.

The cimolia terra of the ancients was found in ſeveral of the iſlands of the Archipelago; particularly in the iſland of Cimolus, from whence it has its name. It was uſed with great ſucceſs in the eryſipelas, inflammations, and the like, being applied by way of cataplaſm to the part. They alſo uſed, as we do, what we call *cimolia*, or fuller's earth, for the cleanſing of clothes. This earth of the ancients, though ſo long diſregarded, and by many ſuppoſed to be loſt, is yet very plentiful in Argentiere (the ancient Cimolus), Spanto, and many of thoſe iſlands. It is a marl of a lax and crumbly texture, and a pure bright white colour, very ſoft to the touch. It adheres firmly to the tongue; and, if thrown into water, raiſes a little hiſſing and ebullition, and moulders to a fine powder. It makes a conſiderable efferveſcence with acids, and ſuffers no change of colour in the fire. Theſe are the characters of what the ancients called ſimply *terra cimolia*: but beſides this, they had, from the ſame place, another earth which they called by the ſame general name, but diſtinguiſhed by the epithet purple, *purpureſcens*. This they deſcribed to be fattiſh, cold to the touch, of a mixed purple colour, and nearly as hard as a ſtone. And this was evidently the ſubſtance we call *ſteatites*, or the *ſoap-rock*; common in Eglannd, and alſo in the iſland of Argentiere, or Cimolus.

Cimolia Alba, the officinal name of the earth of which tobacco-pipes is made. Its diſtinguiſhing characters are, that it is a denſe, compact, heavy earth, of a dull white colour, and very cloſe texture; it will not eaſily break between the fingers, and ſlightly ſtains the ſkin in handling. It adheres firmly to the tongue; melts very ſlowly in the mouth, and is not readily diffuſible in water. It is found in many places. That of the iſle of Wight is much eſteemed for its colour. Great plenty of it is found near Pole in Dorſetſhire and Wedenſbury in Staffordſhire, England.

Cimolia Nigra, is of a dark lead colour, hard, dry, and heavy; of a ſmooth compact texture, and not viſcid: it does not colour the hands; crumbles when dry; adheres to the tongue; diffuſes ſlowly in water; and it is not acted upon by acids. It burns perfectly white, and acquires a conſiderable hardneſs. The chief pits for this clay, in Britain, are near Northampton, where it is uſed in the manufacture of tobacco-pipes. It is alſo mixed with the critche clay of Derbyſhire, in the proportion of one part to three, in the manufacture of the hard reddiſh brown ware.

CIMOLUS, (anc. geog.) one of the Cyclades, now called *Argentiere*.

CIMON, an Athenian, ſon of Miltiades and Hegiſipyle. He was famous for his debaucheries in his youth, and the reformation of his morals when arrived to years of diſcretion. He behaved with great courage at the battle of Salamis, and rendered himſelf popular by his munificence and valour. He defeated the Perſian fleet, took 200 ſhips, and totally routed their land army, the very ſame day, A. U. C. 284. The money that he obtained by his victories was not applied for his own private uſe, but with it he fortified and embelliſhed the city. He ſome time after loſt all his popularity, and was baniſhed by the Athenians, who declared war againſt the Lacedæmonians. He was recalled from his exile; and at his return he made a reconciliation between Lacedæmon and his countrymen. He was afterwards appointed to carry on the war againſt Perſia in Egypt and Cyprus, with a fleet of 200 ſhips, and on the coaſt of Aſia he gave battle to the enemy, and totally ruined their fleet, A. U. C. 304. He died as he was beſieging the town of Citium in Cyprus. He may be called the laſt of the Greeks whoſe ſpirit and boldneſs defeated the armies of the barbarians. He was ſuch an inveterate enemy to the Perſian power, that he formed a plan of totally deſtroying it; and in his wars he had ſo reduced the Perſians, that they promiſed in a treaty not to paſs the Chelidonian iſlands with their fleet, or to approach within a day's journey of the Grecian ſeas. See ATTICA.

CINALOA, a province of Mexico in South America, abounding in corn, cattle, and cotton; and rendered extremely pictureſque, by a number of beautiful caſcades of clear water that fall down from the mountains. It lis on the eaſtern coaſt of the ſea of California, and has a town of the ſame name, ſituated in N. Lat. 26°.

CINARA, in botany, the ARTICHOKE. See CYNARA.

CINCHONA, in botany, a genus of the monogynia order, belonging to the pentandria claſs of plants; and in the natural method ranking with theſe plants, the order of which is doubtful. The corolla is funnelſhaped, with a woolly ſummit; the capſule inferior, bilocular, with a parallel partition. Linnæus deſcribes two ſpecies: 1. The corymbifera, corymbbearing cinchona, or white Peruvian bark, with oblong lanceolate leaves and axillary corymbs; and, 2. The officinalis, or coloured Peruvian bark, with elliptic leaves, downy underneath, and the leaves of the corolla woolly. Both ſpecies are natives of Peru, where the trees attain the height of 15 to 20 feet. The former particularly abounds in the hilly parts of Quito, growing promiſcuouſly in the foreſts, and is ſpontaneouſly propagated from its ſeeds. Both ſorts have alſo been found in the province of Santa Fe.

The bark has ſome odour, to moſt people not unpleaſant, and very perceptible in the diſtilled water, in which floating globules, like eſſential oil, have been obſerved. Its taſte is bitter and aſtringent, accompanied with a degree of pungency, and leaving a conſiderably laſting impreſſion on the tongue.

According to ſome, the Peruvians learned the uſe of the bark by obſerving certain animals affected with intermittents inſtinctively led to it; while others ſay, that a Peruvian having an ague, was cured by happening to drink of a pool which, from ſome trees having fallen into it, taſted of cinchona; and its uſe in gangrene is ſaid to have originated from its curing one in an aguiſh patient. About the year 1640, the lady of the Spaniſh viceroy, the Comitiſſa del Cinchon, was cured by the bark, which has therefore been called *Cortex* or *Pulvis Comitiſſæ, Cinchona, Cinachina*, or *Chinchina, Kinakina* or *Kinkina, Quinaquina* or *Quinquina*; and from the intereſt which the Cardinal de Lugo and the Jeſuit fathers took in its diſtribution, it has been called *Cortex* or *Pulvis Cardinalis de Lugo, Jeſuiticus, Patrum, &c.*

On its firſt introduction into Europe, it was reprobated by many eminent phyſicians; and at different periods long after, it was conſidered a dangerous remedy; but its character, in proceſs of time, became very univerſally eſtabliſhed. For a number of years, the bark which is rolled up into ſhort thick quills, with a rough coat, and a bright cinnamon colour in the inſide, which broke brittle, and was ſound, had an aromatic flavour, a bitteriſh aſtringent taſte, with a degree of aromatic warmth, was eſteemed the beſt; though ſome eſteemed the large pieces as of equal goodneſs. During the time of the late war, in the year 1779, the Huſſar frigate took a Spaniſh ſhip, loaded principally with Peruvian bark, which was much larger, thicker, and of a deeper reddiſh colour than the bark in common uſe. Soon after it was brought to London, it was tried in St Bartholomew's Hoſpital, and in other hoſpitals about town, and was ſaid to be more efficacious than the quill bark. This put practitioners on examining into the hiſtory of the bark, on trying experiments with it, and on making comparative trials of its effects with thoſe of the bark in common uſe on patients labouring under intermittent complaints. In July 1782, Dr William Saunders publiſhed an account of this red bark; in which he ſays, that the ſmall quill bark uſed in England, is either the bark of young trees, or of the twigs or branches of the old ones; and that the large bark, called the *red bark* from the deep colour, is the bark of the trunk of the old trees: and he mentions a Mr Arnot, who himſelf gathered the bark from the trees in Peru; and Monſ. Condaminé, who gives an account of the tree in the Memoirs of the Academy of Sciences at Paris in the year 1738; who both ſay, that taking the bark from an old tree effectually kills it; but that the moſt of the young trees which are barked, recover, and continue healthy; and that for theſe reaſons the Spaniards now barked the younger trees for foreign markets, though they ſtill imported into Spain ſome of the bark of the old trees, which they eſteemed to be much more efficacious than what was got from the young. From theſe accounts Dr Saunders concludes, that the large red bark brought to London in the year 1779 was of the ſame kind as that uſed by Sydenham and Morton, as it anſwers to the deſcription of the bark uſed in their time, which is given by Dale and other writers on the materia medica, who were their contemporaries. Dr Saunders ſays, that it is not only ſtronger and more reſinous, but likewiſe more efficacious and certain in its effect, than the common bark, and had cured many agues after the other had failed.

A ſpecies of cinchona has alſo been diſcovered in the Weſt India iſlands, particularly in Jamaica: It is accurately deſcribed by Dr Wright, under the title of *Cinchona Jamaicenſis*, in a paper publiſhed in the Philoſophical Tranſactions. In Jamaica it is called the *ſea-ſide beech*, and grows from 20 to 40 feet high. The white, furrowed, thick outer bark is not uſed; the dark-brown inner bark has the common flavour, with a mixed kind of a taſte, at firſt of horſe-radiſh and ginger, becoming at laſt bitter and aſtringent. It ſeems to give out more extractive matter than the cinchona officinalis. Some of it was imported from St. Lucia, in conſequence of its having been uſed with advantage in the army and navy during the laſt war; and it has lately been treated of at conſiderable length by

Dr Kentiſh, under the title of *St Lucia bark*. The freſh bark is found to be conſiderably emetic and cathartic, which properties it is ſaid to loſe on drying.

The pale and the red are chiefly in uſe in Britain. The pale is brought there in pieces of different ſizes, either flat or quilled, and the powder is rather of a lighter colour than that of cinnamon. The red is generally in much larger, thicker, flattiſh pieces, but ſometimes alſo in the form of quills, and its powder is reddiſh like that of Armenian bole. As already obſerved, it is much more reſinous, and poſſeſſes the ſenſible qualities of the cinchona in a much higher degree than the other ſorts; and the more nearly the other kinds reſemble the red bark, the better they are now conſidered. The red bark is heavy, firm, ſound, and dry; friable between the teeth; does not ſeparate into fibres; and breaks, not ſhivery, but ſhort, cloſe, and ſmooth. It has three layers: the outer is thin, rugged, of a reddiſh brown colour, but frequently covered with moſſy matter: the middle is thicker, more compact, darker coloured, very reſinous, brittle, and yields firſt to the peſtle: the inmoſt is more woody, fibrous, and of a brighter red.

The Peruvian bark yields its virtues both to cold and boiling water; but the decoction is thicker, gives out its taſte more readily, and forms an ink with a chalybeate more ſuddenly than the freſh cold infuſion. This infuſion, however, contains at leaſt as much extractive matter, but more in a ſtate of ſolution; and its colour, on ſtanding ſome time with the chalybeate, becomes darker, while that of the decoction becomes more faint. When they are of a certain age, the addition of a chalybeate renders them green; and when this is the caſe, they are found to be in a ſtate of fermentation, and effete. Mild or cauſtic alkalies, or lime, precipitate the extractive matter, which in the caſe of the cauſtic alkali is rediſſolved by a farther addition of the alkali. Lime-water precipitates leſs from a freſh infuſion than from a freſh decoction; and in the precipitate of this laſt ſome mild earth is perceptible. The infuſion is by age reduced to the ſame ſtate with the freſh decoction, and then they depoſite nearly an equal quantity of mild earth and extractive matter; ſo that lime-water, as well as a chalybeate, may be uſed as a teſt of the relative ſtrength and periſhable nature of the different preparations, and of different barks. Accordingly cold infuſions are found by experiments to be leſs periſhable than decoctions; infuſions and decoctions of the red bark than thoſe of the pale; thoſe of the red bark, however, are found by length of time to ſeparate more mild earth with the lime-water, and more extracted matter. Lime-water, as precipitating the extracted matter, appears an equally improper and diſagreeable menſtruum.

Water is found to ſuſpend the reſin by means of much leſs gum than has been ſuppoſed. Rectified ſpirit of wine extracts a bitterneſs, but no aſtringency, from a reſiduum of 20 affuſions of cold water; and water extracts aſtringency, but no bitterneſs, from the reſiduum of as many affuſions of rectified ſpirit. The reſidua in both are inſipid.

From many ingenious experiments made on the Peruvian bark by Dr Irvine, which are now publiſhed in a diſſertation which gained the prize-medal given by the Harveian Society of Edinburgh for 1783, the power of different menſtrua, as acting upon Peruvian bark, is aſcertained with greater accuracy than had before been done: and it appears, that with reſpect to comparative power, the fluids after mentioned act in the order in which they are placed.

Dulcified ſpirit of vitriol.
Cauſtic ley.
French brandy.
Rheniſh wine.
Soft water.
Vinegar and water.
Dulcified ſpirit of nitre.
Mild volatile alkali.
Rectified ſpirit of wine.
Mild vegetable alkali.
Lime-water.

The antiſeptic powers of vinegar and bark united are double the ſum of thoſe taken ſeparately. The aſtringent power of the bark is increaſed by acid of vitriol; the bitter taſte is deſtroyed by it.

The officinal preparations of the bark are, 1. The powder: of this, the firſt parcel that paſſes the ſieve being the moſt reſinous and brittle layer, is the ſtrongeſt. 2. The extract: the watery and ſpirituous extract conjoined form the moſt proper preparations of this kind. 3. The reſin: this cannot perhaps be obtained ſeparate from the gummy part, nor would it be deſirable. 4. Spirituous tincture: this is beſt made with proof ſpirit. 5. The decoction: this preparation, tho' frequently employed, is yet in many reſpects inferior even to a ſimple watery infuſion.

The beſt form is that of powder; in which the conſtituent parts are in the moſt effectual proportion. The cold infuſion, which can be made in a few minutes by agitation, the ſpirituous tincture, and the extract, are likewiſe proper in this reſpect. For covering the taſte, different patients require different vehicles; liquorice, aromatics, acids, port-wine, ſmall beer, porter, milk, butter-milk, &c. are frequently employed; and thoſe who diſlike the taſte of the bark itſelf, vary in their accounts to which the preference is due; or it may be given in form of electuary with currant-jelly, or with brandy or rum.

Practitioners have differed much with regard to the mode of operation of the Peruvian bark. Some have aſcribed its virtues entirely to a ſtimulant power. But while the ſtrongeſt and moſt permanent ſtimuli have by no means the ſame effect with bark in the cure of diſeaſes, the bark itſelf ſhows hardly any ſtimulant power, either from its action on the ſtomach, or on other ſenſible parts to which it is applied. From its action on dead animal fibres, there can be no doubt of its being a powerful aſtringent; and from its good effects in certain caſes of diſeaſe, there is reaſon to preſume that it is a ſtill more powerful tonic. To this tonic power ſome think that its action as an antiſeptic is to be entirely attributed: but that, independently of this, it has a very powerful effect in reſiſting the ſeptic proceſs to which animal ſubſtances are naturally ſubjected, appears beyond all diſpute, from its effects in reſiſting putrefaction, not only in dead animal ſolids, but even in animal fluids, when entirely detached from the living body.

But although it be admitted that the Peruvian bark acts powerfully as an aſtringent, as a tonic, and as an antiſeptic; yet theſe principles will by no means explain all the effects derived from it in the cure of diſeaſes. And accordingly, from no artificial combination in which theſe powers are combined, or in which they exiſt even in a higher degree, can the good conſequences reſulting from Peruvian bark be obtained. Many practitioners, therefore, are diſpoſed to view it as a ſpecific. If by a ſpecific we mean an infallible remedy, it cannot indeed be conſidered as intitled to that appellation; but in as far as it is a very powerful remedy, of the operation of which no ſatisfactory explanation has yet been given, it may with great propriety be denominated a ſpecific. But whatever its mode of operation may be, there can be no doubt that it is daily employed with ſucceſs in a great variety of different diſeaſes.

It was firſt introduced, as has already been ſaid, for the cure of intermittent fevers; and in theſe, when properly exhibited, it rarely fails of ſucceſs. Practitioners, however, have differed with regard to the beſt mode of exihibition; ſome prefer giving it juſt before the fit, ſome during the fit, others immediately after it. Some, again, order it in the quantity of an ounce, between the fits; the doſe being the more frequent and larger according to the frequency of the fits; and this mode of exhibition, although it may perhaps ſometimes lead to the employment of more bark than is neceſſary, we conſider as upon the whole preferable, from being beſt ſuited to moſt ſtomachs. The requiſite quantity is very different in different caſes; and in many vernal intermittents it ſeems even hardly neceſſary.

It often pukes or purges, and ſometimes oppreſſes the ſtomach. Theſe, or any other effects that may take place, are to be counteracted by remedies particalarly appropriated to them. Thus, vomiting is often reſtrained by exhibiting it in wine; looſeneſs by combining it with opium; and oppreſſion at ſtomach, by the addition of an aromatic. But unleſs for obviating particular occurrences, it is more ſucceſsful when exhibited in its ſimple ſtate than with any addition; and there ſeems to be little ground for believing that its powers are increaſed by crude ſal ammoniac, or any other additions which have frequently been made.

It is now given, from the very commencement of the diſeaſe, without previous evacuations, which, with the delay of the bark, or under doſes of it, by retarding the cure, often ſeems to induce abdominal inflammation, ſcirrhus, jaundice, hectic, dropſy, &c. ſymptoms formerly imputed to the premature or intemperate uſe of the bark, but which are beſt obviated by its early and large uſe. It is to be continued not only till the paroxyſms ceaſe, but till the natural appetite, ſtrength, and complexion return. Its uſe is then to be gradually left off, and repeated at proper intervals to ſecure againſt a relapſe; to which, however unaccountable, independently of the recovery of vigour, there often ſeems to be a peculiar diſpoſition; and eſpecially when the wind blows from the eaſt. Although, however, moſt evacuants conjoined with the Peruvian bark in intermittents are rather prejudicial than otherwiſe, yet it is of advantage, previous to its uſe, to empty the alimentary canal, particularly the ſtomach; and on this account good effects are often obtained from premiſing an emetic.

It is a medicine which ſeems not only ſuited to both formed and latent intermittents, but to that ſtate of fibre on which all rigidly periodical diſeaſes ſeem to depend; as periodical pain, inflammation, hemorrhagy, ſpaſm, cough, loſs of external ſenſe, &c.

Bark is now uſed by ſome in all continued fevers: at the ſame time attention is paid to keep the bowels clean, and to promote when neceſſary the evacuation of redundant bile; always, however, ſo as to weaken as little as poſſible.

In confluent ſmall-pox, it promotes languid eruption and ſuppuration, diminiſhes the fever through the whole courſe of it, and prevents or corrects putreſcence and gangrene.

In gangrenous ſore throats it is much uſed, as it is externally and internally in every ſpecies of gangrene.

In contagious dyſentery, after due evacuation, it has been uſed by the mouth, and by injection with and without opium.

In all thoſe hemorrhagies called *paſſive*, and which it is allowed all hemorrhagies are very apt to become, and likewiſe in other increaſed diſcharges, it is much uſed; and in certain undefined caſes of hæmoptyſis, ſome allege that it is remarkably effectual when joined with an abſorbent.

It is uſed for obviating the diſpoſition to nervous and convulſive diſeaſes; and ſome have great confidence in it joined with the acid of vitriol, in caſes of phthiſis, ſcrophula, ill-conditioned ulcers, rickets, ſcurvy, and in ſtates of convaleſcence.

In theſe caſes in general, notwithſtanding the uſe of the acid, it is proper to conjoin it with a milk diet.

In dropſy, not depending on any particular local affection, it is often alternated or conjoined with diuretics, or other evacuants; and by its early exhibition after the water is once drawn off, or even begins to be freely diſcharged, a freſh accumulation is prevented, and a radical cure obtained. In obſtinate venereal caſes, particularly thoſe which appear under the form of pains in the bones, the Peruvian bark is often ſucceſsfully ſubjoined to mercury, or even given in conjunction with it.

CINCINNATUS, the Roman dictator, was taken from the plough, to be advanced to the dignity of conſul; in which office he reſtored public tranquillity, and then returned to his rural employments. Being called forth a ſecond time to be dictator, he conquered the enemies of Rome, and, refuſing all rewards, retired to his farm again, after he had been dictator only 16 days. The ſame circumſtance appeared once more in the 80th year of his age. He died 376 years before Chriſt.

Order of CINCINNATUS, or *the Cincinnati*, a ſociety which was eſtabliſhed in America ſoon after the peace, and conſiſts of the generals and officers of the army and navy of the United States. This inſtitution, called after the name of the Roman dictator mentioned in the preceding article, was intended to perpetuate the memory of the revolution, the friendſhip of the officers, and the union of the ſtates; and alſo to raiſe a fund for the relief of poor widows and orphans whoſe huſbands and fathers had fallen during the war, and for their deſcendants. The ſociety was ſubdivided into ſtate ſocieties, which were to meet on the

4th of July, and with other buſineſs depute a number of their members to convene in ſtated general meetings. The members of the inſtitution were to be diſtinguiſhed by wearing a medal, emblematical of the deſign of the ſociety; and the honours and advantages were to be hereditary in the eldeſt male heirs, and, in default of male iſſue, in the collateral male heirs. Honorary members were to be admitted, but without the hereditary advantages of the ſociety, and provided their number ſhould never exceed the ratio of one to four of the officers or their deſcendants. Though the apparent deſigns of this ſociety were harmleſs and honourable, it did not eſcape popular jealouſy. Views of a deeper nature were imputed to the framers; and the inſtitution was cenſured and oppoſed as giving birth to a military nobility, of a dangerous ariſtocratic power, which might ultimately prove ruinous to the liberties of the new empire. But the principal ground of apprehenſion was the ſuppoſed right of inheritance connected with this honour to render it hereditary; which, however, by a new conſtitution, now under conſideration, is propoſed to be altered.

CINCTURE, in architecture, a ring, liſt, or orlo, at the top and bottom of the ſhaft of a column, ſeparating the ſhaft at one end from the baſe, and at the other from the capital.

CINEAS, a Theſſalian, miniſter and friend to Pyrrhus king of Epirus. He was ſent to Rome by his maſter to ſue for a peace, which he, however, could not obtain. He told Pyrrhus that the Roman ſenate was a venerable aſſembly of kings; and obſerved, that to fight with them was to fight againſt another Hydra. He was of ſuch a retentive memory, that the day after his arrival at Rome he could call every ſenator and knight by his name.

CINERITIOUS, an appellation given to different ſubſtances, on account of their reſembling aſhes either in colour or conſiſtence; hence it is that the cortical part of the brain has ſometimes got this epithet.

CINNA, (L. Corn.) a Roman who oppreſſed the republic with his cruelties. He was baniſhed by Octavius for attempting to make the fugitive ſlaves free. He joined himſelf with Marius; and with him at the head of the ſlaves he defeated his enemies, and made himſelf conſul even to a fourth time. He maſſacred ſo many citizens at Rome, that his name became odious; and one of his officers aſſaſſinated him at Ancona, as he was preparing war againſt Sylla.

CINNA, (C. Helvius) a poet intimate with Cæſar. He went to attend the obſequies of Cæſar, and being miſtaken by the populace for the other Cinna, he was torn to pieces.—Alſo a grandſon of Pompey's. He conſpired againſt Auguſtus, who pardoned him, and made him one of his moſt intimate friends. He was conſul A. U. C. 758, and made Auguſtus his heir.

CINNABAR, in natural hiſtory, is either native or factitious.

The *native* cinnabar is an ore of quickſilver, moderately compact, very heavy, and of an elegant ſtriated red colour.

Factitious cinnabar is a mixture of mercury and ſulphur ſublimed, and thus reduced into a fine red glebe. The beſt is of a high colour, and full of fibres like needles. See CHEMISTRY, nº 1404.

The chief uſe of cinnabar is for painting. Although the body is compoſed of ſulphur, which is of a light colour, and mercury which is white as ſilver, it is nevertheleſs of an exceeding ſtrong red colour. Lumps of it are of a deep brown red without brilliancy; but when the too great intenſity of its colour is diminiſhed by bruiſing and dividing it into ſmall parts, (which is a method generally uſed to leſſen the intenſity of all colours), the red of the cinnabar becomes more and more exalted, flame coloured, and exceedingly vivid and brilliant; in this ſtate it is called *vermillion*.

Cinnabar is often employed as an internal medicine. Hoffman greatly recommends it as a ſedative and antiſpaſmodic: and Stahl makes it an ingredient in his *temperant powder*. Other intelligent phyſicians deny that cinnabar taken internally has any medicinal quality. Their opinion is grounded on the inſolubrity of this ſubſtance in any menſtruum. This queſtion concerning its internal utility cannot be decided without further reſearches and experiments; but cinnabar is certainly uſed with ſucceſs to procure a mercurial fumigation, when that method of cure is proper in venereal diſeaſes. For this purpoſe it is burnt in an open fire on red-hot coals, by which the mercury is diſengaged and forms vapours, which, being applied to the body of the diſeaſed perſon, penetrate through the pores of the ſkin, and produce effects ſimilar to thoſe of mercury adminiſtered by friction.

CINNAMON, the bark of two ſpecies of laurus. The true cinnamon is from the Laurus cinnamomum; and the baſe cinnamon, which is often ſold for the true, is from the laurus caſſia. See LAURUS.

CINNAMON-*Water*, is made by diſtilling the bark firſt infuſed in ſpirit of wine, brandy, or white-wine.

Clove-CINNAMON, is the bark of a tree growing in Brazil, which is often ſubſtituted for real cloves.

White CINNAMON, called alſo *Winter's bark*, is the bark of a tree frequent in the iſle of St Domingo, Guadalupe, *&c.* of a ſharp biting taſte like pepper. Some uſe it inſtead of nutmeg; and in medicine it is eſteemed a ſtomachic and antiſcorbutic. See CANELLA.

CINNAMUS, a Greek hiſtorian, wrote a hiſtory of the eaſtern empire, during the reigns of John and Manuel Commenes, from 1118 to 1143. His ſtyle is reckoned the beſt of the modern Greek authors. He died after 1183.

CINNERETH, CINERETH, *Chinnereth*, (Moſes); or *Genneſareth*, (anc. geog.) a lake of the Lower Galilee; called the *Sea of Galilee*, (Matthew); *of Tiberius*, (John). Its name *Genneſareth* is from a ſmall cognominal diſtrict upon it. In breadth 40 ſtadia, in length 140. The water freſh and fit to drink, and abounding in fiſh.

CINQUEFOIL, in botany. See POTENTILLA.

CINQUE-PORTS, five havens that lie on the eaſt part of England, towards France: thus called by way of eminence on account of their ſuperior importance, as having been thought by the kings to merit a particular regard for their preſervation againſt invaſion. Hence they have a particular policy, and are governed by a keeper, with the title of *Lord-warden of the Cinque-ports*.

Cambden tells us, that William the Conqueror firſt appointed a warden of the Cinque-ports: but King John firſt granted them their privileges; and that upon condition they ſhould provide 80 ſhips at their own charge for 40 days, as often as the king ſhould have occaſion in the wars; he being then ſtraitened for a navy to recover Normandy.

The five ports are, Haſtings, Romney, Hythe, Dover, and Sandwich.—Thorn tells us, that Haſtings provided 21 veſſels, and in each veſſel 21 men. To this port belong Seaford, Pevenſey, Hedney, Winchelſey, Rye, Hamine, Wakeſbourn, Creneth, and Forthclipe.—Romney provided five ſhips, and in each 24 men. To this belong Bromhal, Lyde, Oſwarſtone, Dangemares, and Romenhal.—Hythe furniſhed five ſhips, and in each 21 ſeamen. To this belongs Weſtmeath.—Dover the ſame number as Haſtings. To this belong Folkſton, Feverſham, and Marge.—Laſtly, Sandwich furniſhed the ſame with Hythe. To this belong Fordiwic, Reculver, Serre, and Deal.

The privileges granted to them in conſequence of theſe ſervices were very great. Among others, they were each of them to ſend two barons to repreſent them in parliament; their deputies were to bear the canopy over the king's head at the time of his coronation, and to dine at the uppermoſt table in the great hall on his right hand; to be exempted from ſubſidies and other aids; their heirs to be free from perſonal wardſhip, notwithſtanding any tenure; to be impleaded in their own towns, and not elſewhere; not to be liable to tolls, &c.

The Cinque-ports give the following titles: Haſtings, a barony to the ancient family of Huntington: Romney, to the Marſhams: Dover, new barony, to a branch of the York family; formerly a dukedom (now extinct) to the Queenſberry family: Sandwich, an earldom to a branch of the Montagues.

CINTRA, a cape and mountain of Portugal, in the province of Eſtremadura, uſually called the *Rock of Liſbon*. It lies on the north ſide of the entrance of the river Tajo; and there is a town of the ſame name ſituated thereon. W. Long. 10. 15. N. Lat. 59. 0.

CINUS, or Cynus, a famous civilian of Piſtoia in the 14th century. His commentary on the Code was finiſhed in 1313: he alſo wrote on ſome parts of the digeſt. He was no leſs famous for his Italian poems; and is ranked among thoſe who firſt gave graces to the Tuſcan lyric poetry.

CINYRA, in the Jewiſh antiquities, a muſical inſtrument. This, and the Hebrew *cinnor*, which is generally tranſlated *cithera*, *lyra*, or *pſalterium*, are the ſame. It was made of wood, and was played on in the temple of Jeruſalem. Joſephus ſays that the *cinyra* of the temple had ten ſtrings, and that it was touched with a bow. In another place he ſays that Solomon made a great number of them with a precious kind of metal called *electrum*; wherein he contradicts the ſcriptures, which inform us that Solomon's *cinnors* were made of wood.

CINYRAS, (fab. hiſt.) a king of Cyprus, ſon of Paphus. He married Cenchreis, by whom he had a daughter called *Myrrha*. Myrrha fell in love with her father, and in the abſence of her mother ſhe introduced herſelf into his bed by means of her nurſe. Cinyras had by her a ſon called *Adonis*; and when he knew the inceſt he had committed, he attempted to ſtab his daughter, who eſcaped his purſuit and fled to Arabia, where, after ſhe had brought forth, ſhe was changed into a tree which ſtill bears her name. Cinyras, according to ſome, ſtabbed himſelf.

CION, or Cyon, in gardening, a young ſhoot, ſprout, or ſprig, put forth by a tree. Grafting is performed by the application of the cion of one plant upon the ſtock of another. To produce a ſtock of cions for grafting, planting, &c. the gardeners ſometimes cut off the bodies of trees a little above the ground, and only leave a ſtump or root ſtanding: the redundant ſap will not fail next ſpring to put forth a great number of ſhoots. In dreſſing dwarf-trees, a great many cions are to be cut off.

CIOTAT, a ſea-port town of Provence in France; famous for Muſcadine wine. It is ſeated on the bay of Laquea, between Marſeilles and Toulon; and the harbour is defended by a ſtrong fort. E. Long. 5. 30. N. Lat. 43. 10.

CIPHER, or Cypher, one of the Arabic characters or figures uſed in computation, formed thus, 0. See Arithmetic.

Cipher is alſo a kind of enigmatic character, compoſed of ſeveral letters interwoven, which are generally the initial letters of the perſons names for whom the ciphers are intended. Theſe are frequently uſed on ſeals, coaches, and other moveables.—Anciently, merchants and tradeſmen were not allowed to bear arms: in lieu thereof, they bore their cyphers, or the initial letters of their names, artfully interwoven about a croſs; of which we have divers inſtances on tombs, &c. See Devise.

Cipher, denotes likewiſe certain ſecret characters diſguiſed and varied, uſed in writing letters that contain ſome ſecret, not to be underſtood but by thoſe between whom the cipher is agreed on.

De la Guilletiere, in his *Lacedæmon ancient and modern*, endeavours to make the ancient Spartans the inventors of the art of writing in cipher. Their ſcytala, according to him, was the firſt ſketch of this myſterious art: theſe ſcytalæ were two rollers of wood, of equal length and thickneſs; one of them kept by the ephori; the other by the general of the army ſent on any expedition againſt the enemy. Whenſoever thoſe magiſtrates would ſend any ſecret orders to the general, they took a ſlip of parchment, and rolled it very juſtly about the ſcytala which they had reſerved; and in this ſtate wrote their intentions, which appeared perfect and conſiſtent while the parchment continued on the roll: when taken off, the writing was maimed, and without connection: but was eaſily retrieved by the general, upon his applying it to his ſcytala.

Polybius ſays, that Æneas Tactitus, 2000 years ago, collected together 20 different manners of writing ſo as not to be underſtood by any but thoſe in the ſecret; part whereof were invented by himſelf, and part uſed before his time.—Trithemius, Cap. Porta, Vigenere, and P. Niceron, have written expreſsly on the ſubject of *ciphers*.

As the writing in *cipher* is become an art; ſo is the reading or unravelling thereof, called *deciphering*.—The rules of deciphering are different in different languages. By obſerving the following, you will ſoon make out any common cipher written in Engliſh.

1. Obſerve the letters or characters that moſt frequently occur; and ſet them down for the ſix vowels, including *y*; and of theſe the moſt frequent will generally be *e*, and the leaſt frequent *u*.

2. The vowels that moſt frequently come together are *ea* and *ou*.

3. The conſonant moſt common at the ends of words is *s*, and the next frequent *r* and *t*.

4. When two ſimilar characters come together, they are moſt likely to be the conſonants *f*, *l*, or *s*, or the vowels *e* or *o*.

5. The letter that precedes or follows two ſimilar characters is either a vowel, or *l*, *m*, *n*, or *r*.

6. In deciphering, begin with the words that conſiſt of a ſingle letter, which will be either *a*, *I*, *o*, or *&*.

7. Then take the words of two letters, one of which will be a vowel. Of theſe words the moſt frequent are, *an, to, be, by, of, on, or, no, ſo, as, at, if, in, is, it, he, me, my, us, we, am.*

8. In words of three letters there are moſt commonly two conſonants. Of theſe words the moſt frequent are, *the, and, not, but, yet, for, tho', how, why, all, you, ſhe, his, her, our, who, may, can, did, was, are, has, had, let, one, two, ſix, ten, &c.*—Some of theſe, or thoſe of two letters, will be found in every ſentence.

9. The moſt common words of four letters are, *this, that, then, thus, with, when, from, here, ſome, moſt, none, they, them, whom, mine, your, ſelf, muſt, will, have, been, were, four, five, nine,* &c.

10. The moſt uſual words of five letters are, *there, theſe, thoſe, which, were, while, ſince, their, ſhall, might, could, would, ought, three, ſeven, eight,* &c.

11. Words of two or more ſyllables frequently begin with double conſonants, or with a prepoſition; that is, a vowel joined with one or more conſonants. The moſt common double conſonants are *bl, br, dr, fl, fr, gl, gr, ph, pl, pr, ſh, ſb, ſp, ſt, th, tr, wh, wr,* &c. and the moſt common prepoſitions are *com, con, de, dis, ex, im, in, int, mis, per, pre, pro, re, ſub, ſup, un,* &c.

12. The double conſonants moſt frequent at the end of long words are, *ck, ld, lf, mn, nd, ng, rl, rm, rn, rp, rt, ſm, ſt, xt,* &c. and the moſt common terminations are *ed, en, er, es, et, ing, ly, ſon, ſion, tion, able, ence, ent, ment, full, leſs, neſs,* &c.

On Plate CXXXVII.* fig. 7. is given an example of a cipher wrote in arbitrary characters as is commonly practiſed. It will be eaſily deciphered by obſerving the rules: but when the characters are all placed cloſe together, as in the example fig. 8. and as they always ſhould be, the deciphering is much more difficult.

To decipher a writing of this ſort, you muſt firſt look for thoſe characters that moſt frequently occur, and ſet them down for vowels as before. Then obſerve the ſimilar characters that come together; but you muſt remember that two ſuch characters may here belong to two words. You are next to remember the combinations of two or three characters that are moſt frequent; which will be ſome of the words in the ſeventh and eighth of the foregoing rules; and by obſerving the other rules, you will infallibly diſcover, with time and attention, any cipher wrote on theſe principles.

When the words are wrote all cloſe together, if the key to the cipher were to be changed every word, according to a regular method agreed on between the parties, as might be done by either of the methods mentioned in N° II. below, with very little additional trouble, the writing would then be extremely difficult to decipher. The longer any letter wrote in cipher is, the more eaſy it is to decipher, as then the repetitions of the characters and combinations are the more frequent.

The following are the contents of the two foregoing ciphers; in which we have inverted the order of the words and letters, that they who are deſirous of trying their talent at deciphering, may not, inadvertently, read the explanation before the cipher.

enil eno ton dna shtnom elohw eerht, suoidifrep dna leurc o noituac & ecnedrup fo klat lliw uoy: on, rotiart, tcelgen & ecnereſſidni si ti. yltrohs rettel a em dnes ot snaem emoſ dnif rehtie, traeh eht morf semoc ti taht ees em tel &, erom ecaf ym ees ot erad reven ro.

evlewt fo ruoh eht ta thgin siht, ledatic eht fo etag eht erofeb elbmeſſa lliw sdneirf ruo lla. ruoh eht ot lautcnup eb: deraperp llew emoc dna, ytrebil ruoy niager ot, ylevarb eid ro. thgin eht si siht, su sekam rehtie taht, etiuq su seodnu ro.

Contrivances for communicating intelligence by CYPHER.

I. *By means of a pack of cards.* The parties muſt previouſly agree in what manner the cards ſhall be firſt placed, and then how they ſhall be ſhuffled. Thus ſuppoſe the cards are to be firſt placed in the order as hereafter follows, and then ſhuffled by taking off 3 from the top, putting the next 2 over them, and the following 3 under them,* and ſo alternately. Therefore the party who ſends the cipher firſt writes the contents of it on a ſeparate paper, and then copies the firſt 32 letters on the cards, by writing one letter on every card; he then ſhuffles them, in the manner deſcribed, and writes the ſecond 32 letters: he ſhuffles them a ſecond time, and writes the third 32 letters, and ſo of the reſt. An example will make this plain. Suppoſe the letter to be as follows:

I am in full march to relieve you; within| three days I ſhall be with you. If the ene|my in the mean time ſhould make an aſſau|lt, remember what you owe to your countr|y, to your family, and yourſelf. Live with ho|nour, or die with glory.

Order of the cards before
the 1ſt ſhuffle.

Ace ſpade	*i*	*a*	*d*	*u*	*y*	*i*
Ten diamonds	*a*	*l*	*e*	*u*	*l*	
Eight hearts	*m*	*l*	*m*	*o*	*i*	*u*
King ſpades	*i*	*s*	*u*	*m*	*l*	
Nine clubs	*n*	*h*	*l*	*e*	*o*	
Seven diamonds	*f*	*b*	*m*	*r*	*i*	
Nine diamonds	*u*	*e*	*a*	*c*	*t*	*n*
Ace clubs	*l*	*w*	*k*	|*r*	*y*	*i*
Knave hearts	*l*	*s*	*e*	*e*	*a*	*e*
Seven ſpades	*m*	*i*	*a*	*r*	*m*	*w*
Ten clubs	*a*	*i*	*t*	*h*	*e*	*r*
Ten hearts	*r*	*r*	*h*	*o*	*f*	
Queen ſpades	*c*	*h*	*e*	*e*	*i*	
Eight diamonds	*h*	*a*	*h*	*y*	*w*	
Eight clubs	*t*	*y*	*o*	*o*	*o*	*l*
Seven hearts	*o*	*y*	*a*	*o*	*h*	*o*
Queen clubs	*r*	*o*	*n*	*u*	*y*	*h*
Nine ſpades	*e*	*u*	*i*	*y*	*f*	*y*
King hearts	*l*	*e*	*t*	*e*	*u*	*o*

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* In Vol. IV.

* By ſhuffling the cards in this manner, there will remain only 2 to put under at laſt.

Cipher.

Queen diamonds	*i*	*d*	*s*	*o*	*e*	
Eight ſpades	*e*	*i*	*n*	*w*	*s*	*o*
Knave clubs	*v*	*f*	*a*	*n*	*t*	*g*
Seven clubs	*e*	*t*	*s*	*l*	*y*	
Ace hearts	*y*	*r*	*e*	*b*	*r*	
Nine hearts	*o*	*l*	*n*	*w*	*o*	*t*
Ace diamonds	*u*	*h*	*s*	*t*	*&*	*d*
Knave ſpades	*w*	*l*	*m*	*a*	*l*	
Ten ſpades	*i*	*e*	*y*	*t*	*r*	*r*
King diamonds	*t*	*t*	*i*	*b*	*a*	*r*
Queen hearts	*h*	*h*	*m*	*m*	*u*	
King clubs	*i*	*n*	*a*	*t*	*h*	
Knave diamonds	*n*	*e*	*u*	*r*	*o*	

The perſon that receives theſe cards firſt places them in the order agreed on, and tranſcribes the firſt letter on every card. He then ſhuffles them, according to order, and tranſcribes the ſecond letter on each card. He ſhuffles them a ſecond time, and tranſcribes the third letters: and ſo of the reſt.

If the cards were to be ſhuffled the ſecond time by three and fours, the third time by two and fours, *&c.* it would make the cipher ſtill more difficult to diſcover: though as all ciphers depend on the combination of letters, there are ſcarce any that may not be deciphered with time and pains; as we ſhall ſhow further on. Thoſe ciphers are the beſt that are by their nature moſt free from ſuſpicion of being ciphers, as for example, if the letters were there wrote with ſympathetic ink, the cards might then paſs for a common pack.

II. *By a dial.* On a piece of ſquare paſteboard ABCD, fig. 3. 4. draw the circle EFGH, and divide it into 26 equal parts, in each of which muſt be wrote one of the letters of the alphabet.

On the inſide of this there muſt be another circle of paſteboard, ILMN, moveable round the centre O, and the extremity of this muſt be divided into the ſame number of equal parts as the other. On this alſo muſt be wrote the letters of the alphabet, which, however, need not be diſpoſed in the ſame order. The perſon with whom you correſpond muſt have a ſimilar dial, and at the beginning of your letter you muſt put any two letters that anſwer to each other when you have fixed the dial.

Exam. Suppoſe you would write as follows: "If you will come over to us, you ſhall have a penſion, and you may ſtill make a ſham oppoſition." You begin with the letters *Ma*, which ſhow how the dial is fixed: then for *If you*, you write *un juc*, and ſo for the reſt, as you will ſee at fig. 6.

The ſame intention may be anſwered by a ruler, the upper part of which is fixed and the lower part made to ſlide; but in this caſe the upper part muſt contain two alphabets in ſucceſſion, that ſome letter of that part may conſtantly correſpond to one in the lower part. The diviſions ſtanding directly over each other in a ſtraight line will be much more obvious than in the circumference of a circle. Or two ſtraight pieces of paſteboard regularly divided, the one containing a ſingle and the other a double alphabet, would anſwer exactly the ſame purpoſe. In this caſe a blank ſpace may be left at each end of the ſingle alphabet, and one or two weights being placed on both the pieces will keep them ſteady.

III. *The correſponding ſpaces.* Take two pieces of paſteboard or ſtiff paper, through which you muſt cut long ſquares, at different diſtances, as you will ſee in the following example. One of theſe pieces you keep yourſelf, and the other you give to your correſpondent. When you would ſend him any ſecret intelligence, you lay the paſteboard upon a paper of the ſame ſize; and in the ſpaces cut out, you write what you would have underſtood by him only, and then fill up the intermediate ſpaces with ſomewhat that makes with thoſe words a different ſenſe.

Cipher, Cippus.

|I ſhall be| much obliged to you, as reading |alone| engages my attention |at| preſent, if you will lend me any one of the |eight| volumes of the Spectator. I hope you will excuſe |this| freedom, but for a winter's |evening| I |don't| know a better entertainment. If I |fail| to return it ſoon, never truſt me for the time |to come.|

A paper of this ſort may be placed four different ways, either by putting the bottom at the top, or by turning it over; and by theſe means the ſuperfluous words may be the more eaſily adapted to the ſenſe of the others.

This is a very eligible cipher, as it is free from ſuſpicion, but it will do only for ſhort meſſages: for if the ſpaces be frequent, it will be very difficult to make the concealed and obvious meanings agree together: and if the ſenſe be not clear, the writing will be liable to ſuſpicion.

IV. *The muſical cipher.* The conſtruction of this cipher is ſimilar to that of N° II. The circle EFGH (fig. 3.) is to be divided into twenty-ſix equal parts, in each part there muſt be wrote one of the letters of the alphabet: and on the anterior circle ILMN, moveable round the centre O, there is to be the ſame number of diviſions: the circumference of the inner circle muſt be ruled in the manner of a muſic paper; and in each diviſion there is to be placed a note, differing either in figure or poſition. Laſtly, within the muſical lines place the three keys, and on the outer circle, the figures that are commonly uſed to denote the time.

Then provide yourſelf with a ruled paper, and place one of the keys, as ſuppoſe that of *ge re ſol*, againſt the time two-fourths at the beginning of the paper, which will inform your correſpondent how to fix his circle. You then copy the notes that anſwer to the ſeveral letters of the words you intend to write, in the manner expreſſed at fig. 5.

A cypher of this ſort may be made more difficult to diſcover by frequently changing the key, and that will not in the leaſt embarraſs the reader. You may likewiſe add the mark ♯ or ♭ to the note that begins a word, which will make it more eaſy to read, and at the ſame time give the muſic a more natural aſpect. This cipher is preferable to that of N° II. above, as it may be incloſed in a letter about common affairs, and paſs unſuſpected.

CIPPUS, in antiquity, a low column, with an inſcription, erected on the high roads, or other places, to ſhow the way to travellers; to ſerve as a boundary; to mark the grave of a deceaſed perſon, *&c.*

CIR, (St) a village of France, two miles from Verſailles, remarkable for a nunnery founded here by Louis XIV. The nuns are obliged to take care of the education of 250 girls, who muſt prove their families to have been noble from the 4th generation on the father's ſide. They cannot enter before 7, nor after 12 years of age: and they continue there till they are 20 years and 3 months old. The houſe is a moſt magnificent ſtructure.

CIRCÆA, ENCHANTER'S NIGHT-SHADE: A genus of the monogynia order, belonging to the diandria claſs of plants; and in the natural method ranking under the 48th order, *Aggregatæ*. The corolla is dipetalous; the calyx diphyllous, ſuperior, with one bilocular ſeed. There are two ſpecies, one of which is a native of Britain, and the other of Germany. They are low herbaceous plants with white flowers, and poſſeſſed of no remarkable property.

CIRCASSIA, a large country of Aſia, ſituated between 45 and 50 degrees of north latitude, and between 40 and 50 of eaſt longitude. It is bounded by Ruſſia on the north; by Aſtracan and the Caſpian ſea on the eaſt; by Georgia and Dagiſtan on the ſouth; and by the river Don, the Palus Meotis, and the Black Sea, on the weſt. This country has long been celebrated for the extraordinary beauty of its women; and here it was that the practice of inoculating for the ſmall-pox firſt began. Terki, the principal city, is ſeated in a very ſpacious plain, very ſwampy, towards the ſea-ſide, in 43 deg. 23 min. north latitude: it is about three werſts in compaſs, well fortified with ramparts and baſtions in the modern ſtyle, well ſtored with cannon, and has always a conſiderable garriſon in it, under the command of a governor. The Circaſſian prince who reſides here, is allowed five hundred Ruſſians for his guard, but none of his own ſubjects are permitted to dwell within any part of the fortifications. Ever ſince the reduction of thoſe parts to the obedience of Ruſſia, they have put in all places of ſtrength, not only Ruſſian garriſons and governors, but magiſtrates, and prieſts for the exerciſe of the Chriſtian religion; yet the Circaſſian Tartars are governed by their own princes, lords, and judges; but theſe adminiſter juſtice in the name of the emperor, and in matters of importance, not without the preſence of the Ruſſian governors, being all obliged to take the oath of allegiance to his imperial majeſty. The apparel of the men of Circaſſia is much the ſame with that of the Nagayans; only their caps are ſomething larger; and their cloaks being likewiſe of coarſe cloth or ſheep ſkins, are faſtened only at the neck with a ſtring, and as they are not large enough to cover the whole body, they turn them round according to the wind and weather. The men here are much better favoured than thoſe of Nagaya, and the women extremely well ſhaped, with exceeding fine features, ſmooth clear complexions, and beautiful black eyes, which, with their black hair hanging in two treſſes, one on each ſide the face, give them a moſt lovely appearance: they wear a black coif on their heads, covered with a fine white cloth tied under the chin. During the ſummer they all wear only a ſmock of divers colours, and that open ſo low before, that one may ſee below their navels: this, with their beautiful faces always uncovered (contrary to the cuſtom of moſt of the other provinces in theſe parts), their good humour and lively freedom in converſation, altogether render them very attracting: notwithſtanding which they have the reputation of being very chaſte, though they ſeldom want opportunity; for according to the accounts of a late traveller, it is an eſtabliſhed point of good manners among them, that as ſoon as any perſon comes in to ſpeak to the wife, the huſband goes out of the houſe, but whether this continency of theirs proceeds from their own generoſity, to recompence their huſbands for the confidence they put in them, or has its foundation only in fame, he pretends not to determine. Their language they have in common with the other neighbouring Tartars, although the chief people among them are alſo not ignorant of the Ruſſian: their religion is Paganiſm; for notwithſtanding they uſe circumciſion among them, they have neither prieſt, alcoran, or moſque, like other Mahometans. Every body here offers his own ſacrifice at pleaſure; for which, however, they have certain days, eſtabliſhed rather by cuſtom than any poſitive command: their moſt ſolemn ſacrifice is offered at the death of their neareſt friends: upon which occaſion both men and women meet in the field to be preſent at the offering, which is an he goat; and having killed, they flay it, and ſtretch the ſkin with the head and horns on, upon a croſs at the top of a long pole, placed commonly in a quickſet hedge (to keep the cattle from it); and near the place the ſacrifice is offered by boiling and roaſting the fleſh, which they afterwards eat. When the feaſt is over, the men riſe, and having paid their adoration to the ſkin, and muttered over ſome certain prayers, the women withdraw, and the men conclude the ceremony with drinking a great quantity of aqua-vitæ; and this generally ends in a quarrel before they part. The face of the country is pleaſantly diverſified with mountains, valleys, woods, lakes, and rivers; and though not much cultivated, is far from being unfruitful. In ſummer the inhabitants quit the towns, and encamp in the fields like the neighbouring Tartars: occaſionally ſhifting their ſtations along with their flocks and herds. Beſides game, in which the country greatly abounds, the Circaſſians eat beef and mutton; but that which they prefer to all others is the fleſh of a young horſe. Their bread conſiſts of thin cakes of barley meal, baked upon the hearth, which they always eat new; and their uſual drink is water or mares milk; from the latter of which they diſtil a ſpirit, as moſt of the Tartar nations. They allot no fixed hours for the refreſhments of the table or ſleep, which they indulge irregularly, as inclination or convenience dictates. When the men make excurſions into an enemy's country, they will paſs ſeveral days and nights ſucceſſively without ſleeping; but, at their return, devote as much time to repoſe as the ſpace in which they had before with-held from that gratification. When they eat, they ſit croſs-legged on the floor, the ſkin of ſome animal ſerving them inſtead of a carpet. In removing from one part of the country to another, the women and children are carried in waggons, which are a kind of travelling houſes, and drawn by oxen or camels, they never uſing horſes for draught. Their breed of the latter, however, is reckoned exceeding good; and they are accuſtomed to ſwim almoſt any river on horſeback. The women and children ſmoke tobacco as well as the men; and this is the moſt accept-table commodity which a traveller can carry with him into the Tartar countries. There are here no public inns, which indeed are unneceſſary; for ſo great is the hoſpitality of the people, that they will contend with each other who ſhall entertain any ſtranger that happens to come among them.—The principal branch of their traffic is their own children, eſpecially their daughters, whom they ſell for the uſe of the ſeraglios in Turkey and Perſia, where they frequently marry to great advantage, and make the fortune of their families. The merchants who come from Conſtantinople to purchaſe thoſe girls, are generally Jews, who, as well as the mothers, are ſaid to be extremely careful of preſerving the chaſtity of the young women, knowing the value that is ſet by the Turks upon the marks of virginity. The greater part of the Circaſſians are Chriſtians of the Greek church; but there are alſo both Mahometans and Pagans amongſt them.

CIRCE, (fab. hiſt.) a daughter of Sol and Perſeis, celebrated for her knowledge of magic and venomous herbs. She was ſiſter to Æetes king of Colchis, and to Paſiphae the wife of Minos. She married a Sarmatian prince of Colchis, whom ſhe murdered to obtain the kingdom. She was expelled by her ſubjects, and married by her father upon the coaſts of Italy in an iſland called Ææa. Ulyſſes, at his return from the Trojan war, viſited her coaſts; and all his companions, who ran headlong into pleaſure and voluptuouſneſs, were changed by Circe's potions into filthy ſwine. Ulyſſes, who was fortified againſt all enchantments by an herb called *moly*, which he had received from Mercury, went to Circe, and demanded ſword in hand the reſtoration of his companions to their former ſtate. She complied, and loaded the hero with pleaſures and honours. In this voluptuous retreat Ulyſſes had by Circe one ſon called Telegonus, or two, according to Heſiod, called Agrius and Latinus. For one whole year Ulyſſes forgot his glory in Circe's arms. At his departure the nymph adviſed him to deſcend to hell and to conſult the manes of Tireſius concerning the fates that attended him. Circe ſhowed herſelf cruel to Scylla her rival, and to Picus.

CIRCENSIAN GAMES, a general term under which was comprehended all combats exhibited in the Roman circus, in imitation of the Olympic games in Greece. Moſt of the feaſts of the Romans were accompanied with Circenſian games; and the magiſtrates, and other officers of the republic, frequently preſented the people with them, in order to procure their favour. The grand games were held five days, commencing on the 15th of September. See CIRCUS.

CIRCLE, in geometry, a plane figure comprehended by a ſingle curve line, called its circumference, to which right lines drawn from a point in the middle, called the centre, are equal to each other. See GEOMETRY.

CIRCLES of the Sphere, are ſuch as cut the mundane ſphere, and have their periphery either on its moveable ſurface, or in another immoveable, conterminous, and equidiſtant ſurface. See SPHERE. Hence ariſe two kinds of circles, moveable and immoveable. The firſt, thoſe whoſe peripheries are in the moveable ſurface, and which therefore revolve with its diurnal motion; as, the meridians, &c. The latter having their periphery in the immoveable ſurface, do not revolve; as the ecliptic, equator, and its parallels, &c. See GEOGRAPHY.

CIRCLES of Altitude, otherwiſe called *almucantars*, are circles parallel to the horizon, having their common pole in the zenith, and ſtill diminiſhing as they approach the zenith. See ALMUCANTAR.

Diurnal CIRCLES, are immoveable circles, ſuppoſed to be deſcribed by the ſeven ſtars, and other points of the heavens, in their diurnal rotation round the earth; or rather, in the rotation of the earth round its axis. The diurnal circles are all unequal: the equator is the biggeſt.

Horary CIRCLES, in dialing, are the lines which ſhow the hours on dials; though theſe be not drawn circular, but nearly ſtraight. See DIALING.

CIRCLES of Latitude, or *Secondaries of the Ecliptic*, are great circles parallel to the plane of the ecliptic, paſſing through the poles thereof, and through every ſtar and planet. They are ſo called, becauſe they ſerve to meaſure the latitude of the ſtars, which is nothing but an arch of one of theſe circles intercepted between the ſtar and the ecliptic. See LATITUDE.

CIRCLES of Longitude, are ſeveral leſſer circles, parallel to the ecliptic; ſtill diminiſhing, in proportion as they recede from it. On the arches of theſe circles, the longitude of the ſtars is reckoned.

CIRCLE of perpetual Apparition, one of the leſſer circles, parallel to the equator; deſcribed by any point of the ſphere touching the northern point of the horizon; and carried about with the diurnal motion. All the ſtars included within this circle never ſet, but are ever viſible above the horizon.

CIRCLE of perpetual Occultation, is another circle at a like diſtance from the equator; and contains all thoſe ſtars which never appear in our hemiſphere. The ſtars ſituated between theſe circles alternately riſe and ſet at certain times.

Polar CIRCLES, are immoveable circles parallel to the equator, and at a diſtance from the poles equal to the greateſt declination of the ecliptic. That next the northern pole is called the ARCTIC; and that next to the ſouthern one the ANTARCTIC.

Fairy-CIRCLE. See FAIRY-*CIRCLE*.

Druidical CIRCLES, in Britiſh topography, a name given to certain ancient incloſures formed by rude ſtones circularly arranged, in the manner repreſented on Plate CXXXV.* Theſe, it is now generally agreed, were temples, and many writers think alſo places of ſolemn aſſemblies for councils or elections, and ſeats of judgment. Mr Borlace is of this opinion. "Inſtead therefore (ſays he), of detaining the reader with a diſpute, whether they were places of worſhip or council, it may with great probability be aſſerted, that they were uſed for both purpoſes; and having for the moſt part been firſt dedicated to religion, naturally became afterwards the curiæ and foræ of the ſame community." Theſe temples, though generally circular, occaſionally differ as well in figure as magnitude: with relation to the firſt, the moſt ſimple were compoſed of one circle: Stonehenge conſiſted of two circles and two ovals, reſpectively concentric; whilſt that at Botalch near St Juſt in Cornwall is formed by four interſecting circles. And the great temple at Abury in

* In Vol. IV.

Wiltſhire, it is ſaid, deſcribed the figure of a ſeraph or fiery flying ſerpent, repreſented by circles and right lines. Some beſides circles have avenues of ſtone pillars. Moſt, if not all of them, have pillars or alters within their penetralia or centre. In the article of magnitude and number of ſtones, there is the greateſt variety; ſome circles being only twelve feet diameter and formed only of twelve ſtones, whilſt others, ſuch as Stonehenge and Abury, contained, the firſt one hundred and forty, the ſecond ſix hundred and fifty two, and occupied many acres of ground. All theſe different numbers and meaſures and arrangements had their pretended reference; either to the aſtronomical diviſions of the year, or ſome myſteries of the druidical religion. Mr Borlace, however, ſuppoſes, that thoſe very ſmall circles, ſometimes formed of a low bank of earth, ſometimes of ſtones erect, and frequently of looſe ſmall ſtones thrown together in a circular form, encloſing an area of about three yards diameter, without any larger circle round them, were originally places of burial.

Circle, in logic, or *Logical Circle*, is when the ſame terms are proved *in orbem* by the ſame terms; and the parts of the ſyllogiſm alternately by each other, both directly and indirectly.

Circles of the Empire, ſuch provinces and principalities of the German empire as have a right to be preſent at diets. Maximilian I. divided the empire into ſix, and ſome years after into ten circles. This laſt diviſion was confirmed by Charles V. The circles, as they ſtand in the Imperial Matricola, are as follow: Auſtria, Burgundy, the Lower Rhine, Bavaria, Upper Saxony, Franconia, Swabia, Upper Rhine, Weſtphalia, and the Lower Saxony.

CIRCONCELLIONES, a ſpecies of fanatics, ſo called becauſe they were continually rambling round the houſes in the country. They took their riſe among the donatiſts, in the reign of the emperor Conſtantine. It is incredible what ravages and cruelties theſe vagabonds committed in Africa through a long ſeries of years. They were illiterate, ſavage peaſants, who underſtood only the Punic language. Intoxicated with a barbarious zeal, they renounced agriculture, profeſſed continence, and aſſumed the title of “Vindicators of juſtice, and Protectors of the oppreſt.” To accompliſh their miſſion, they enfranchiſed ſlaves, ſcoured the roads, forced maſters to alight from their chariots, and run before their ſlaves, whom they obliged to mount in their place; and diſcharged debtors, killing the creditors if they refuſed to cancel the bonds. But the chief objects of their cruelty were the catholics, and eſpecially thoſe who had renounced donatiſm. At firſt they uſed no ſwords, becauſe God had forbidden the uſe of one to Peter; but they were armed with clubs, which they called the *clubs of Iſrael*; and which they handled in ſuch a manner as to break a man's bones without killing him immediately, ſo that he languiſhed a long time and then died. When they took away a man's life at once, they looked upon it as a favour. They became leſs ſcrupulous afterwards, and made uſe of all ſorts of arms. Their ſhout was *Praiſe be to God*. Theſe words in their mouths were the ſignal of ſlaughter, more terrible than the roaring of a lion. They had invented an unheard of puniſhment; which was to cover with lime diluted with vinegar, the eyes of thoſe unhappy wretches whom they had cruſhed with blows, and covered with wounds, and to abandon them in that condition. Never was a ſtronger proof what horrors ſuperſtition can beget in minds deſtitute of knowledge and humanity. Theſe brutes, who had made a vow of chaſtity, gave themſelves up to wine and all ſorts of impurities, running about with women and young girls as drunk as themſelves, whom they called *ſacred virgins*, and who often carried proofs of their incontinence. Their chiefs took the name of *Chiefs of the Saints*. After having glutted themſelves with blood, they turned their rage upon themſelves, and ſought death with the ſame fury with which they gave it to others. Some ſcrambled up to the tops of rocks, and caſt themſelves down headlong in multitudes; others burned themſelves, or threw themſelves into the ſea. Thoſe who propoſed to acquire the title of martyrs, publiſhed it long before; upon which they were feaſted and fattened like oxen for the ſlaughter; after theſe preparations they ſet out to be deſtroyed. Sometimes they gave money to thoſe whom they met, and threatened to murder them if they did not make them martyrs. Theodorat gives an account of a ſtout young man, who meeting with a troop of theſe fanatics, conſented to kill them, provided he might bind them firſt; and having by this means put it out of their power to defend themſelves, whipped them as long as he was able, and then left them tied in that manner. Their biſhops pretended to blame them, but in reality made uſe of them to intimidate ſuch as might be tempted to forſake their ſect; they even honoured them as ſaints. They were not, however, able to govern thoſe furious monſters; and more than once found themſelves under a neceſſity of abandoning them, and even of imploring the aſſiſtance of the ſecular power againſt them. The counts Urſacius and Taurinus were employed to quell them; they deſtroyed a great number of them, of whom the donatiſts made as many martyrs. Urſacius, who was a good catholic and a religious man, having loſt his life in an engagement with the barbarians, the donatiſts did not fail to triumph in his death, as an effect of the vengeance of heaven. Africa was the theatre of theſe bloody ſcenes during a great part of Conſtantine's life.

CIRCUIT, in law, ſignifies a longer courſe of proceedings than is needful to recover the thing ſued for.

Circuit, in England, alſo ſignifies the journey or progreſs, which the judges take twice every year, thro' the ſeveral countries of England and Wales, to hold courts and adminiſter juſtice, where recourſe cannot be had to the king's courts at Weſtminſter: hence England is divided into ſix circuits, *viz.* the Home circuit; Norfolk circuit; Midland circuit; Oxford circuit; Weſtern circuit, and Northern circuit. In Wales there are but two circuits, North and South Wales: two judges are aſſigned by the king's commiſſion to every circuit.

In Scotland, the judges of the ſupreme criminal court, or court of juſticiary, are divided into three ſeparate courts, conſiſting of two judges each; and the kingdom into as many diſtricts. In certain boroughs of every diſtrict, each of theſe courts by rotation are obliged to hold two courts in the year, in ſpring and autumn; which are called *circuit-courts*.

Electrical CIRCUIT, denotes the courſe of the electric fluid from the charged ſurface of an electric body, to the oppoſite ſurface into which the diſcharge is made. Some of the firſt electricians apprehended, that the ſame particulars of the electric fluid, which were thrown on one ſide of the charged glaſs, actually made the whole circuit of the intervening conductors, and arrived at the oppoſite ſide: whereas Dr Franklin's theory only requires, that the redundancy of electric matter on the charged ſurface ſhould paſs into the bodies which form that part of the circuit which is contiguous to it, driving forward that part of the fluid which they naturally poſſeſs; and that the deficiency of the exhauſted ſurface ſhould be ſupplied by the neighbouring conductors, which form the laſt part of the circuit. On this ſuppoſition, a vibrating motion is ſucceſſively communicated through the whole length of the circuit. This circuit is always formed of the beſt conductors, let the length of it be ever ſo great. Many attempts were made, both in France and England, at an early period in the hiſtory of electricity, to aſcertain the diſtance to which the electric ſhock might be carried, and the velocity of its motion. The French philoſophers, at different times, made it to paſs through a circut of 900 toiſes, and of 2000 toiſes, or about two Engliſh miles and a half: and they diſcharged the Leyden phial through a baſon of water, the ſurface of which was about an acre. And M. Mounier found, that, in paſſing through an iron wire of 950 toiſes in length, it did not ſpend a quarter of a ſecond; and that its motion was inſtantaneous through a wire of 1319 feet. In 1747, Dr Watſon, and other Engliſh philoſophers, after many experiments of a ſimilar kind, conveyed the electric matter through a circuit of four miles; and they concluded from this and another trial, that its velocity is inſtantaneous.

CIRCULAR, in a general ſenſe, any thing that is deſcribed, or moved in a round, as the circumference of a circle, or ſurface of a globe.

Circular Numbers, called alſo *ſpherical ones*, according to ſome, are ſuch whoſe powers terminate in the roots themſelves. Thus, for inſtance, 5 and 6, all whoſe powers do end in 5 and 6, as the ſquare of 5 is 25; the ſquare of 6 is 36, *&c.*

Circular Sailing, is the method of ſailing by the arch of a great circle. See NAVIGATION.

CIRCULATION, the act of moving round, or in a circle; thus we ſay, the circulation of the blood, &c.

Circulation of the Blood, the natural motion of the blood in a living animal, whereby that fluid is alternately carried from the heart into all parts of the body, by the arteries, from whence it is brought back to the heart again by the veins. See ANATOMY, nº 125.

In a fœtus, the apparatus for the circulation of the blood is ſomewhat different from that in adults. The ſeptum, which ſeparates the two auricles of the heart, is pierced through with an aperture, called the *foramen ovale*; and the trunk of the pulmonary artery, a little after it has left the heart, ſends out a tube into the deſcending aorta, called the *communicating canal*. The foetus being born, the foramen ovale cloſes by degrees, and the canal of communication dries up, and becomes a ſimple ligament.

As to the velocity of the circulating blood, and the time wherein the circulation is completed, ſeveral computations have been made. By Dr Keil's account, the blood is driven out of the heart into the aorta with a velocity which would carry it twenty-five feet in a minute: but this velocity is continually abated in the progreſs of the blood, in the numerous ſections or branches of the arteries; ſo that before it arrive at the extremities of the body, its motion is greatly diminiſhed. The ſpace of time wherein the whole maſs of blood ordinarily circulates, is variouſly determined. Some ſtate it thus: Suppoſing the heart to make two thouſand pulſes in an hour, and that at every pulſe there is expelled an ounce of blood; as the whole maſs of blood is not ordinarily computed to exceed twenty-four pounds, it muſt be circulated ſeven or eight times over in the ſpace of an hour.

The curious, in microſcopic obſervations, have found an eaſy method of ſeeing the circulation of the blood in the bodies of animals: for theſe inquires it is neceſſary to chooſe ſuch animals as are ſmall, and eaſily manageable, and which are either wholly or in part tranſparent. The obſervations made by this means are preferable to any others we can have recourſe to; ſince, in diſſections, the animal is in a ſtate of pain, or dying; whereas in animals ſmall enough to be thus viewed, all is left in its uſual courſe, and we ſee what nature does in her own undiſturbed method. In theſe creatures alſo, after viewing, as long as we pleaſe, the natural ſtate and current of the blood, we may, by preſſure, and ſeveral other ways, impede its courſe; and by putting various mixtures into the creature's water, induce a morbid ſtate, and finally ſee the creature die, either by means of this or by any other method; and we may thus accurately obſerve all the changes it undergoes, and ſee what occaſions the trembling pulſe, &c. of dying people.

The current of the blood in ſmall animals, that is, its paſſing on through the veſſels, either to or from the heart, is very eaſily ſeen by the microſcope; but its circulation, that is its running to the extremities of the parts, and thence returning, is more difficult; becauſe the veſſels where this ſhould be ſeen are ſo extremely minute, as not eaſily to come under obſervation. The larger atteries are eaſily diſtinguiſhed from the veins by the motion of the blood through them, which in the veins is always ſmooth and regular: but in the arteries by ſeveral propulſions after the manner of pulſation. But this difference is not to be found in the more minute veſſels; in all which, as well arteries as veins, the motion of the blood is even and regular.

The tranſparent membrane, or web between the toes of a frog's hinder foot, is a very proper object to obſerve the circulation of the blood in. The tails or fins of fiſhes are alſo very fine objects; and when the fiſh is very ſmall, theſe are manageable, and afford a view of a great number of veins and arteries, with a very quick and beautiful ſucceſſion of blood through them. The tail of a flounder may be very conveniently placed before the double microſcope on a plate of glaſs; and its body being ſupported by ſomething of equal height, the fiſh will lie ſtill, and the circulation may be ſeen very agreeably. In the minuteſt veſſels thus examined, the blood always appears pale or colourleſs, but in the large ones it is manifeſtly red. The arteries uſually branch out extremely before they join the veins to carry the blood back to the heart: but this is not always the caſe; for Mr Lewenhoeck has obſerved, that on each ſide of the little griſtles which give a ſtiffneſs to the tail of a flounder, there may be ſeen a very open communication of the veins and arteries; the blood running towards the extremities through arteries, and returning back again through veins, which were evidently a continuation of thoſe arteries, and of the ſame diameter with them. The whole fiſh on the tail of which this examination was made, was not more than half an inch in length, it is eaſy to conceive, therefore, how ſmall the tail muſt be; and yet in it there were 68 veſſels which carried and returned the blood; and yet theſe veſſels were far from being the moſt minute of all. How inconceivably numerous then muſt the *circulations* in the whole human body be? Mr Lewenhoeck is of opinion, that a thouſand different circulations are continually carried on in every part of a man's body in the breadth of a finger nail.

The tail of a newt or water-lizard affords alſo a very entertaining proſpect of the circulation of the blood through almoſt numberleſs ſmall veſſels; but no object ſhows it ſo agreeably as one of theſe animals while ſo young as not to be above an inch long; for then the whole body is ſo very tranſparent, that the circulation may be ſeen in every part of it, as well as in the tail; and, in theſe objects, nothing is more beautiful than the courſe of the blood into the toes and back again, where it may be traced all the way with great eaſe. Near the head there are alſo found three ſmall fins which afford a very delightful proſpect: theſe are all divided like the leaves of polypody; and in every one of the branches of theſe, the blood may be very accurately traced, running to the end through the artery, and there returning back again by a vein of the ſame ſize, and laid in the ſame direction; and as the veſſels are very numerous and large in this part, and the third or fourth magnifier may be uſed, there are ſometimes ſeen 30 or 40 channels of running blood at once; and this the more as the globules of blood in the newt are large, and are fewer in number, in proportion to the quantity of ſerum, than in any other animal: and their figure, as they are protruded through the veſſels, changes in a very ſurpriſing manner. The impetus occaſioning the circulation, is great enough in ſome animals to raiſe the blood ſix, ſeven, or eight feet high from the blood-veſſel it ſprings out at; which, however, is far exceeded by that of the ſap of a vine in bleeding time, which will ſometimes riſe forty feet high.

CIRCULATION of the ſap of Plants. See PLANTS, and SAP.

CIRCULATION of the Spirits, or Nervous Fluid. See ANATOMY n° 136.

CIRCULATION, in chemiſtry, is an operation whereby the ſame vapour, raiſed by fire, falls back, to be returned and diſtilled ſeveral times.

CIRCULATION of Money. See COMMERCE, and MONEY.

Subterranean CIRCULATION. See SPRINGS.

CIRCULUS, in chemiſtry, an iron inſtrument in form of a ring, which being heated red-hot, and applied to the necks of retorts and other glaſs veſſels till they grow hot, a few drops of cold water thrown upon them, or a cold blaſt, will make the necks fly regularly and evenly off.

Another method of doing this is, to tie a thread, firſt dipt in oil of turpentine, round the place where you would have it break; and then ſetting fire to the thread, and afterwards ſprinkling the place with cold water, the glaſs will crack exactly where the thread was tied.

CIRCUMAMBIENT, an appellation given to a thing that ſurrounds another on all ſides; chiefly uſed in ſpeaking of the air.

CIRCUMCELLIONES. See CIRCONCELLIONES.

CIRCUMCISION, the act of cutting off the prepuce; a ceremony in the Jewiſh and Mahometan religions, wherein they cut off the foreſkin of their males, who are to profeſs the one or the other law.

Circumciſion commenced in the time of Abraham; and was, as it were, the ſeal of a covenant ſtipulated between God and him. It was in the year of the world 2173, that Abraham, by divine appointment, circumciſed himſelf, and all the males of his family; from which time it became an hereditary practice among his deſcendants.

The ceremony, however, was not confined to the Jews: Herodotus and Philo Judæus obſerve, that it obtained alſo among the Egyptians and Ethiopians. Herodotus ſays, that the cuſtom was very ancient among each people; ſo that there was no determining which of them borrowed it from the other. The ſame hiſtorian relates, that the inhabitants of Colchis alſo uſed circumciſion; whence he concludes, that they were originally Egyptians. He adds, that the Phœnicians and Syrians were likewiſe circumciſed; but that they borrowed the practice from the Egyptians. And laſtly, that a little before the time when he wrote, circumciſion had paſſed from Colchis, to the people inhabiting near Thermodoon and Parthenius.

Marſham is of opinion, that the Hebrews borrowed circumciſion from the Egyptians; and that God was not the firſt author thereof; citing Diodorous Siculus, and Herodotus, as evidences on his ſide. This latter propoſition ſeems directly contrary to the teſtimony of Moſes, who aſſures, Gen. xvii. that Abraham, tho' 99 years of age, was not circumciſed till he had the expreſs command of God for it. But as to the former poſition of Marſham, it will admit of more debate. The arguments on both ſides may be ſeen in one view in *Spencer de Legibus Hebræorum, l. 2. c. 4.*

Be this as it will, it is certain the practice of circumciſion among the Hebrews differed very conſiderably from that of the Egyptians. Among the firſt it was a ceremony of religion, and was performed on the eighth day after the birth of the child. Among the latter, a point of mere decency and cleanlineſs; and, as ſome will have it, of phyſical neceſſity; and was not performed till the 13th year, and then on girls as well as boys.

Among the Jews, the time for performing this rite was the eighth day, that is, ſix full days, after the child was born: the law of Moſes ordained nothing with reſpect to the perſon by whom, the inſtrument with which, or the manner how, the ceremony was to be performed; the inſtrument was generally a knife of ſtone. The child is uſually circumciſed at home, where the father, or godfather, holds him in his arms, while the operator takes hold of the prepuce with one hand, and with the other cuts it off; a third perſon holds a porringer, with ſand in it, to catch the blood; than the operator applies his mouth to the part, and, having ſucked the blood, ſpits it into a bowl of wine, and throws a ſtyptic powder upon the wound. This ceremony was uſually accompanied with great rejoicings and feaſting; and it was at this time that the child was named in preſence of the company. The Jews invented ſeveral ſuperſtitious cuſtoms at this ceremony, ſuch as placing three ſtools, one for the circumciſor, the ſecond for the perſon who holds the child, and the third for Elijah, who, they ſay, aſſiſts inviſibly at the ceremony, *&c.*

The Jews diſtinguiſhed their proſelytes into two ſorts, according as they became circumciſed or not: thoſe who ſubmitted to this rite were looked upon as children of Abraham, and obliged to keep the laws of Moſes; the uncircumciſed were only bound to obſerve the precepts of Noah, and were called *noachidæ*.

The Turks never circumciſe till the ſeventh or eighth year, as having no notion of its being neceſſary to ſalvation. The Perſians circumciſe their boys at 13, and their girls from 9 to 15. Thoſe of Madagaſcar cut the fleſh at three ſeveral times; and the moſt zealous of the relations preſent, catches hold of the preputium and ſwallows it.

Circumciſion is practiſed on women by cutting off the foreſkin of the clitoris, which bears a near reſemblance and analogy to the preputium of the male penis. We are told that the Egyptian captive-women were circumciſed; and alſo the ſubjects of Preſter John.

CIRCUMCISION is alſo the name of a feaſt, celebrated on the firſt of January, in commemoration of the circumciſion of our Saviour.

CIRCUMDUCTION, in Scots law. When parties in a ſuit are allowed a proof of alledgeances; after the time limited by the judge for taking that proof is elapſed, either party may apply for circumduction of the time of proving; the effect of which is, that no proof can afterwards be brought, and the cauſe muſt be determined as it ſtood when circumduction was obtained.

CIRCUMFERENCE, in a general ſenſe, denotes the line or lines bounding a plane figure. However, it is generally uſed in a more limited ſenſe, for the curve line which bounds a circle, and otherwiſe called a *periphery*; the boundary of a right-lined figure being expreſſed by the term *perimeter*.

CIRCUMFERENTOR, an inſtrument uſed by ſurveyors for taking angles.

Plate CXXXV. in Vol. IV.

It conſiſts of a braſs index and circle, all of a piece. The index is commonly about 14 inches long, and an inch and a half broad; the diameter of the circle is about ſeven inches. On this circle is made a chart, whoſe meridian line anſwers to the middle of the breadth of the index, and is divided into 360 degrees. There is a braſs ring ſoldered on the circumference of the circle, on which ſcrews another ring, with a flat glaſs in it, ſo as to form a kind of box for the needle, ſuſpended on the pivot in the centre of the circle. There are alſo two ſights to ſcrew on, and ſlide up and down the index; as alſo a ſpangle and ſocket ſcrewed on the back ſide of the circle for putting the head of the ſtaff in.

How to obſerve the Quantity of an Angle by the Circumferentor. Ibid. Let it be required to find the quantity of the angle EKG; firſt place your inſtrument at K, with the flower-de-luce of the chart towards you; then direct your ſights to E, and obſerve what degrees are cut by the ſouth end of the needle, which let be 296; then, turning the inſtrument about, direct your ſights to G, noting then alſo what degrees are cut by the ſouth end of the needle, which ſuppoſe 247. This done, always ſubtract the leſſer from the greater, as in this example, 247 from 296, the remainder is 49 degrees, which is the true quantity of the angle EKG.

A circumferentor is made by Mr Jones of Holburn on an improved conſtruction. From a very ſimple contrivance, it is rendered ſufficient to take angles with the accuracy of a common theodolite; and by it angles of altitude and depreſſion may be obſerved as readily as horizontal ones. Ibid. The improvement chiefly conſiſts in an arm or index (G), ſo applied to the centre of the compaſs box, and within it, that, at the time of obſerving, by only ſlipping a pin (*p*) out, the circle of degrees alone may move round, and leave the index (G) fixed. This index will remain ſtationary, from its being attached to the ſocket that ſcrews on the head of the ſtaffs. On the end of this index, next the degrees in the box, there is graduated a nonius ſcale, by which the circle of 360 degrees is ſubdivided into 5 minutes or leſs if deſired. To take angles of altitude or depreſſions, the inſtrument is turned down on its ball and ſocket into a perpendicular poſition, and adjuſted to its level by a plumb line (*l*), that is hung on a pin at the back of the box, and made to coincide with a mark made thereon. Then by looking through the ſmall ſight holes (*s*) purpoſely made, the angles are ſhown on the circle of degrees by the nonius as before. The arms (AA) of the inſtrument ſlip off (at BB), and the whole packs into a caſe but 5¼ inches ſquare and 3 deep.

CIRCUMFLEX, in grammer, an accent, ſerving to note or diſtinguiſh, a ſyllable of an intermediate ſound between acute and grave; and generally ſomewhat long.—The Greeks had three accents, the acute, the grave, and the circumflex; formed thus, ′, ‵, ~. In Latin, Engliſh, French, &c. the circumflex is made thus^.—The accute raiſes the voice, and the grave falls or lowers it: the circumflex is a kind of undulation, or wavering of the voice, between the two. It is ſeldom uſed among the moderns, unleſs to ſhow the omiſſion of a letter which made the ſyllable long and open; a thing much more frequent in the French than among us: thus they write *pâte* for *paſte*; *tête* for *teſte*; *fûmes* for *fuſmes*, &c. They alſo uſe the circumflex in the participles; ſome of their authors writing *conneu*, *peu*, others *connû*, *pû*, &c. Father Buffier is at a loſs for the reaſon of the circumflex on this occaſion.

The form of the Greek circumflex was anciently the ſame with that of ours, viz. ^; being a compoſition of the other two accents ʌ in one—But the copyiſts, changing the form of the characters, and introducing the running-hand, changed alſo the form of the circumflex accent; and inſtead of making a juſt angle, rounded it off, adding a daſh, through too much haſte; and thus formed an *s*, laid horizontally, which produced that figure ˜, inſtead of this ˆ.

CIRCUMGYRATION, denotes the whirling motion of any body round a centre; ſuch is that of the planets round the ſun.

CIRCUMLOCUTION, an ambages, or tour of words, uſed either when a proper term is not at hand, to expreſs a thing naturally and immediately by; or when one chooſes not to do it, out of reſpect, or for ſome other reaſon. The word comes from *circumloquor*, "I ſpeak about."

Circumlocution, in oratory, is the avoiding of ſomething diſagreeable or inconvenient to be expreſsed in direct terms; by intimating the ſenſe thereof in a kind of paraphraſe, ſo conceived as to ſoften or break the force thereof.

Thus Cicero, unable to deny that Clodius was ſlain by Milo, owns it, with this circumlocution, "Milo's "ſervants being prevented from aſſiſting their maſter, "who was reported to be killed by Clodius; they, in "his abſence, and without his privity, or conſent, did "what every body would expect from their own ſer"vants on ſuch an occaſion."

CIRCUMPOLAR stars, an appellation given to thoſe ſtars, which, by reaſon of their vicinity to the pole, move round it without ſetting.

CIRCUMPOTATIO, in antiquity, a funeral feaſt provided in honour of the dead. This was very frequent among the ancient Romans, as well as among the Athenians. Solon at Athens, and the decemviri at Rome, endeavoured to reform this cuſtom, thinking it abſurd that mirth and drunkenneſs ſhould mingle with ſorrow and grief.

CIRCUMSCRIBED, in geometry, is ſaid of a figure which is drawn round another figure, ſo that all its ſides or planes touch the inſcribed figure.

CIRCUMSCRIPTION, in natural philoſophy, the termination, bounds, or limits, of any natural body.

CIRCUMSTANCE, a particularity, which, tho' not eſſential to any action, yet doth ſome way affect it.

CIRCUMSTANTIAL evidence, in law, or the doctrine of preſumption, takes place next to poſitive proof; circumſtances which either neceſſarily or uſually attend facts of a particular nature, that cannot be demonſtratively evinced, are called *preſumptions*, and are only to be relied on till the contrary be actually proved.

CIRCUMSTANTIBUS, in law, a term uſed for ſupplying and making up the number of jurors (in caſe any impanelled appear not, or appearing are challenged by any party), by adding to them ſo many of the perſons preſent as will make up the number, in caſe they are properly qualified.

CIRCUMVALLATION, or *Line of Circumvallation*, in the art of war, is a trench bordered with a parapet, thrown up quite round the beſieger's camp, by way of ſecurity againſt any army that may attempt to relieve the place, as well as to prevent deſertion.

CIRCUMVOLUTION, in architecture, denotes the torus of the ſpiral line of the Ionic order.

CIRCUS, in antiquity, a large building, either round or oval, uſed for the exhibiting of ſhows to the people. Some derive the world from *Circe*, to whom Tertullian attributes the invention. Caſſiodorus ſays, *Circus* comes *à circuitu*. The Romans, Servius obſerves, at firſt had no other circus but that made by the Tiber on one ſide, and a paliſade of naked ſwords on the other. Hence, according to Iſidore, came the term *ludi circenſes, quaſi circum enſes*. But Scaliger ridicules that etymology.

The Roman circus was a large oblong edifice, arched at one end; encompaſſed with porticos, and furniſhed with rows of ſeats, placed aſcending over each other. In the middle was a kind of foot-bank, or eminence, with obeliſks, ſtatues, and poſts at each end. This ſerved them for the courſes of their *bigæ* and *quadrigæ*. There were no leſs than ten circuſes a Rome: the largeſt was built by the elder Tarquin, called *Circus Maximus*, between the Aventine and Palatine mounts. It was ſo called, either becauſe of its vaſt circumference, or becauſe the great games were celebrated in it; or again, becauſe it was conſecrated to the great gods, viz. to Vertumnus, Neptune, Jupiter, Juno, Minerva, and the Dii Penates of Rome. Dionyſius Halicarnaſſenſis ſays that it was three ſtadia and a half in length, and four jugera broad; and theſe meaſures, according to Pliny, allowing to the Roman ſtadia 625 Roman feet, each of which is 12 inches, will give for the length 2187 Roman feet, or ſomewhat more than three Engliſh furlongs; and as to the breadth, allowing for each of the jugera 240 Roman feet, it will be 960 Roman feet. It was beautified and enlarged by the Roman emperors, ſo as to ſeat 250,000 ſpectators. The moſt magnificent circuſes were thoſe of Auguſtus and Nero. There are ſtill ſome remains of the circuſes at Rome, at Niſmes, and other places. The Romans were exceſſively fond of the games exhibited in the circus: witneſs that verſe in Juvenal,

> ——— *Atque duas tantum res anxius optat,*
> *Panem & circenſes* ———

The Games of the Circus, which ſome call *Circenſian Games*, were combats celebrated in the circus, in honour of Conſus the god of councils; and thence alſo called *Conſualia*. They were alſo called *Roman Games, Ludi Romani*, either on account of their antiquity, as being coeval with the Roman people, or becauſe eſtabliſhed by the Romans: and the games held there, the great games, *ludi magni*, becauſe celebrated with more expence and magnificence than others; and becauſe held in honour of the great god Neptune, who was their Conſus.—Thoſe who ſay they were inſtituted in honour of the ſun, confound the *pompa circenſis*, or proceſſion of the circus, with the games.

The games of the circus were inſtituted by Evander, and re-eſtabliſhed by Romulus: the pomp, or proceſſion, was only a part of the games, making the prelude thereof, and conſiſting of a ſimple cavalcade of chariots. Till the time of the elder Tarquin, they were held in an iſland of the Tiber; and were called *Roman games*: after that prince had built the circus, they took their name therefrom; as being conſtantly held there. There were ſix kinds of exerciſes in the circus: the firſt was wreſtling, and fighting with ſwords, with ſtaves, and with pikes; the ſecond was racing; the third, ſaltatio, dancing; the fourth, diſci, quoits, arrows, and ceſtus; all which were on foot: the fifth was horſe-courſing; the ſixth, courſes of chariots, whether with two horſes or with four. In this laſt exerciſe, the combatants were at firſt divided into two ſquadrons or quadrils; then into four; each bearing the names of the colours they wore; *factio alba, ruſſea*, &c. At firſt there was only white and red; then green was added, and blue. Domitian added two more colours, but they did not continue. It was Oenomaus who firſt invented this method of diſtinguiſhing the quadrils by colours. The green was for thoſe who repreſented the earth; the blue for the ſea, &c.

CIRENCESTER, an ancient town of Glouceſterſhire in England. It was ſtrongly fortified with walls and a caſtle in the time of the Romans. The ruins of the walls and ſtreet are, or were lately, to be ſeen in the adjacent meadows, where many Roman coins, chequered pavements, and inſcriptions on marble, have been found. Two of the Roman conſular ways croſs each other at this town. The foſſe-way, which comes from Scotland, paſſes through this county and town to Totneſs in Devonſhire. The other, called *Irmin-ſtreet*, comes from Glouceſter, and runs along to Southampton. Not many years ago they diſcovered, by digging in a meadow near the town, an ancient building under ground, 50 feet long, 40 broad, and 4 high, and ſupported by two brick pillars, curiouſly inlaid with ſtones of various colours, ſuppoſed to have been a Roman bath. Cirenceſter has now but one church, in the windows of which are the remains of very valuable painted glaſs. The town is governed by 2 high conſtables, and 14 wards-men, who govern 7 diſtinct wards; and it ſends two members to parliament. It has a free ſchool, a charity ſchool, with ſeveral alms-houſes; and is ſeated on the river Churn, 36 miles north-eaſt of Briſtol, and 88 weſt by north of London. W. Long. 0. 2. N. Lat. 51. 42.

CIRENZA, a city of Naples, capital of the Baſilicate, with an archbiſhop's ſee. It was formerly a conſiderable place, but is now of ſmall conſequence. It is ſeated on the river Brandano, at the foot of the Apennine mountains, in E. Long. 16. 44. N. Lat. 40. 48.

CIRO-FERRI, an excellent Italian painter and architect, was born at Rome in 1614, and was the diſciple of Peter de Cortona, whoſe deſigns he imitated with ſuch exactneſs, that it is difficult to diſtinguiſh them. He was eſteemed by pope Alexander VII. and his three ſucceſſors, and died at Rome in 1689.

CIRRUS, or CIRRHUS, in botany, a claſper or tendril; that fine ſpiral ſtring or fibre put out from the foot-ſtalks, by which ſome plants, as the ivy and vine, faſten themſelves to walls, pales, or trees, for ſupport. The term is ſynonymous to the capreolus, clavicula, and viticulus of other botaniſts: and is ranked by Linnæus among the fulcra, or parts of plants that ſerve for protection, ſupport, and defence.

Tendrils are ſometimes placed oppoſite to the leaves, as in the vine; ſometimes at the ſide of the foot-ſtalk of the leaf, as in paſſion-flower; and ſometimes, as in winged pea, *piſum ochrus*, they are emitted from the leaves themſelves. With reſpect to compoſition, they are either ſimple, that is, compoſed of one fibre or chord, as in the vetch; or compound, that is, conſiſt of two, three, or more, as in the everlaſting pea. Bitter ſweet, ſolanum, dulcamara, bignonia, and ivy, ſend forth tendrils which plant themſelves like roots in the adjacent walls, or the bark of the neighbouring trees. Claſpers, ſays the ingenious Dr Grew, are like trunk-roots, a mean betwixt a root and a trunk, but a compound of both, as may be gathered from their circumvolutions, in which they mutually aſcend and deſcend. In the mounting of the trunk, continues the ſame author, claſpers ſerve for ſupport. Thus in vines, the branches being very long, fragile, and ſlender, would be liable to frequent breaking, unleſs, by means of their claſpers, they were mutually contained together; ſo that the whole care is divided betwixt the gardener and nature: the former, with his ligaments of leather, ſecures the main branches; and nature, with thoſe of her own providing, ſecures the leſs. Their aptitude to this end is ſeen in their convolutions, a motion not proper to any other part: and alſo in their toughneſs, which is ſo much the more remarkable, as they are ſlenderer than the branches from which they proceed. In the trailing of the trunk, tendrils ſerve for ſtabilement and ſhade: thus, in cucumbers, the trunk and branches being long and fragile, would be driven to and fro by the winds, to the great prejudice both of themſelves and their tender fruits, were they not, by theſe ligaments, held faſt together, and preſerved in aſſociation and good fellowſhip. The ſame claſpers ſerve likewiſe for ſhade ſo that a natural arbour is formed by the branches of the cucumber, in the ſame manner as an artificial one is made by tangling together the twigs of trees; for the branches, by the linking of their claſpers, being couched together, the tender fruits lie under the umbrage of a bower made of their own leaves. Moſt of the pea-bloom flowers have twining claſpers, that is, which wind to the right and back again.

CIRRI, in ichthyology, certain oblong and ſoft appendages, not unlike little worms, hanging from the under jaws or mouths of ſome fiſhes: theſe cirri, commonly tranſlated *beards*, afford marks to diſtinguiſh the different ſpecies of the fiſhes on which they are found.

CIRTA, (anc. geog.) the metropolis and royal reſidence, not far from the river Ampſaga, in the inland parts of Numidia Propria. A colony, ſurnamed *Colonia Sittianorum*, very rich, when in the hands of Syphax. The colony was led by one P. Sittius, under the auſpices of Cæſar, and was ſurnamed *Julia*. Now called *Conſtantina*, in Algiers. E. Long. 7. 0. Lat. 35. 30.

CISALPINE, any thing on this ſide the Alps. The Romans divided Gaul and the country now called *Lombardy*, into Ciſalpine and Tranſalpine. That which was Ciſalpine with regard to the Romans, is Tranſalpine with regard to us.

CISLEU, in Hebrew chronology, the ninth month of their eccleſiaſtical, and third of their civil, year, anſwering nearly to our November.

CISPADANA GALLIA, (anc. geog.) a diſtrict of Italy, to the ſouth of the Po, occupied by the Gauls in the time of the kings of Rome, ſeparated from Liguria on the weſt, as is thought by the Iria, running from ſouth to north into the Po; bounded on the ſouth by the Apennine, and on the eaſt by the Adriatic. The term is formed analogically, there being much mention in Cicero, Tacitus, Suetonius, and ancient inſcriptions, made of the *Tranſpadani;* which and *Ciſpadani* are terms uſed with reſpect to Rome. Ptolemy calls the *Ciſpadana* peculiarly *Gallia Togata,* extending between the Po and Apennine, to the Sapis and Rubicon.

CISSA, or Cissum, (anc. geog.) a town of the Hither Spain, in Lacetania, on the eaſt ſide of the Iberus, (thought to be *Guiſſona.*) Where the Carthaginians were firſt defeated by Scipio. Another *Ciſſa* of Thrace, ſituated on the River Ægos Potamus, which Scylax ſeems to call *Creſſa,* or *Criſſa;* ſo that the reading is doubtful.

CISSAMPELOS, in botany: A genus of the monodelphia order, belonging to the diœcia claſs of plants; and in the natural method ranking under the 11th order, *Sarmentaceæ.* The male calyx is tetraphyllous; no corolla; the nectarium wheel-ſhaped; four ſtamina with their filaments grown together. The female calyx is monophyllous and ligulated roundiſh, or like a piece of garter a little roundiſh. There is no corolla; three ſtyles, and a monoſpermous berry. There are two ſpecies, the pareira and caapeba, both natives of the warmeſt parts of America. The root of the ſecond, applied externally, is ſaid to be an antidote againſt the bites of venemous ſerpents. The plant being infuſed in water, quickly fills the liquor with a mucilaginous ſubſtance, which is as thick as jelly; whence the name of *freezing-wyth,* by which this genus of plants has been diſtinguiſhed by the Brazilians.

CISSOID, in geometry, a curve of the ſecond order, firſt invented by Diocles, whence it is called *the ciſſoid of Diocles.* See Fluxions.

CISSUS, the wild-grape: A genus of the monogynia order, belonging to the tetrandria claſs of plants; and in the natural method ranking under the 46th order, *Hederaceæ.* The berry is monoſpermous, ſurrounded by the calyx, and a quadripartite corolla. There are four ſpecies, all of them natives of the iſland of Jamaica, and ſome of the other iſlands in the warm parts of America. They ſend out ſlender branches, having tendrils at their joints, by which they faſten to the neighbouring trees, buſhes, and any other ſupport, mounting to a conſiderable height. The fruit of ſome of the ſpecies are eaten by the negroes.

CISTERCIANS, in church-hiſtory, a religious order founded in the 11th century by St Robert, a Benedictine. They became ſo powerful, that they governed almoſt all Europe, both in ſpirituals and temporals. Cardinal de Vitri deſcribing their obſervances, ſays, they neither wore ſkins nor ſhirts; nor ever eat fleſh, except in ſickneſs; and abſtained from fiſh, eggs, milk, and cheeſe: they lay upon ſtraw-beds, in tunics and cowls: they roſe at midnight to prayers; they ſpent the day in labour, reading, and prayer: and in all their exerciſes obſerved a continual ſilence. The habit of the ciſtercian monks is a white robe, in the nature of a caſſock, with a black ſcapulary and hood, and is girt with a woollen girdle. The nuns wear a white tunic, and a black ſcapulary and girdle.

CISTERN, denotes a ſubterraneous reſervoir of rain-water; or a veſſel ſerving as a receptacle for rain or other water, for the neceſſary uſes of a family. There are likewiſe lead-ciſterns, jar-ciſterns, &c.

Authors mention a ciſtern at Conſtantinople, the vaults of which are ſupported by two rows of pillars, 212 in each row, each pillar being two feet in diameter. They are planted circularly, and *in radii* tending to that of the centre.

Anciently there were ciſterns all over the country in Paleſtine. There were ſome likewiſe in cities and private houſes. As the cities for the moſt part were built on mountains, and the rains fell regularly in Judea at two ſeaſons in the year only, in ſpring and autumn, people were obliged to keep water in ciſterns in the country for the uſe of their cattle, and in cities for the conveniency of the inhabitants. There are ſtill ciſterns of very large dimenſions to be ſeen in Paleſtine, ſome whereof are 150 paces long, and 54 wide. There is one to be ſeen at Ramah of 32 paces in length, and 28 in breadth. Wells and ciſterns, ſprings and fountains, are generally confounded in ſcripture-language.

CISTUS, the Rock-rose: A genus of the monogynia order, belonging to the polyandria claſs of plants; and in the natural method ranking under the 20th order, *Rotaceæ.* The corolla is pentapetalous; the calyx pentaphyllous, with two of its leaves ſmaller than the reſt. The ſeeds are contained in a capſule. There are 37 ſpecies, moſt of them natives of the ſouthern parts of Europe, but hardy enough to bear the open air in England. They are beautiful evergreen ſhrubs, generally very branchy quite from the bottom, and forming diffuſed heads. They are very ornamental in gardens, not only as evergreens, making a fine variety at all ſeaſons with their leaves of different figures, ſizes, and ſhades of green and white, but alſo as firſt-rate flowering ſhrubs, being very profuſe in moſt elegant flowers of white, purple, and yellow colours. Theſe flowers only laſt for one day; but there is a continual ſucceſſion of new ones for a month or ſix weeks on the ſame plant; and when there are different ſpecies, they will exhibit a conſtant bloom for near three months. They are propagated either by ſeeds or cuttings, and thrive beſt in a dry ſoil. Their proper ſituation in ſhrubbery works ſhould be towards the front of the clumps and other compartments, in aſſemblage with the choiceſt ſhrubs of ſimilar growth, diſpoſing them ſo as to make a variety, and to have ſhelter from the other plants; but they ought by no means to be crowded. Gum labdanum is found upon a ſpecies of ciſtus which grows naturally in the Levant, and is therefore called *ladanifera.* See Labdanum.

CITADEL, a place fortified with five or ſix baſtions, built on a convenient ground near a city, that it may command it in caſe of a rebellion.

CITADELLA, the capital town in the iſland of Minorca, in the Mediterranean, with a new harbour. This, with the whole iſland, were taken by general Stanhope and the confederate fleet in 1708, and ceded to Great Britain by the treaty of Utrecht in 1713: but it was taken by the French, after a brave defence, in 1756; and reſtored by the peace. In 1782, it was taken by the Spaniards, and confirmed to them at the ſubſequent peace. It is 27 miles weſt of Port-Mahon. E. Long. 3. 30. N. Lat. 39. 58.

CITADINESCA, in natural hiſtory, a name given by ſome writers to the Florentine marble, which is ſuppoſed to repreſent towns, palaces, ruins, rivers, &c. Theſe delineations are merely accidental, and are commonly much aſſiſted by the imagination, though the natural lines of a ſtone may ſometimes luckily enough repreſent the ruins of ſome ancient building, or the courſe of a river. In England there is a kind of ſeptaria, or ludus Helmontii, which has ſometimes pretty beautiful, though very irregular, delineations of this kind. The Florentine marble, as we ſee it wrought up in the ornaments of cabinets, &c. owes a great deal to the ſkill of the workmen, who always pick out the proper pieces from the maſs, and diſpoſe them in the work ſo as to repreſent what they pleaſe.

CITATION, in eccleſiaſtical courts, is the ſame with ſummons in civil courts. See SUMMONS.

CITATION, is alſo a quotation of ſome law, authority, or paſſage of a book.

CITHÆRON, (anc. geog) a mountain and foreſt of Bœotia, celebrated both in fable and ſong. To the weſt it ran obliquely, a little above the Sinus Criſſæus, taking its riſe contiguous to the mountains of Megara and Attica; then levelled into plains, it terminates at Thebes, famous for the fate of Pentheus and Actæon; the former torn by the Bacchæ, the latter by the dogs; as alſo for the *orgia*, or revels of Bacchus.

CITHARA, in antiquity, a muſical inſtrument, the preciſe ſtructure of which is not known; ſome think it reſembled the Greek delta Δ; and others the ſhape of a half moon. At firſt it had only 3 ſtrings, but the number was at different times increaſed to 8, to 9, and laſtly to 24. It was uſed in entertainments and private houſes, and played upon with a plectrum or quill, like the lyre.

CITHAREXYLON, FIDDLE-WOOD: A genus of the angioſpermia order, belonging to the didynamia claſs of plants; and in the natural method ranking under the 40th order, *Perſonatæ*. The calyx is quinquedentated, campanulated, wheel-ſhaped, and inclining to be funnel-ſhaped, with its ſegments villous on the upper ſide, equal. The fruit a diſpermous berry; the ſeeds bilocular. There are two ſpecies, both natives of the warm parts of America, where they grow to be large trees, and are adorned with white flowers growing in ſpikes. In Britain they appear only as ſhrubs, and muſt be conſtantly retained in the ſtove, where they make a fine appearance, being beautiful evergreens. They may be propagated either by ſeeds or cuttings.

CITIUM, CETIUM, or *Cittium*, (anc. geog.) a town of Cyprus, ſituated in the ſouth of the iſland; famous for the birth of Zeno, author of the ſect called *Stoics*; diſtant two hundred ſtadia to the weſt of Salamis (Diodorus Siculus). A colony of Phœnicians, called *Chetim*: And hence it is that not only Cyprus, but the other iſlands and many maritime places, are called *Chetim* by the Hebrews; now called *Chiti*.

CITIZEN, a native or inhabitant of a city, veſted with the freedom and liberties of it.

A citizen of Rome was diſtinguiſhed from a ſtranger, becauſe he belonged to no certain commonwealth ſubject to the Romans. A citizen is either by birth or election; and ſons may derive the right from their fathers. To make a good Roman citizen, it was neceſſary to be an inhabitant of Rome, to be inrolled in one of the tribes, and to be capable of dignities. Thoſe to whom were granted the rights and privileges of Roman citizens, were only honorary citizens. It was not lawful to ſcourge a citizen of Rome.

CITRINUS, in natural hiſtory, the name of a peculiar ſpecies of ſprig cryſtal, which is of a beautiful yellow. Many of the common cryſtals, when in the neighbourhood of lead mines, are liable to be accidentally tinged yellow, by an admixture of the particles of that metal; and all theſe, whether finer or coarſer, have been too frequently confounded together under the name *citrine*: but Dr Hill has aſcertained this to be a peculiar ſpecies of cryſtal different from all the others in form as well as in colour; and diſtinguiſhed by the name of *ellipomacroſtylum lucidum flaveſcens, pyramide brevi*. It is never found colourleſs like the other cryſtals, but has great variety of tinges, from that of the deeper ochres to a pale lemon-colour. It is very plentiful in the Weſt Indies, and is ſometimes found in Bohemia. Our jewellers have learned from the French and Italians, who are very fond of it, to call it *citrine*; and often cut ſtones for rings out of it, particularly out of the pyramid, which is always finer than the column; and theſe, after they have paſſed through two or three hands, are generally miſtaken for topazes.

CITRON-TREE, in botany. See CITRUS.

CITRON-Water, a well known ſtrong water or cordial, which may be thus made: Take of fine thin lemon-peel, 18 ounces; of orange-peel, 9 ounces; perfect nutmegs, 4 ounces; the fineſt and beſt rectified ſpirit of wine, 2 gallons and a half. Digeſt in balneo mariæ for one night: draw off with a ſlow fire; then add as much water as will juſt make the matter milky (which will be about 7 quarts or 2 gallons); and, laſtly, add 2 pounds of fine ſugar. This compoſition may be improved by freſh elder flowers, hung in a cloth in the head of the ſtill, ſprinkled with ambergreaſe in powder, or its eſſence.

CITRON-Wood, the wood of an American tree, called by the natives *candle-wood*; becauſe, being cut into ſplinters, it burns like a candle. The tree is frequent in the Leeward Iſlands, and grows to a conſiderable ſize: the leaves are like thoſe of the bay-tree, but of a finer green; the flower is ſweet, and much like thoſe of the orange; the fruit ſucceeding theſe is black, and of the ſize of a pepper-corn. The trunk is ſo like the yellow ſaunders in colour, that there was once an opinion that it was the ſame tree, and much of it was imported into Europe, and ſold as ſuch: but they were ſoon found to be different; the ſaunders being of a ſweet ſcent, and but moderately heavy and reſinous; but the citron-wood conſiderably heavy, very oily, and of a ſtrong ſmell. It is of no known uſe in medicine; but is uſed in France and Germany by the turners, being a fine firm-grained wood, and

Citrus.

taking a fine poliſh, and with age becoming of a very beautiful brown.

CITRUS, the Citron-tree: A genus of the polyadelphia order, belonging to the icoſandria claſs of plants. The calyx is quinquefid; the petals oblong, and five in number; the antheræ 20, with their filaments grown together ſo as to form various pencils. The fruit is an unilocular berry.

Species. I. The Medica, or Citron-tree, hath an upright ſmooth trunk, divided at top into a branchy ſtrong-ſhooting, full head, from about 5 to 15 feet high, adorned with large, oval, ſpear-ſhaped, thick leaves, having linear foot-ſtalks, and numerous flowers from the ſides of the branches, ſucceeded by very large oblong oval, pointed, rough-rinded fruit. The varieties are citron-tree with four fruit; with ſweet fruit; with long fruit; with warted fruit; with recurved fruit; and with blotched leaves.

II. The Lima, or Lemon-tree, hath an upright ſmooth trunk, divided upwards into a branchy regular head; from 12 to 15 feet high; large, oval, ſpear-ſhaped, pointed, ſlightly ſawed leaves, on linear foot-ſtalks; and many flowers from the ſides of the branches ſucceeded by large oval fruit prominent at the top. The varieties are, the lemon-tree with four fruit; with ſweetiſh fruit; with very large fruit called *Imperial lemon;* with pear-ſhaped fruit; with furrowed fruit; with cluſtered fruit; with childing fruit; with whitiſh fruit; with tricolor ſtriped fruit; with ſilver ſtriped leaves; and with double flowers.

III. The Aurantium, or Orange-tree, hath an upright trunk dividing upward into a branchy, regular head, from 5 to 10 or 12 feet high; oval, ſpear-ſhaped, entire leaves, having winged foot-ſtalks and numerous white flowers at the ſides of the branches, ſucceeded by globular fruit compreſſed at both ends. The moſt noted varieties are, 1. The Seville orange. This is a very handſome tree, and the hardieſt of any; as in Britain it ſhoots freely, produces large and beautiful leaves, flowers ſtronger, &c. The fruit is large, rough, rinded, and ſour, of excellent quality for economical uſes. 2. The China orange. This tree has moderately ſized leaves, and a ſmooth, thin-rinded, ſweet fruit, of which there are ſeveral varieties in warm countries, where they grow in the open ground. 3. The great Shaddock orange, or pumplemoes, grows larger and ſtronger than the foregoing, with large, thick, and ſomewhat ſerrated leaves, and very large fruit, having a reddiſh pulp. It derives the name of Shaddock from one of that name that firſt brought it from the Eaſt Indies. 4. The Forbidden-fruit-tree, in trunk, leaves, and flowers, very much reſembles the common orange-tree: but the fruit, when ripe, is larger and longer than the biggeſt orange. It has ſomewhat the taſte of a ſhaddock; but far exceeds that, as well as the beſt orange, in its delicious taſte and flavour. 5. The Horned orange is a tree of moderate ſize, producing fruit which divide, and the rind runs out into diviſions like horns. 6. The Hermaphrodite orange is a common ſized tree, producing fruit ſhaped partly like an orange and partly like a citron. 7. The Dwarf orange tree, or nutmeg orange, has a long ſtem and ſmall buſhy head, growing two or three feet high; ſmall oval leaves in cluſters; and numerous flowers in cluſters, covering the branches, ſucceeded by very ſmall fruit. Theſe are the moſt remarkable varieties of the three foregoing ſpecies of citrus: but beſides theſe there are a great number of others; and indeed in thoſe countries where they grow naturally, the varieties may be multiplied without end, like thoſe of our apples and pears. The flowers of all the ſpecies and varieties are formed each of five ſpreading petals appearing in Britain principally in May and June; and the fruit continue ſetting in June and July, and ripen the year following.

Plate cxxxviii.

IV. The Trifoliata, or Japoneſe citron, is a thorny ſhrub growing naturally in Japan, where it is likewiſe known by the names of Gees, and Karatals banna. The trunk, we are told by Kæmpfer, acquires by age and culture the thickneſs of a tree. The branches and ſhoots are unequal; in ſome parts compreſſed, in others ſwelling, eſpecially about the ſpines. Theſe proceed ſingly from the ſtem and branches; are ſtraight, run out from a broad baſe into a very ſharp point; and are protruded from the wood, with the common bark of which they are likewiſe inveſted. The wood is looſe and ſoft; the bark of a ſhining green, moiſt and eaſily parting from the wood. The leaves are few in number, ſawed on the edges, veined, placed without order, but generally growing under the ſpines. They grow by threes, like thoſe of trefoil, upon the extremity of a common foot-ſtalk which is furniſhed on each ſide with a membranaceous fringe or margin, ſomewhat reſembling the pedicles of the orange. The upper ſurface of the leaves is of a bright lucid green, the lower dark and herbaceous. The flowers, which reſemble thoſe of the medlar, proceed ſingly from the arm-pits of the leaves; are white, poſſeſſed of no great degree of fragrance, and conſiſt of five petals. The fruit is equally beautiful with a middle-ſized orange; their internal ſtructure is alſo pretty much the ſame; only the pulp is glutinous, of an unpleaſant ſmell, and a harſh diſagreeable taſte. The ſeeds have the ſame taſte with the pulp, and are ſhaped exactly like thoſe of the orange.

Culture. The three firſt ſpecies merit particular attention. They are elegant evergreens, riſing in Britain from about 5 to 10 feet in height; forming full and handſome heads, cloſely garniſhed with beautiful large leaves all the year round, and putting forth a profuſion of ſweet flowers in ſpring and early in ſummer; which even in this climate are often ſucceeded by abundance of fruit that ſometimes arrive at tolerable perfection. Though all the varieties were originally obtained by ſeed, yet the only certain method of continuing the approved varieties is by budding or inarching them on ſtocks raiſed from ſeed to a proper ſize. As the young trees, however, are brought in plenty from abroad, this method is ſeldom practiſed in Britain: but for curioſity, it may be done by thoſe who are ſo inclined, in the following manner: Early in the ſpring procure ſome kernels, which may be had in plenty from rotten fruits, or others that are properly ripened, obſerving that for ſtocks the citron, lemon, and Seville-orange, as being the freeſt ſhooters, are to be preferred; and of theſe the citron is the ſtrongeſt. Sow the kernels in March, in pots of rich light earth half an inch deep, and plunge them in a hot-bed under frames and glaſſes. Dung or tan may be uſed, but the latter is preferable, giving air, and frequent ſprinklings of water. In two or three weeks, the plants will come up; and in ſix or eight weeks more, they will be advanced four or five inches or more in height. You muſt now give them more air and water; and about the middle of June harden them to the full air, in which let them remain till October; then move them into the green houſe, to ſtand till the ſpring, and in March or April plant them ſingly in ſmall pots; being careful to ſhake them out of the ſeed pots with their roots entire. They muſt be watered immediately after planting, and the watering muſt be occaſionally repeated. After this they are to be treated as woody exotics of the green houſe; and in a year or two the largeſt of thoſe deſigned for ſtocks will be fit for budding.

The operation for budding is performed in the month of Auguſt, and is done in the common way *; only the buds muſt be taken from trees of a good kind that bear well. As ſoon as the operation is finiſhed, the pots with their plants muſt be placed in the green-houſe, or in a glaſs-caſe; or, where there is the convenience of a ſpare bark pit, where the heat of the bark is almoſt exhauſted, the pots may be plunged therein for two or three weeks. In either caſe, however, the air muſt be admitted freely by opening the front glaſſes; allowing alſo a ſlight ſhade of mats in the middle of hot ſunſhine days, and ſupplying them with water every two or three days during this kind of weather. In three or four weeks the buds will be united with the ſtock; when it will be proper to looſen the bandages, that they may have room to ſwell; the buds, however, will all remain dormant till the next ſpring. They may alſo be propagated by inarching, which is done in the common way †; but the method of budding is found to produce much handſomer trees, and therefore is to be preferred. But the moſt cheap and expeditious method of procuring a collection of theſe kind of trees is by having recourſe to ſuch as are imported from Spain, Italy, and Portugal. Theſe come to Britain in cheſts, without any earth to their roots, having their roots and heads a little trimmed: they are commonly from one inch to two or three in diameter in the ſtem; from two to four or five feet in height: and by the aſſiſtance of a bark-bed they readily take root and grow freely; forming as good trees in two years, as could be raiſed there by inarching or budding in 15 or 20. They are ſold in the Italian warehouſes in London. Their price is from three ſhillings to a gunea each, according to their ſize; and they are generally advertiſed as ſoon as they arrive, which is early in the ſpring, and the ſooner the better. In the choice of theſe trees, it muſt be obſerved, that they are commonly budded at ſuch height in the ſtem, as to form heads from about two to four or five feet high; and as they are frequently furniſhed with two buds, one on each ſide of the ſtem, theſe ſhould be choſen preferably to others, as they will form the moſt regular heads. Preparatory to their planting they muſt be placed for a day or two in tubs of water to plump their bark and roots; after this they muſt be waſhed and cleaned, their branches trimmed to half a foot long, and the roots freed from diſeaſed parts, and all the ſmall dried fibres. Then they are to be planted in pots filled with light rich earth; and plunged in a tan-bed, where they are to remain for three or four months; after which they are to be trained to the open air, but will not bear it longer than from the end of May till the middle or end of October.

Sometimes theſe trees, inſtead of being kept in pots or tubs, are planted in the full ground; and where this can be done, it is by far the moſt eligible method. Where this is intended, there muſt be frames erected for the ſupport of glaſs and other covers, to defend the plants during inclement weather; and in this ſituation the trees generally ſhoot ſtrong, produce large fruit, and may be trained either as wall or ſtandard trees. A ſouth wall, in a dry ſituation, is proper for training them as wall-trees; againſt which may be erected wooden frame-work ſloping, either fixed or moveable, for the ſupport of glaſs frames for winter; likewiſe for the greater protection of the trees in ſevere froſts, there may be a fire-place with a flue or two carried alongſt a low wall in the fronts and ends. To have the trees as ſtandards, a more capacious and lofty glaſs-caſe ſhould be erected againſt the wall, in the manner of a hot-houſe, but higher; in this one or two rows of orange-trees may be planted, ſuffering them to run up as ſtandards with only ſome neceſſary pruning juſt to preſerve their regularity. In ſome places there are lofty moveable glaſs-caſes, ſo that two or three rows of trees are planted in a conſpicuous part of the pleaſure-ground. In winter the frame is put over them, and in ſummer wholly taken away; ſo that they appear like a little orange-grove growing in the open ground. The flowering and fruit-ſetting ſeaſon of all the ſorts of citrus is in June and July. They are often, eſpecially the orange-trees, greatly loaded with bloſſoms; and when theſe ſtand very thick, it is proper to thin them a little, taking off the ſmalleſt. It is alſo to be obſerved, that as the trees continue blowing and ſetting their fruit for three months, when a full crop of fruit is ſet, it is of benefit to the trees and fruit to gather off the ſuperabundant bloſſoms as they are produced; though ſome permit them to remain on account of their appearance.

Uſes. The fruits of the citron, lemon, and orange trees, yield very agreeable acid juices; which, beſides the uſes to which they are commonly applied, anſwer conſiderable purpoſes in medicine. When Commodore Anſon ſailed round the world, his men were ſo ſurpriſingly recovered from the ſcurvy by the oranges which they found at the iſland of Tinian, that it was afterwards thought worthy of the attention of government to inquire into the virtues of theſe fruits as an antiſcorbutic medicine. In Captain Cook's laſt voyage, he was ſupplied with a quantity of orange and lemon juice inſpiſſated to a rob; but his opinion of its efficacy is by no means great. The dearneſs of it is a great objection; and, unleſs in conjunction with other things, he has not obſerved its good effects. Sir John Pringle, in his diſcourſe before the Royal Society, when Captain Cook was preſented with a medal by that reſpectable body, differs a little from the Captain's opinion, and thinks that in the ſea-ſcurvy theſe fruits muſt neceſſarily be very efficacious. He approves, however, more of the

* See *Inoculation.*

† See *Inarching.*

the juices themſelves depurated, than the extract of them; as this cannot be prepared without diſſipating many of the finer parts. The juice of lemons is very frequently uſed for neutraliſing alkaline ſalts for ſaline draughts. The citron is ſeldom uſed in Britain; though its peel, as well as that of the lemon, is candied, and ſold as a ſweetmeat. The yellow peel of the lemon is an agreeable aromatic, as is alſo that of the orange; and in cold phlegmatic conſtitutions they prove excellent ſtomachics and carminatives, promoting appetite, warming the habit, and ſtrengthening the tone of the viſcera. Orange-peel, however, is very conſiderably warmer than that of lemons, and abounds more in eſſential oil: to this circumſtance, therefore due regard ought to be had in the uſe of theſe medicines. The flavour of orange-peel is likewiſe leſs periſhable than that of lemons. Both are ingredients in many officinal preparations.

The young fruit of the Seville orange dried are uſed in medicine under the name of *aurantia curaſſaventia*. They are moderately warm bitteriſh aromatics, of a ſufficiently agreeable flavour. The flowers of the orange-tree have been for ſome time paſt in great eſteem as a perfume. They are highly odoriferous, of a ſomewhat warm and bitter taſte. They yield their flavour by infuſion to rectified ſpirit, and in diſtillation both to ſpirit and water. The bitter matter is diſſolved in water, and on evaporating the decoction remains entire in the extract. The diſtilled water was formerly kept in the ſhops, but on account of the great ſcarcity of the flowers is now laid aſide: it is called by foreign writers *aqua naphæ*. An oil diſtilled from theſe flowers is brought from Italy under the name of *oleum*, or *eſſentia neroli*.

CITTERN, a muſical inſtrument much reſembling the guittar, for which it has been frequently miſtaken. Anciently it was called the *ciſtrum*, and till lately was held in great contempt both in France and Britain. The practice on it being very eaſy, it was formerly the amuſement and recreation of lewd women, and their viſitors; inſomuch, that in many of the old Engliſh dramatic writers, it is made the ſymbol of a woman that lived by proſtitution. It was alſo the common amuſement of waiting cuſtomers in barbers ſhops, as being the moſt eaſy of all inſtruments to play on, and therefore it was thought that almoſt every body could make uſe of it.

CITY, according to Cowel, is a town corporate which hath a biſhop and cathedral church; and is called *civitas*, *oppidum*, and *urbs*: *civitas*, in regard it is governed by juſtice and order of magiſtracy; *oppidum*, becauſe it contains a great number of inhabitants; and *urbs*, becauſe it is in due form ſurrounded with walls.

Kingdoms have been ſaid to contain as many cities as they have ſeats of archbiſhops and biſhops: but, according to Blount, *city* is a word that hath obtained ſince the conqueſt; for, in the time of the Saxons, there were no cities, but all the great towns were called *burghs*, and even London was then called *Londonburgh*, as the capital of Scotland is called *Edinburgh*. And long after the conqueſt the word *city* is uſed promiſcuouſly with the *burgh*, as in the charter of Leiceſter, where it is both called *civitas* and *burgus*: which ſhows that thoſe writers were miſtaken who tell us every city was, or is, a biſhop's ſee. And though the word *city* ſignifies in Britain ſuch a town corporate as hath uſually a biſhop and a cathedral church, yet it is not always ſo.

As to the ancient ſtate of cities and villages, whilſt the feudal policy prevailed, they held of ſome great lord on whom they depended for protection, and were ſubject to his arbitrary juriſdiction. The inhabitants were deprived of the natural and moſt unalienable rights of humanity. They could not diſpoſe of the effects which their own induſtry had acquired, either by a latter-will or by any deed executed during their life. They had no right to appoint guardians for their children during their minority. They were not permitted to marry without purchaſing the conſent of the lord on whom they depended. If once they had commenced a law-ſuit, they durſt not terminate it by an accommodation, becauſe that would have deprived the lord, in whoſe court they pleaded, of the perquiſites due to him on paſſing his ſentence. Services of various kinds no leſs diſgraceful than oppreſſive were exacted from them without mercy or moderation. The ſpirit of induſtry was checked in ſome cities by abſurd regulations, and in others by unreaſonable exactions: nor would the narrow and oppreſſive maxims of a military ariſtocracy have permitted it ever to riſe to any degree of height or vigour.

Robertſon's Charles V.

The freedom of cities was firſt eſtabliſhed in Italy, owing principally to the introduction of commerce. As ſoon as they began to turn their attention towards this object, and to conceive ſome idea of the advantages they might derive from it, they became impatient to ſhake off the yoke of their inſolent lords, and to eſtabliſh among themſelves ſuch a free and equal government as would render property ſecure and induſtry flouriſhing. The German emperors, eſpecially thoſe of the Franconian and Suabian lines, as the ſeat of their government was far diſtant from Italy, poſſeſſed a feeble and imperfect juriſdiction in that country. Their perpetual quarrels, either with the popes or their own turbulent vaſſals, diverted their attention from the interior police of Italy, and gave conſtant employment for their arms. Theſe circumſtances induced ſome of the Italian cities, towards the beginning, of the 11th century, to aſſume new privileges; to unite together more cloſely; and to form themſelves into bodies politic, under the government of laws eſtabliſhed by common conſent. The rights which many cities acquired by bold or fortunate uſurpations, others purchaſed from the emperors, who deemed themſelves gainers when they received large ſums for immunities which they were no longer able to with-hold; and ſome cities obtained them gratuitouſly from the facility or generoſity of the princes on whom they depended. The great increaſe of wealth which the cruſades brought into Italy, occaſioned a new kind of fermentation and activity in the minds of the people, and excited ſuch a general paſſion for liberty and independence, that, before the concluſion of the laſt cruſade, all the conſiderable cities in that country had either purchaſed or had extorted large immunities from the emperors.

This innovation was not long known in Italy before it made its way into France. Louis the Groſs, in order to create ſome power that might counterbalance thoſe potent vaſſals who controlled or gave law to the crown, firſt adopted the plan of conferring new privileges on the towns ſituated within his own domaine. Theſe privileges were called *charters of community*, by which he enfranchiſed the inhabitants, aboliſhed all marks of ſervitude, and formed them into corporations or bodies politic, to be governed by a council and magiſtrates of their own nomination. Theſe magiſtrates had the right of adminiſtering juſtice within their own precincts; of levying taxes; of embodying and training to arms the militia of the town, which took the field when required by the ſovereign, under the command of officers appointed by the community. The great barons imitated the example of their monarch, and granted like immunities to the towns within their territories. They had waſted ſuch great ſums in their expeditions to the Holy Land, that they were eager to lay hold on this new expedient for raiſing money by the ſale of thoſe charters of liberty. Though the conſtitution of communities was as repugnant to their maxims of policy as it was adverſe to their power, they diſregarded remote conſequences in order to obtain preſent relief. In leſs than two centuries, ſervitude was aboliſhed in moſt of the cities of France, and they became free corporations, inſtead of dependent villages without juriſdiction or privileges. Much about the ſame period the great cities of Germany began to acquire like immunities, and laid the foundations of their preſent liberty and independence. The practice ſpread quickly over Europe, and was adopted in Spain, England, Scotland, and all the other feudal kingdoms.

The Spaniſh hiſtorians are almoſt entirely ſilent concerning the origin and progreſs of communities in that kingdom; ſo that it is impoſſible to fix with any degree of certainty the time and manner of their firſt introduction there. It appears, however, from Mariana, that in the year 1350 eighteen cities had obtained a ſeat in the Cortes of Caſtile. In Arragon, cities ſeem early to have acquired extenſive immunities, together with a ſhare in the legiſlature. In the year 1118, the citizens of Saragoſſa had not only obtained political liberty, but they were declared to be of equal rank with the nobles of the ſecond claſs; and many other immunities, unknown to perſons in their rank of life in other parts of Europe, were conferred upon them. In England, the eſtabliſhment of communities or corporations was poſterior to the conqueſt. The practice was borrowed from France, and the privileges granted by the crown were perfectly ſimilar to thoſe above enumerated. It is not improbable, that ſome of the towns in England were formed into corporations under the Saxon Kings; and that the charters granted by the kings of the Norman race were not charters of enfranchiſement from a ſtate of ſlavery, but a confirmation of privileges which they had already enjoyed.† The Engliſh cities, however, were very inconſiderable in the 12th century. A clear proof of this occurs in the hiſtory juſt referred to. Fitz-Stephen, a contemporary author, gives a deſcription of the city of London in the reign of Henry II. and the terms in which he ſpeaks of its trade, its wealth, and the number of its inhabitants, would ſuggeſt no inadequate idea of its ſtate at preſent, when it is the greateſt and moſt opulent city in Europe. But all ideas of grandeur and magnificence are merely comparative. It appears from Peter of Blois, archdeacon of London, who flouriſhed in the ſame reign, and who had good opportunity of being informed, that this city, of which Fitz-Stephen gives ſuch a pompous account, contained no more than 40,000 inhabitants. The other cities were ſmall in proportion, and in no condition to extort any extenſive privileges. That the conſtitution of the boroughs of Scotland in many circumſtances reſembled that of the towns of France and England, is manifeſt from the *Leges Burgorum* annexed to the *Regiam Majeſtatem*.

CIVET, a kind of perfume which bears the name of the animal it is taken from, and to which it is peculiar. See Viverra.

Good civet is of a clear, yellowiſh, or browniſh colour; not fluid nor hard, but about the conſiſtence of butter or honey, and uniform throughout; of a very ſtrong ſmell, quite offenſive when undiluted, but agreeable when only a ſmall portion of civet is mixed with a large one of other ſubſtances. It unites eaſily with oils both expreſſed and diſtilled, but not at all with water or ſpirit of wine: nor can it be rendered miſcible with water by the mediation of ſugar. The yolk of an egg ſeems to diſpoſe it to unite with water; but in a very little while the civet ſeparates from the liquor, and falls to the bottom, though it does not prove of ſuch a reſinous tenacity as when treated with ſugar and ſpirit of wine. It communicates, however, ſome ſhare of its ſmell both to watery and ſpiritous liquors: hence a ſmall portion of it is often added in odoriferous tinctures, and ſuſpended in the ſtill-head during the diſtillation of odoriferous waters and ſpirits. It is rarely if ever employed for medicinal purpoſes. The Italians make it an ingredient in perfumed oils, and thus obtain the whole of its ſcent; for oils wholly diſſolve the ſubſtance of it. It is very rare, however, to meet with civet unadulterated. The ſubſtances uſually mixed with it are lard and buttter; which agreeing with it in its general properties, render all criteria for diſtinguiſhing the adulteration impoſſible. A great trade of civet is carried on at Calicut, Baſſora, and other parts of the Indies, and in Africa, where the animal that produces the perfume is found. Live civet-cats are to be ſeen alſo in France and Holland. The French keep them only as a rarity; but the Dutch, who keep a great number, draw the civet from them for ſale. It is moſtly uſed by confectioners and perfumers.

Civet-Cat, the Engliſh name of the animal which produces the civet. See Viverra.

CIVIC crown, was a crown given by the ancient Romans to any ſoldier who had ſaved the life of a citizen in an engagement.

The civic crown was reckoned more honourable than any other crown, though compoſed of no better materials than oak-boughs. Plutarch, in the life of C. M. Coriolanus, accounts as follows for uſing on this occaſion the branches of this tree before all others: becauſe, ſays he, the oaken wreath being ſacred to Jupiter, the great guardian of their city, they thought it the moſt proper ornament for him who had preſerved the life of a citizen. Pliny,* ſpeaking of the honour and privileges conferred on thoſe who had merited this crown, ſays, "They who had once obtained it, might wear it always. When they appeared at the public ſpectacles, the ſenate and people roſe to do them honour, and they took their ſeats on theſe occaſions among the ſenators. They were not only perſonally excuſed from all troubleſome offices, but procured the ſame immunity for their father and grandfather by the father's ſide.

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† See *Lord Lyttleton's Hiſtory of Henry II.* Voll. II. p. 317.

* *Lib.* xvi. *cap.* 4.

CIVIDAD-de-las-Palmas, the capital town of the iſland of Canary, with a biſhop's ſee, and a good harbour. The houſes are well built, two ſtories high, and flat-roofed. The cathedral is a very handſome ſtructure; and the inhabitants are gay and rich. The air is temperate, and free from extremes of heat and cold. It is defended by a ſmall caſtle ſeated on a hill, W. Long. 14. 35. N. Lat. 28. 0.

Cividad-Real, a town of Spain, in New Caſtile, and capital of La Mancha. The inhabitants are noted for dreſſing leather extremely well for gloves. W. Long. 4. 15. N. Lat. 39. 2.

Cividad-Roderigo, a ſtrong and conſiderable town of Spain, in the kingdom of Leon, with a biſhop's ſee. It is ſeated in a fertile country, on the river Aquada, in W. Long. 6. 52. N. Lat. 40. 38.

Cividad-di-Friuli, a ſmall but ancient town of Italy, in Friuli, and in the territory of Venice; ſeated on the river Natiſona. E. Long. 13. 25. N. Lat. 46. 15.

CIVIL, in a general ſenſe, ſomething that regards the policy, public good, or peace, of the citizens or ſubjects of the ſtate; in which ſenſe we ſay, civil government, civil law, civil right, civil war, &c.

Civil, in a popular ſenſe, is applied to a complaiſant and humane behaviour in the ordinary intercourſe of life. See Civility.

Civil, in a legal ſenſe, is alſo applied to the ordinary procedure in an action, relating to ſome pecuniary matter or intereſt; in which ſenſe it is oppoſed to criminal.

Civil Death, any thing that cuts off a man from civil ſociety; as a condemnation to the galleys, perpetual baniſhment, condemnation to death, outlawry, and excommunication.

Civil Law is properly the peculiar law of each ſtate, country, or city; but what we uſually mean by the civil law, is a body of laws compoſed out of the beſt Roman and Grecian laws, compiled from the laws of nature and nations; and, for the moſt part, received and obſerved throughout all the Roman dominions for above 1200 years. See Law, Part I. n° 43, 44.

It was firſt brought over into England by Theobald a Norman abbot, who was elected to the ſee of Canterbury in 1138; and he appointed a profeſſor, *viz.* Roger ſirnamed *Vicarius*, in the univerſity of Oxford, to teach it to the people of that country. Nevertheleſs, it gained ground very ſlowly. King Stephen iſſued a proclamation, prohibiting the ſtudy of it. And though the clergy were attached to it, the laity rather wiſhed to preſerve the old conſtitution. However, the zeal and influence of the clergy prevailed; and the civil law acquired great reputation from the reign of King Stephen to the reign of King Edward III. both incluſive. Many tranſcripts of Juſtinian's Inſtitute are to be found in the writings of ancient authors, particularly of Bracton and Fleta; and Judge Blackſtone obſerves, that the common law would have been loſt and over-run by the civil, had it not been for the incident of fixing the court of common pleas in one certain ſpot, and the forming the profeſſion of the municipal law into an aggregate body.

It is allowed, that the civil law contains all the principles of natural equity; and that nothing can be better calculated to form good ſenſe and ſound judgment. Hence, though in ſeveral countries it has no other authority but that of reaſon and juſtice, it is every where referred to for authority. It is not received at this day in any nation without ſome alterations: and ſometimes the feudal law is mixed with it, or general and particular cuſtoms; and often ordinances and ſtatutes cut off a great part of it.

In Turkey, the Baſilics are only uſed. In Italy, the canon law and cuſtoms have excluded a good part of it. In Venice, cuſtom hath almoſt an abſolute government. In the Milaneſe, the feudal law, and particular cuſtoms, bear ſway. In Naples and Sicily, the conſtitutions and laws of the Lombards are ſaid to prevail. In Germany and Holland, the civil law is eſteemed to be the municipal law: but yet many parts of it are there grown obſolete; and others are altered, either by the canon law or a different uſage. In Friezeland, it is obſerved with more ſtrictneſs; but in the nothern parts of Germany, the jus Saxonicum, Lubecenſe, or Culmenſe, is preferred before it. In Denmark and Sweden, it hath ſcarce any authority at all. In France, only a part of it is received, and that part is in ſome places as a cuſtomary law; and in thoſe provinces neareſt to Italy it is received as a municipal written law. In criminal cauſes, the civil law is more regarded in France; but the manner of trial is regulated by ordinances and edicts. In Spain and Portugal, the civil law is connected with the jus regium and cuſtom. In Scotland, the ſtatutes of the ſederunt, part of the regæ majeſtatis, and their cuſtoms, controul the civil law.

In England, it is uſed in the eccleſiaſtical courts, in the high court of admiralty, in the court of chivalry, in the two univerſities, and in the courts of equity; yet in all theſe it is reſtrained and directed by the common law.

Civil Society. See Law, Part I. n° 12.

Civil State, in the Britiſh polity, one of the general diviſions of the Laity, comprehending all orders of men from the higheſt nobleman to the meaneſt peaſant that are not included under the Military or Maritime ſtates: though it may ſometimes include individuals of theſe as well as of the Clergy; ſince a nobleman, a knight, a gentleman, or a peaſant, may become either a divine, a ſoldier, or a ſeaman. The diviſion of this ſtate is into Nobility and Commonality. See theſe articles.

Civil War, a war between people of the ſame ſtate, or the citizens of the ſame city.

Civil Year, is the legal year, or annual account of time, which every government appoints to be uſed within its own dominions; and is ſo called in contradiſtinction to the natural year, which is meaſured exactly by the revolution of the heavenly bodies.

CIVILIAN, in general, denotes ſomething belonging to the civil law; but more eſpecially the doctors and profeſſors thereof are called *civilians*.

CIVILITY, a term uſed in common life as ſynonymous with complaiſance or good-breeding.

Civility is juſtly inculcated by didactic writers as a duty of no ſlight conſideration. Without civility, or good-breeding, a court would be the ſeat of violence and deſolation. There, all the paſſions are in fermentation, becauſe all purſue what but few can obtain; there, if enemies did not embrace, they would ſtab; there, ſmiles are often put on to conceal tears; there, mutual ſervices are profeſſed, while mutual injuries are intended; and there, the guile of the ſerpent ſimulates the gentleneſs of the dove. To what a degree muſt good-breeding adorn the beauty of truth, when it can thus ſoften the deformity of falſehood? On this ſubject we have the following elegant obſervations in Knox's Eſſays, N° 95.

“ However juſt the complaints of the miſery of life, yet great occaſions for the diſplay of beneficence and liberality do not often occur. But there is an hourly neceſſity for the little kind offices of mutual civility. At the ſame time that they give pleaſure to others, they add to our own happineſs and improvement. Habitual acts of kindneſs have a powerful effect in ſoftening the heart. An intercourſe with poliſhed and humane company tends to improve the diſpoſition, becauſe it requires a conformity of manners. And it is certain, that a ſenſe of decorum, and of a proper external behaviour, will reſtrain thoſe whoſe natural temper would otherwiſe break out in acrimonious and petulant converſation. Even the affectation of philanthropy will in time contribute to realiſe it. The pleaſure reſulting from an act of kindneſs naturally excites a wiſh to repeat it; and indeed the general eſteem which the character of benevolence procures, is ſufficient to induce thoſe to wiſh for it who act only from the mean motives of ſelf-intereſt.

“ As we are placed in a world where natural evil abounds, we ought to render it ſupportable to each other as far as human endeavours can avail. All that can add a ſweet ingredient to the bitter cup muſt be infuſed. Amid the multitude of thorns, every flower that will grow muſt be cultivated with care. But neither pomp nor power are of themſelves able to alleviate the load of life. The heart requires to be ſoothed by ſympathy. A thouſand little attentions from all around us are neceſſary to render our days agreeable. The appearance of neglect in any of thoſe with whom we are connected, chills our boſom with chagrin, or kindles the fire of reſentment. Nothing therefore ſeems ſo likely to enſure happineſs as our mutual endeavours to promote it. Our ſingle endeavours, originating and terminating in ourſelves, are uſually unſucceſsful. Providence has taken care to ſecure that intercourſe which is neceſſary to the exiſtence of ſociety, by rendering it the greateſt ſweetener of human life.

“ By reciprocal attentions we are enabled to become beneficent without expence. A ſmile, an affable addreſs, a look of approbation, are often capable of giving a greater pleaſure than pecuniary benefits can beſtow. The mere participation of the ſtudies and amuſements of others, at the ſame time that it gratifies ourſelves, is often an act of real humanity; becauſe others would not enjoy them without companions. A friendly viſit in a ſolitary hour, is often a greater act of kindneſs than a valuable preſent.

“ It is really matter of ſurpriſe, that thoſe who are diſtinguiſhed by rank and opulence ſhould ever be unpopular in their neighbourhood. They muſt know the value of popularity; and ſurely nothing is more eaſily obtained by a ſuperior. Their notice confers honour; and the aſpiring heart of man is always delighted with diſtinction. A gracious look from them diffuſes happineſs on the lower ranks. But it uſually happens, that an overgrown rich man is not the favourite of a neighbouring country; and it is unfortunate, that pride or inadvertence often prevent men from acting the godlike part of making others happy, even when they might do it without inconvenience to themſelves.”

CIVITA-DI-PENNA, an ancient town of Italy in the kingdom of Naples, and in the Farther Abruzzo, with a biſhop's ſee. It is ſituated near the river Salino, 25 miles north eaſt of Aquila. E. Long. 13. 3. N. Lat. 42. 25.

Civita-Caſtellana, a town of Italy, in St Peter's patrimony, ſeated on a river, which, ſeven miles from thence, falls into the Tiber. E Long. 13. 5. N. Lat. 42. 15.

Civita Turchino, a place in Italy, about two miles north of the town of Corneto in the patrimony of St Peter. It is an hill of an oblong form, the ſummit of which is almoſt one continued plain. From the quantity of medals, intaglios, fragments of inſcriptions, *&c.* that are occaſionally found here, this is believed to be the very ſpot where the ancient and powerful city of Tarquinii once ſtood. At preſent it is only one continued field of corn. On the ſouth-eaſt ſide of it runs the ridge of a hill which unites it to Corneto. This ridge is at leaſt three or four miles in length, and almoſt entirely covered with artificial hillocks, called by the inhabitants *monti roſſi*. About twelve of theſe hillocks have at different times been opened; and in every one of them have been found ſeveral ſubterranean apartments cut out of the ſolid rock. Theſe apartments are of various forms and dimenſions; ſome conſiſt of a large outer room, and a ſmall one within; others of a ſmall room at the firſt entrance, and a large one within: others are ſupported by a column of the ſolid rock left in the centre, with openings on every part. The entrance to them all is by a door about five feet high, by two and a half broad. Some of them have no light but from the door, while others ſeem to have had a ſmall light from above, through an hole of a pyramidal form. Many of theſe apartments have an elevated port that runs all around the wall, being a part of the rock left for that purpoſe. The moveables found in theſe apartments conſiſt chiefly of Etruſcan vaſes of various forms: in ſome indeed have been found ſome plain ſacrophagi of ſtone, with bones in them. The whole of theſe apartments are ſtuccoed, and ornamented in various manners: ſome indeed are plain; but others, particularly three, are richly adorned, having a double row of Etruſcan inſcriptions running round the upper part of the walls, and under them a kind of frieze of figures in painting: ſome have an ornament under the figures, which ſeems to ſupply the place of an architrave. The paintings ſeem to be in freſco; and in general reſemble thoſe which are uſually ſeen upon Etruſcan vaſes; though ſome of them are perhaps ſuperior to any thing as yet ſeen of the Etruſcan art in painting. In general they are ſlight, but well conceived and prove, that the artiſt was capable of producing things more ſtudied and better finiſhed; though in ſuch a ſubterraneous ſituation, the delicacy of a finiſhed work would in a great meaſure have been thrown away. It is probable, however, that among the immenſe number of theſe apartments that yet remain to be opened, many paintings and inſcriptions may be found ſufficient to form a very uſeful and entertaining work. At preſent this great ſcene of antiquities is almoſt entirely unknown, even in Rome. Mr Jenkins, reſident at Rome, was the firſt Engliſhman who viſited it.

Civita-Vecchia, a ſea-port town of Italy in the patrimony of St Peter, with a good harbour and an arſenal. Here the pope's galleys are ſtationed, and it has lately been made a free port; but the air is very unwholeſome. E. Long. 12. 31. N. Lat. 45. 5.

CIVOLI, or Cigoli, (Lewis), an Italian painter, whoſe family-name was *Cardi*, was born at the caſtle of Cigoli, in Tuſcany, in the year 1559. His *ecce homo*, which he performed as a trial of ſkill with Barochio and Michael Angelo da Caravaggio, was judged better than thoſe executed by them. He excelled in deſigning, and was employed by the popes and princes of his time. He died at Rome in 1613.

CIUS, (anc. geog.) a town and river of Bithynia, which gave name to the Sinus Cianus. The town was afterwards called *Pruſia*, Cius having been deſtroyed by Philip father of Perſeus, and rebuilt by Pruſias king of Bithynia. In the river, Hylas, the favourite boy of Herculus, was drowned; (Apollonius Rhodius).

CLAC, among countrymen. To clack wool, is to cut off the ſheep's mark, which makes the weight leſs, and yields leſs cuſtom to the king.

CLACKMANNAN, the name of a ſmall ſhire in Scotland, not exceeding eight miles in length and five in breadth. It is bounded on the ſouth by the frith of Forth; on the north and weſt by Perthſhire; and on the eaſt by Fife. The country is plain and fertile towards the frith, producing corn and paſture in abundance. It likewiſe yields great quantities of excellent coal, which is exported to England, France, and Holland. It is watered by the rivers Forth and Devan, and joins the ſhire of Kinroſs in ſending a member alternately to parliament.

Clackmannan, a ſmall town of Scotland, and capital of the county of that name, is ſituated on the northern ſhore of the Forth, in W. Long. 3. 40. N. Lat. 56. 15. It ſtands on a hill, on the top of which is the caſtle, commanding a noble proſpect. It was long the ſeat of the chief of the Bruces, who was hereditary ſheriff of the county before the juriſdictions were aboliſhed. The large ſquare tower is called after the name of *Robert Bruce;* whoſe great ſword and caſque are ſtill preſerved here. The hill is prettily wooded; and, with the tower, forms a pictureſque object. Clackmannan is ſtill the ſeat of the Bruces of Kennet.

CLAGENFURT, a ſtrong town of Germany, and capital of Carinthia, ſituated in E. Long. 13. 56. N. Lat. 46. 50.

CLAGET, (William) an eminent and learned divine, born in 1646. He was preacher to the ſociety of Gray's Inn; which employment he exerciſed until he died in 1688, being then alſo one of the king's chaplains. Archbiſhop Sharp gives him an excellent character; and biſhop Burnet has ranked him among thoſe worthy men whoſe lives and labours contributed to reſcue the church from the reproaches which the follies of others had drawn upon it. Dr Claget publiſhed ſeveral things; but his principal work is his "Diſcourſe concerning the Operations of the Holy Spirit:" nor muſt it be forgotten that he was one of thoſe excellent divines who made a noble ſtand againſt the deſigns of James II. to introduce popery. Four volumes of his ſermons were publiſhed after his death by his brother Nicholas Claget, archdeacon of Sudbury, father of Nicholas Claget afterwards biſhop of Exeter.

CLAIM, in law, a challenge of intereſt in any thing that is in the poſſeſſion of another.

CLAIR, obſcure. See *Claro-Obſcuro*.

CLAIRAULT, (Alexis) of the French academy of ſciences, was one of the moſt illuſtrious mathematicians in Europe. He read to the academy in 1726, when he was not 13 years old, "a memoir upon four new geometrical curves of his own invention;" and ſupported the character he thus laid a foundation for by various publications from time to time. He publiſhed, *Elémens de Géométrie*, 1741, in 8vo; *Elémens d' Algèbre*, 1746, in 8vo; *Théorie de la Figure de la Terre*, 1743, in 8vo; *Tables de la Lune* 1754, in 8vo. He was concerned alſo in the *Journal des Sçavans*, which he furniſhed with many excellent extracts. He died in 1765. He was one of the academicians who were ſent into the north to determine the figure of the earth.

CLAM, in zoology, a ſhell-fiſh. See Venus.

CLAMP, a piece of wood joined to another.

Clamp is likewiſe the term for a pile of unburnt bricks built up for burning. Theſe clamps are built much after the ſame manner as arches are built in kilns, viz. with a vacuity betwixt each brick's breadth for the fire to aſcend by; but with this difference, that inſtead of arching, they truſs over, or over-ſpan; that is, the end of one brick is laid about half way over the end of another, and ſo till both ſides meet within half a brick's length, and then a binding brick at the top finiſhes the arch.

Clamp in a ſhip, denotes a piece of timber applied to a maſt or yard to prevent the wood from burſting; and alſo a thick plank lying fore and aft under the beams of the firſt orlop, or ſecond deck, and is the ſame that the riſing timbers are to the deck.

Clamp-Nails, ſuch nails as are uſed to faſten on clamps in the building or repairing of ſhips.

CLAMPETIA, (anc. geog.) a town of the Brutii, one of thoſe which revolted from Hannibal, (Livy); called *Lampetia* by Polybius. Now *Amantia*, or *Mantia* a town of Calabria Ultra, near the bay of Euphemia. E. Long. 16. 20. N. Lat. 39. 15.

CLAMPING, in joinery, is the fitting a piece of board with the grain to another piece of board croſs the grain. Thus the ends of tables are commonly clamped, to prevent their warping.

CLANDESTINE, any thing done without the knowledge of the parties concerned, or without the proper ſolemnities. Thus a marriage is ſaid to be clandeſtine when performed without the publication of bans, the conſent of parents, &c.

CLANS, in hiſtory, and particularly in that of Scotland. The nations which over-ran Europe were originally divided into many ſmall tribes; and when they came to parcel out the lands which they had conquered, it was natural for every chieftain to beſtow a portion, in the firſt place, upon thoſe of his own tribe or family. Theſe all held their lands of him; and as the ſafety of each individual depended on the general union, theſe ſmall ſocieties clung together, and were diſtinguiſhed by ſome common appellations, either patronymical or local, long before the introduction of ſurnames or enſigns armorial. But when theſe became common, the deſcendants and relations of every chieftain aſſumed the ſame name and arms with him; other vaſſals were proud to imitate their example; and by degrees they were communicated to all thoſe who held of the ſame ſuperior. Thus clanſhips were formed; and, in a generation or two, that conſanguinity, which was at firſt in a great meaſure imaginary, was believed to be real. An artificial union was converted into a natural one: men willingly followed a leader, whom they regarded both as the ſuperior of their lands and the chief of their blood; and ſerved him not only with the fidelity of vaſſals, but the affection of friends. In the other feudal kingdoms, we may obſerve ſuch unions as we have deſcribed, imperfectly formed; but in Scotland, whether they were the production of chance, or the effect of policy, or ſtrengthened by their preſerving their genealogies both genuine and fabulous, clanſhips were univerſal. Such a confederacy might be overcome; it could not be broken; and no change of manners or government has been able, in ſome parts of the kingdom, to diſſolve aſſociations which are founded upon prejudices ſo natural to the human mind. How formidable were nobles at the head of followers, who, counting that cauſe juſt and honourable which their chief approved, were ever ready to take the field at his command, and to ſacrifice their lives in defence of his perſon or of his fame! Againſt ſuch men a king contended with great diſadvantage; and that cold ſervice which money purchaſes, or authority extorts, was not an equal match for their ardour and zeal.

Robertſon's Hiſtory of Scotland.

Some imagine the word *clan* to be only a corruption of the Roman *colonia;* but Mr Whittaker aſſerts it to be purely Britiſh, and to ſignify a *family*.

CLAP, in medicine, the firſt ſtage of the venereal diſeaſe, more uſually called a Gonorrhoea.

Clap-Net, in birding, a ſort of net contrived for the taking of larks with the looking-glaſs, by the method called *daring* or *doring*. The nets are ſpread over an even piece of ground, and the larks are invited to the place by other larks faſtened down, and by a looking glaſs compoſed of five pieces, and fixed in a frame ſo that it is turned round very ſwiftly backwards and forwards, by means of a cord pulled by a perſon at a conſiderable diſtance behind a hedge. See Doring.

CLAR, or Claer, in metallurgy, bone-aſhes perfectly calcined, and finely powdered, kept purpoſely for covering the inſides of Coppels.

CLARAMONT-powder, a kind of earth, called *terra de Baira*, from the place where it is found; it is famous at Venice, for its efficacy in ſtopping hemorrhages of all kinds, and in curing malignant fevers

Precept *of* CLARE constat, in Scots law, the warrant of a ſuperior for entering and infefting the heir of his former vaſſal, without the interpoſition of an inqueſt.

Nuns of St Clare, were founded at Aſſiſa in Italy, about the 1212. Theſe nuns obſerved the rule of St Francis, and wore habits of the ſame colour with thoſe of the Franciſcan friars: and hence were called *Menoreſſes;* and their houſe, without Aldgate, the Minories, where they were ſettled when firſt brought over into England, about the year 1293. They had only three houſes beſides this.

Clare, a market-town of Suffolk, 13 miles ſouth of Bury. E. Long. 0. 35. N. Lat. 52. 15. It gives the title of Earl to the duke of Newcaſtle.

Clare is alſo the capital of a country of the ſame name in the province of Connaught, in Ireland, ſituated about 17 miles north-weſt of Limerick. W. Long. 9. 0. N. Lat. 52. 40.

CLARENCEIUX, the ſecond king at arms, ſo called from the duke of Clarence, to whom it firſt belonged: for Lionel, 3d ſon to Edward III. having by his wife the honour of Clare in the county of Thomond, was afterwards declared duke of Clarence; which dukedom afterwards eſcheating to Edward IV. he made this earl a king at arms. His office is to marſhal and diſpoſe of the funerals of all the lower nobility, as baronets, knights, eſquires, on the ſouth ſide of the Trent; whence he is ſometimes called *ſurroy* or *ſouth-roy*, in contradiſtinction to *norroy*.

CLARENDON, (Conſtitutions of) certain conſtitutions made in the reign of Henry II. A. D. 1164, in a parliament held at Clarendon; whereby the king checked the power of the Pope and his clergy, and greatly narrowed the total exemption they claimed from ſecular juriſdiction.

Clarendon, (Earl of.) See Hyde.

CLARENNA, Tabulae, (anc. geog.): a town of Vindelicia, at the confluence of the Lycus and Danube. Now *Rain*, a town of Bavaria, on the ſouth ſide of the Danube, at the confluence of the Lech. E. Long. 11. 0. N. Lat. 48. 45.

CLARENZA, the capital of a duchy of the ſame name in the Morea; it is a ſea-port town, ſituated on the Mediterranean. E. Long 21. 40. N. Lat. 37. 40.

CLARET, a name given by the French to ſuch of their red wines as are not of a deep or high colour. See Wine.

CLARICHORD, or Manichord, a muſical inſtrument in form of a ſpinet.

It has 49 or 50 ſtops, and 70 ſtrings, which bear on five bridges; the firſt whereof is the higheſt, the reſt diminiſhing in proportion. Some of the ſtrings are in uniſon, their number being greater than that of the ſtops. There are ſeveral little mortoiſes for paſſing the jacks. armed with braſs-hooks, which ſtop and raiſe the chords inſtead of the feather uſed in virginals and ſpinets: but what diſtinguiſhes it moſt is, that the chords are covered with pieces of cloth, which render the ſound ſweeter, and deaden it ſo that it cannot be heard at any conſiderable diſtance: whence it comes to be particularly in uſe among the nuns, who learn to play, and are unwilling to diſturb the ſilence of the dormitory.

CLARIFICATION, the act of cleaning or fining any fluid from all heterogeneous matter or feculencies.

The ſubſtances uſually employed for clarifying liquors, are whites of eggs, blood, and iſinglaſs. The two firſt are uſed for ſuch liquors as are clarified whilſt boiling hot; the laſt for thoſe which are clarified in the cold, ſuch as wines, &c. The whites of eggs are beat up into a froth, and mixed with the liquor, upon which they unite with and entangle the impure matters that floated in it: and preſently growing hard by the heat, carry them up to the ſurface in form of a ſcum no longer diſſoluble in the liquid. Blood operates in the ſame manner, and is chiefly uſed in purifying the brine from which ſalt is made. Great quantities of iſinglaſs are conſumed for fining turbid wines. For this purpoſe ſome throw an entire piece, about a quarter of an ounce, into a wine caſk; by degrees the glue diſſolves, and forms a ſkin upon the ſurface, which at length ſubſiding, carries down with it the feculent matter which floated in the wine. Others previouſly diſſolve the iſinglaſs; and having boiled it down to a ſlimy conſiſtence, mix it with the liquor, roll the caſk ſtrongly about, and them ſuffer it to ſtand to ſettle. Neuman queſtions the wholeſomeneſs of wines thus purified; and aſſures us that he himſelf, after drinking only a few ounces of ſack thus clarified, but not ſettled quite fine, was ſeized with ſickneſs and vomiting, followed by ſuch a vertigo, that he could not ſtand upright for a minute together. The giddineſs continued with a nauſea and want of appetite for ſeveral days.

CLARIGATIO, in Roman antiquity, a ceremony that always preceded a formal declaration of war. It was performed in this manner: firſt four heralds crowned with vervain, were ſent to demand ſatisfaction for the injuries done the Roman ſtate. Theſe heralds taking the gods to witneſs that their demands were juſt, one of them, with a clear voice, demanded reſtitution within a limited time, commonly 33 days; which being expired without reſtitution made, then the *pater patratus*, or prince of the heralds, proceeded to the enemies frontiers, and declared war.

CLARII APOLLINIS FANUM, (Strabo, Pliny) a temple and grove of Apollo, ſituated between Colophon and Lebedos, in Ionia; called *Claros* (Thucydides, Ovid). The name alſo of a town and mountain there (Nicander); and of a fountain (Clemens Alexandrinus); the waters of which inſpired with prophetic fury. *Clarius* the epithet of Apollo (Strabo).

CLARION, a kind of trumpet, whoſe tube is narrower and its tone acuter and ſhriller than that of the common trumpet. It is ſaid that the clarion, now uſed among the Moors and Portugueſe, who borrowed it from the Moors, ſerved anciently for a treble to ſeveral trumpets, which ſounded tenor and baſs.

CLARISSES, an order of nuns ſo called from their founder St Clara or St Clare. (See St CLARE). She was in the town of Aſſiſa in Italy; and having renounced the world to dedicate herſelf to religion, gave birth to this order in the year 1212; which comprehends not only thoſe nuns that follow the rule of St Francis, according to the ſtrict letter, and without any mitigation, but thoſe likewiſe who follow the ſame rule ſoftened and mitigated by ſeveral popes. It is at preſent one of the moſt flouriſhing orders of nuns in Europe. After Ferdinand Cortez had conquered Mexico for the king of Spain, Iſabella of Portugal, wife of the emperor Charles V. ſent thither ſome nuns of the order of St Clara, who made ſeveral ſettlements there. Near their monaſteries were founded communities of Indian young women, to be inſtructed by the clariſſes in religion, and ſuch works as were ſuitable to perſons of their ſex. Theſe communities are ſo conſiderable that they uſually conſiſt of four or five hundred.

CLARKE, (Dr Samuel) a preacher and writer of conſiderable note in the reign of Charles II. was, during the inter-regnum, and at the time of the ejection, miniſter of St Bennet Fink in London. In November 1660, he, in the name of the Preſbyterian miniſters, preſented an addreſs of thanks to the king for his declaration of liberty of conſcience. He was one of the commiſſioners of the Savoy; and behaved on that occaſion with great prudence and moderation. He ſometimes attended the church as an hearer and communicant; and was much eſteemed by all that knew him, for his great probity and induſtry. The moſt valuable of his numerous works are ſaid to be his Lives of the Puritan Divines and other perſons of note, 22 of which are printed in his martyrology: the reſt are in his Lives of ſundry Eminent Perſons in this latter Age, folio; and in his Marrow of Eccleſiaſtical Hiſtory, in folio and quarto. He died in 1680.

CLARKE, (Samuel) the ſon of the former, was fellow of Pembroke-hall in Cambridge: but was ejected from his fellowſhip for refuſing to take the engagements, as he was alſo afterwards from his rectory of Grendon in Buckinghamſhire. He applied himſelf early to the ſtudy of the ſcriptures; and his annotations on the Bible, printed together with the ſacred text, is highly commended by Dr Owen, Mr Baxter, and Dr Calamy. He died in 1701, aged 75.

CLARKE, (Dr Samuel) a very celebrated Engliſh divine, was the ſon of Edward Clarke, Eſq; alderman of Norwhich, and one of its repreſentatives in parliament for ſeveral years; and born there October 11, 1675. He was inſtructed in claſſical learning at the free-ſchool of that town; and in 1691 removed thence to Caius college in Cambridge, where his uncommon abilities ſoon began to diſplay themſelves. Though the philoſophy of Des Cartes was at that time the eſtabliſhed philoſophy of the univerſity, yet Clarke eaſily maſtered the new ſyſtem of Newton; and in order to his firſt degree of arts, performed a public exerciſe in the ſchools upon a queſtion taken from it. He greatly contributed to the eſtabliſhment of the Newtonian philoſophy by an excellent tranſlation of, and notes upon, Rohault's "Phyſics," which he finiſhed before he was 22 years of age. The ſyſtem of natural philoſophy then generally taught in the univerſity was that written by Rohault, founded altogether upon Carteſian principles, and very ill tranſlated into Latin. Clarke gave a new tranſlation, and added to it ſuch notes as might lead ſtudents inſenſibly and by degrees to other and truer notions than could be found there. "And this certainly (ſays Biſhop Hoadly) was a more prudent method of introducing truth unknown before, than to attempt to throw aſide this treatiſe entirely, and write a new one inſtead of it. The ſucceſs anſwered exceedingly well to his hopes; and he may juſtly be ſtyled a great benefactor to the univerſity in this attempt. For by this means the true philoſophy has, without any noiſe, prevailed; and to this day his tranſlation of Rohault is, generally ſpeaking, Clarke.

ing, the ſtanding text for lectures, and his notes the firſt direction to thoſe who are willing to receive the reality and truth of things in the place of invention and romance." This tranſlation of Rohault was firſt printed in 1697, 8vo. There have been four editions of it, in every one of which improvements have been made; eſpecially in the laſt in 1718. Dr John Clarke, late dean of Sarum, and our author's brother, tranſlated this work into Engliſh, and publiſhed it in 2 vols 8vo.

Afterwards he turned his thoughts to divinity; and in order to fit himſelf for the ſacred function, he ſtudied the Old Teſtament in the original Hebrew, the New in the original Greek, and the primitive Chriſtian writers. Having taken holy orders, he became chaplain to Moore biſhop of Norwich, who was ever after his conſtant friend and patron. In 1699 he publiſhed two treatiſes: one intitled "Three practical Eſſays on Baptiſm, Confirmation, and Repentance;" the other, "Some Reflections on that part of a book called Amyntor, or a Defence of Milton's Life, which relates to the Writings of the Primitive Fathers, and the Canon of the New Teſtament." In 1701 he publiſhed "A Paraphraſe upon the Goſpel of St Matthew;" which was followed in 1702 by the "Paraphraſes upon the Goſpels of St Mark and St Luke," and ſoon after by a third volume "upon St John." They were afterwards printed together in 2 vols 8vo; and have ſince undergone ſeveral editions. He intended to have gone through the remaining books of the New Teſtament, but ſomething accidentally interrupted the execution.

Mean while Biſhop Moore gave him the rectory of Drayton near Norwich, and procured for him a pariſh in that city; and theſe he ſerved himſelf in that ſeaſon when the biſhop reſided at Norwich. In 1704 he was appointed to preach Boyle's lecture; and the ſubject he choſe was, "The being and attributes of God." He ſucceeeded ſo well in this, and gave ſuch high ſatisfaction, that he was appointed to preach the ſame lecture the next year; when he choſe for his ſubject "The evidences of natural and revealed religion." Theſe ſermons were firſt printed in two diſtinct volumes; the former in 1705, the latter in 1706. They have ſince been printed in one volume, under the general title of "A Diſcourſe concerning the Being and Attributes of God, the Obligations of natural Religion, and the Truth and Certainty of the Chriſtian Revelation, in anſwer to Hobbes, Spinoza, the Author of the Oracles of Reaſon, and other Deniers of natural and revealed Religion." Clarke having endeavoured in the firſt part of this work to ſhow, that the being of a God may be demonſtrated by arguments *à priori*, is unluckily involved in the cenſure which Pope has paſſed upon this method of reaſoning in the following lines. They are put into the mouth of one of his dunces, addreſſing himſelf to the goddeſs Dulneſs:

> "Let others creep by timid ſteps and ſlow,
> "On plain experience lay foundations low,
> "By common ſenſe to common knowledge bred,
> "And loſt to nature's cauſe through nature led.
> "All ſeeing in thy miſts, we want no guide,
> "Mother of arrogance, and ſource of pride!
> "We nobly take the high priori road,
> "And reaſon downward, till we doubt of God."
>
> *Dunciad*, b. 4. l. 455.

Clarke.

Upon which we have the following note: "Thoſe who, from the effects in this viſible world, deduce the eternal power and Godhead of the firſt cauſe, though they cannot attain to an adequate idea of the Deity, yet diſcover ſo much of him as enables them to ſee the end of their creation and the means of their happineſs: whereas they who take this high priori road, as Hobbes, Spinoſa, Des Cartes, and ſome better reaſoners, for one that goes right, ten loſe themſelves in miſts, or ramble after viſions, which deprive them of all ſight of their end, and miſlead them in the choice of wrong means." Clarke, it is probable, would not have denied this; and the poet perhaps would have ſpared his better reaſoners, and not have joined them with ſuch company, had he recollected our author's apology for uſing the argument *à priori*. Undoubtedly, as the preſent editor of Biographia Britannica obſerves, the grand, the proper, the deciſive proof of the exiſtence, preſections, and providence of the Deity, muſt be drawn from his works. On this proof, as being equally ſatisfactory to the profoundeſt philoſopher and the meaneſt peaſant, the cauſe of religion will ever ſtand ſecure. Nevertheleſs, if there be ſuch a thing as an argument *à priori*, why may not ſpeculative men be employed in its examination? Several able divines and philoſophers have thought, and ſtill think, that this argument for the being and attributes of God, will ſtand the teſt of the ſevereſt ſcrutiny; and therefore they cannot be blamed for endeavouring to ſet it in a convincing light to others. As to the merit, indeed, of the whole work under conſideration, including the evidences of natural and revealed religion, it is undoubtedly of the firſt order. Difficulties may be raiſed on particular points, and the ableſt and moſt candid inquirers may ſometimes ſee cauſe to heſitate with regard to the validity of the reaſoning: but ſtill, in general, the books reflects honour on the age as well as the author that produced it, and will deſcend, with diſtinguiſhed reputation, to a late poſterity. The defence, in particular, of the ſacred original and authority of Chriſtianity, is admirably conducted.

In 1706 he publiſhed "A Letter to Mr Dodwell;" wherein all the arguments in his epiſtolary diſcourſe againſt the immortality of the ſoul are particularly anſwered, and the judgment of the fathers, to whom Mr Dodwell had appealed concerning that matter, truly repreſented. Biſhop Hoadly obſerves, that in this letter he anſwered Mr Dodwell in ſo excellent a manner, both with regard to the philoſophical part, and to the opinions of ſome of the primitive writers, upon whom theſe doctrines were fixed; that it gave univerſal ſatisfaction. But this controverſy did not ſtop here; for the celebrated Collins, coming in as a ſecond to Dodwell, went much farther into the philoſophy of the diſpute, and indeed ſeemed to produce all that could poſſibly be ſaid againſt the immateriality of the ſoul, as well as the liberty of human actions. This enlarged the ſcene of the diſpute; into which our author entered, and wrote with ſuch a ſpirit of clearneſs and demonſtration, as at once ſhowed him greatly ſuperior to his adverſaries in metaphyſical and phyſical knowledge; and made every intelligent reader rejoice, that ſuch an incident had happened to provoke and extort from him that plenty of ſtrong reaſoning and perſpicuity of expreſſion, which were indeed very much wanted upon this intricate and obſcure ſubject. "And I am perſuaded (continues the biſhop), that as what he has writ in this controverſy comprehends the little that the ancients had ſaid well, and adds ſtill more evidence than ever clearly appeared before, and all in words that have a meaning to them, it will remain the ſtandard of good ſenſe on that ſide of the queſtion, on which he ſpent ſo many of his thoughts, as upon one of his favourite points. Clarke's letter to Dodwell was ſoon followed by four defences of it, in four ſeveral letters to the author of "A Letter to the learned Mr Henry Dodwell; containing ſome Remarks on a pretended Demonſtration of the Immateriality and natural Immortality of the Soul, in Mr Clarke's Anſwer to his late Epiſtolary Diſcourſe, &c." They were afterwards all printed together; and the "Anſwer to Toland's Amytor" added to them. In the midſt of all theſe labours, he found time to ſhow his regard to mathematical and phyſical ſtudies, and exact knowledge and ſkill in them. And his natural affection and capacity for theſe ſtudies were not a little improved by the friendſhip of Sir Iſaac Newton; at whoſe requeſt he tranſlated his "Optics" into Latin in 1706. With this verſion Sir Iſaac was ſo highly pleaſed, that he preſented him with the ſum of L. 500, or L. 100 for each child, Clarke having then five children.

This year alſo, biſhop Moore, who had long formed a deſign of fixing him more conſpicuouſly, procured for him the rectory of St Bennet's, Paul's Wharf, in London; and ſoon after carried him to court, and recommended him to the favour of queen Anne. She appointed him one of her chaplains in ordinary; and, in conſideration of his great merit, and at the requeſt of the biſhop, preſented him to the rectory of St James's Weſtminſter, when it became vacant in 1709. Upon his advancement to this ſtation, he took the degree of D. D. when the public exerciſe which he performed for it at Cambridge was prodigiouſly admired. The queſtions which he maintained were theſe: 1. "Nullum fidei Chriſtianæ dogma. in ſacris ſcripturis traditum, eſt rectæ rationi diſſentaneum:" that is, "No article of the Chriſtian faith, delivered in the holy Scriptures, is diſagreeable to right reaſon." 2. "Sine actionum humanarum libertate nulla poteſt eſſe religio:" that is, "Without the liberty of human actions there can be no religion." His theſis was upon the firſt of theſe queſtions; which being thoroughly ſifted by that moſt acute diſputant profeſſor James, he made an extempore reply, in a continued diſcourſe for near half an hour, with ſo little heſitation, that many of the auditors declared themſelves aſtoniſhed; and owned, that if they had not been within ſight of him, they would have ſuppoſed him to have read every word of it from a paper. After this, through the courſe of the ſyllogiſtical diſputation, he guarded ſo well againſt the arts which the profeſſor was a complete maſter of; replied ſo readily to the greateſt difficulties ſuch an objector could propoſe; and preſſed him ſo cloſe and hard with clear and intelligible anſwers, that perhaps there never was ſuch a conflict heard in thoſe ſchools. The profeſſor, who was a man of humour as well as learning, ſaid to him at the end of the diſputation, "Profecto, me probe exercuiſti;" that is, "On my word, you have worked me ſufficiently;" and the members of the univerſity went away, admiring, as indeed they well might, that a man even of Clarkes's abilities, after an abſence of ſo many years, and a long courſe of buſineſs of quite another nature, ſhould acquit himſelf in ſuch a manner, as if this ſort of academical exerciſe had been his conſtant employment; and with ſuch fluency and purity of expreſſion, as if he had been accuſtomed to no other language in converſation but Latin. The ſame year, 1709, he reviſed and corrected Whiſton's tranſlation of the "Apoſtolical Conſtitutions" into Engliſh. Whiſton tells us, that his own ſtudies having been chiefly upon other things, and having rendered him incapable of being alſo a critic in words and languages, he deſired his great friend and great critic Dr Clarke to reviſe that tranſlation: which he was ſo kind as to agree to.

In 1712 he, publiſhed a moſt beautiful and pompous edition of Cæſar's commentaries, adorned with elegant ſculptures. It is intitled, "C. Julii Cæſaris quæ extant, accuratiſſime cum libris editis & mſſ. optimis collata, recognita, & correcta; acceſſerunt annotationes Samuelis Clarke, S T. P. item indices locorum, rerumque & verborum, utiliſſimæ." It was printed in 1712, folio: and afterwards in 1720, 8vo. It was dedicated to the great duke of Marlborough, "at a time," ſays Biſhop Hoadly, "when his unequalled victories and ſucceſſes had raiſed his glory to the higheſt pitch abroad, and leſſened his intereſt and favour at home." In the publication of this book, the doctor took particular care of the punctuation. In the annotations, he ſelected what appeared the beſt and moſt judicious in former editions, with ſome corrections and emendations of his own interſperſed. Mr Addiſon has ſpoken of this folio edition of Cæſar's commentaries in the following words: "The new edition, which is given us of Cæſar's commentaries, has already been taken notice of in foreign gazzettes, and is a work that does honour to the Engliſh preſs. It is no wonder that an edition ſhould be very correct, which has paſſed thro' the hands of one of the moſt accurate, learned, and judicious writers this age has produced. The beauty of the paper, of the character, and of the ſeveral cuts with which this noble work is illuſtrated, makes it the fineſt book that I have ever ſeen; and is a true inſtance of the Engliſh genius, which, though it does not come the firſt into any art, generally carries it to greater heights than any other country in the world." This noble work has riſen in value from that time to the preſent. A copy of this edition in large paper, moſt ſplendidly bound in morocco, was ſold at the Hon. Mr Beauclerk's ſale for forty-four pounds; and it was ſaid to be purchaſed by the Duke of Grafton. "To a prince or a nobleman (ſays Dr Harwood), it was a cheap purchaſe; for it was the moſt magnificent book I ever beheld. The binding coſt Mr Beauclerk five guineas.

The ſame year, 1712, he publiſhed his celebrated book intitled, "The Scripture Doctrine of the Trinity, &c." which is divided into three parts. The firſt is, a collection and explication of all the texts in the "New Teſtament," relating to the doctrine of the Trinity: in the ſecond, the foregoing doctrine is ſet forth at large, and explained in particular and diſtinct propoſitions; and in the third, the principal paſſages in the liturgy of the church of England, relating to the doctrine of the Trinity, are conſidered. Biſhop Hoadly applauds our author's method of proceeding, in forming his ſentiments upon ſo important a point: “He knew (ſays he), and all men agreed, that it was a matter of mere revelation. He did not therefore retire into his cloſet, and ſet himſelf to invent and forge a plauſible hypotheſis, which might ſit eaſily upon his mind. He had not recourſe to abſtract and metaphyſical reaſonings to cover or patronize any ſyſtem he might have embraced before. But, as a Chriſtian, he laid open the New Teſtament before him. He ſearched out every text in which mention was made of three perſons, or any one of them. He accurately examined the meaning of the words uſed about every one of them; and by the beſt rules of grammar and critique, and by his ſkill in language, he endeavoured to fix plainly what was declared about every perſon, and what was not. And what he thought to be the truth, he publiſhed under the title of ‘The Scripture Doctrine of the Trinity.’ “I am far (ſays the Biſhop) from taking upon me to determine, in ſo difficult a queſtion between him and thoſe who made replies to him; but this I hope I may be allowed to ſay, that every Chriſtian divine and layman ought to pay his thanks to Dr Clarke for the method into which he brought this diſpute; and for that collection of texts of the New Teſtament, by which at laſt it muſt be decided, on which ſide ſoever the truth may be ſuppoſed to lie.” Whiſton informs us, that ſome time before the publication of this book, there was a meſſage ſent to him from lord Godolphin, and others of queen Anne's miniſters, importing, “That the affairs of the public were with difficulty then kept in the hands of thoſe that were for liberty; that it was therefore an unreaſonable time for the publication of a book that would make a great noiſe and diſturbance; and that therefore they deſired him to forbear till a fitter opportunity ſhould offer itſelf:” which meſſage (ſays he) the doctor had no regard to, but went on according to the dictates of his own conſcience with the publication of his book. The miniſters, however, were very right in their conjectures; for the work made noiſe and diſturbance enough, and occaſioned a great number of books and pamphlets, written by himſelf and others.

Books and pamphlets, however, were not all which the “Scripture Doctrine of the Trinity” occaſioned: it made its author obnoxious to the power eccleſiaſtical, and his book to be complained of by the Lower Houſe of convention. The Doctor drew up a preface, and afterwards gave in ſeveral explanations, which ſeemed to ſatisfy the Upper Houſe; at leaſt the affair was not brought to any iſſue, the members appearing deſirous to prevent diſſenſions and diviſions.

In 1715 and 1716, he had a diſpute with the celebrated Leibnitz, relating to the principles of natural philoſophy and religion; and a collection of the papers which paſſed between them was publiſhed in 1717. This performance of the doctor's is inſcribed to her late majeſty queen Caroline, then princeſs of Wales, who was pleaſed to have the controverſy paſs through her hands. It related chiefly to the important and difficult ſubjects of liberty and neceſſity.

In 1718, Dr Clarke made an alteration in the forms of doxology in the ſinging pſalms, which produced no ſmall noiſe and diſturbance, and occaſioned ſome pamphlets to be written. The alteration was this:

To God, through Chriſt, his only Son,
Immortal glory be, &c.
And,
To God, through Chriſt, his Son, our Lord,
All glory be therefore, &c.

A conſiderable number of theſe ſelect pſalms and hymns having been diſperſed by the Society for Promoting Chriſtian Knowledge, before the alteration of the doxologies was taken notice of, he was charged with a deſign of impoſing upon the ſociety; whereas, in truth, the edition of them had been prepared by him for the uſe of his own pariſh only, before the ſociety had thoughts of purchaſing any of the copies: and as the uſual forms of doxology are not eſtabliſhed by any legal authority, eccleſiaſtical or civil, in this he had not offended.

About this time he was preſented by the lord Lechmere, the chancellor of the duchy of Lancaſter, to the maſterſhip of Wigſton's hoſpital in Leiceſter. In 1724, he publiſhed 17 ſermons preached on ſeveral occaſions, 11 of which were never before printed; and the year following, a ſermon, preached at the pariſh-church of St James's upon the erecting a charity-ſchool for the education of women ſervants. In 1727, upon the death of Sir Iſaac Newton, he was offered by the court the place of maſter of the Mint, worth *communibus annis* 1200 or 1500l. a year. But to this ſecular preferment he could not reconcile himſelf; and therefore abſolutely refuſed it. Whiſton ſeems to wonder, that Clarke's elogiſts ſhould lay ſo little ſtreſs upon this refuſal, as to mention it not at all, or at leaſt very negligently; while “he takes it,” he ſays, “to be one of the moſt glorious actions of his life, and to afford undeniable conviction, that he was in earneſt in his religion.” In 1728, was publiſhed, “A Letter from Dr Clarke to Mr Benjamin Hoadly, F. R. S. occaſioned by the Controverſy, relating to the Proportion of Velocity and Force in Bodies in Motion;” and printed in the “Philoſophical Tranſactions, n° 401.

In 1729, he publiſhed the 12 firſt books of “Homer's Iliad.” This edition was printed in 4to, and dedicated to the duke of Cumberland. The Latin verſion is almoſt entirely new; and annotations are added to the bottom of the pages. Homer, Biſhop Hoadly tells, was Clarke's admired author, even to a degree of ſomething like enthuſiaſm, hardly natural to his temper; and that in this he went a little beyond the bounds of Horace's judgement, and was ſo unwilling to allow the favourite poet ever to nod, that he has taken remarkable pains to find out, and give a reaſon for every paſſage, word, and title, that could create any ſuſpicion. “The tranſlation,” adds the Biſhop, “with his corrections, may now be ſtyled accurate: and his notes, as far as they go, are indeed a treaſury of grammatical and critical knowledge. He was called to his taſk by royal command; and he has performed it in ſuch a manner, as to be worthy of the young prince, for whom it was laboured.” The year of its publication was the laſt of this great man's life. Though not robuſt, he had always enjoyed a firm ſtate of health, without any indiſpoſition bad enough to confine him, except the ſmall-pox in his youth; till, on Sunday May 11, 1729, going out in the morning to preach before the judges at Serjeant's-inn, he was there ſeized with a pain in his ſide, which made it impoſſible for him to perform the office he was called to; and quickly became ſo violent, that he was obliged to be carried home. He went to bed, and thought himſelf ſo much better in the afternoon, that he would not ſuffer himſelf to be blooded; againſt which remedy, it is remarkable that he had entertained ſtrong prejudices. But the pain returning violently about two the next morning, made bleeding abſolutely neceſſary; he appeared to be out of danger, and continued to think himſelf ſo, till the Saturday morning following; when, to the inexpreſſible ſurpriſe of all about him, the pain removed from his ſide to his head; and, after a very ſhort complaint, took away his ſenſes ſo, as they never returned any more. He continued breathing till between ſeven and eight of the evening of that day, which was May 17, 1729; and then died, in his 54th year.

Soon after his death were publiſhed, from his original manuſcripts, by his brother Dr John Clarke, dean of Sarum, "An Expoſition of the Church Catechiſm," and ten volumes of ſermons, in 8vo. His "Expoſition" is made up of thoſe lectures he read every Thurſday morning for ſome months in the year, at St James's church. In the latter part of his time he reviſed them with great care, and left them completely prepared for the preſs. As to the ſermons, few diſcourſes in the Engliſh language are more judicious, and fewer ſtill are equally inſtructive. The reaſoning and the practical parts are excellent, and the explanations of ſcripture are uncommonly valuable. Though Dr Clarke had not the turn of mind which qualified him for moving the paſſions, and indeed did not make it his object, his ſentiments, nevertheleſs, are frequently expreſſed with ſuch a clearneſs of conception and ſuch a force of language, as to produce in well diſpoſed readers all the effect of the pathetic. Several volumes of ſermons have been publiſhed ſince his times which are far ſuperior in point of elegance and beauty, and we have the higheſt ſenſe of their merit. But ſtill, if we were called upon to recommend diſcourſes, which abound with the moſt ſolid inſtruction, and promiſe the moſt laſting improvement, we ſhould never forget a Clarke and a Jortin. Three years after the Doctor's death, appeared alſo the Twelve Laſt Books of the Iliad, publiſhed in 4to by his ſon, Mr Samuel Clarke, who informs us, in the preface, that his father had finiſhed the annotations to the three firſt of thoſe books, and as far as the 359th verſe of the fourth, and had reviſed the text and verſion as far as verſe 510 of the ſame book. Dr Clarke married Catharine, the daughter of the Rev. Mr Lockwood, rector of Little Miſſingham in Norfolk; in whoſe good ſenſe and unblameable behaviour he was happy to his death. By her he had ſeven children, two of whom died before him, and one a few weeks after him.

Of the character of this great divine, the following ſhort delineation appeared ſome years ſince in the Gentleman's Magazine: "Samuel Clarke, D. D. rector of St James's Weſtminſter: in each ſeveral part of uſeful knowledge and critical learning, perhaps without a ſuperior; in all united, certainly without an equal: in his works, the beſt defender of religion; in his practice, the greateſt ornament to it: in his converſation communicative, and in an uncommon manner inſtructive; in his preaching and writings, ſtrong, clear, and calm; in his life, high in the eſteem of the wiſe, the good, and the great; in his death, lamented by every friend to learning, truth, and virtue." In the ſame publication ſome not incurious anecdotes concerning him are printed, collected by the Rev. Mr Jones of Welwyn. We learn from them, that Dr Clarke was of a very humane and tender diſpoſition. When his young children amuſed themſelves with tormenting and killing flies upon the windows, he not only forbad ſuch practices, but calmly reaſoned with them, in ſuch a familiar manner, as was calculated to make a powerful impreſſion upon their minds. He was very ready and condeſcendimg in anſwering appliations to him with reſpect to ſcruples; numberleſs inſtances of which occurred in the courſe of his life. One thing of which Dr Clarke was peculiarly cautious, was not to loſe the leaſt minute of his time. He always carried ſome book about with him, which he would read whilſt riding in a coach, or walking in the fields, or if he had any leiſure moments free from company or his other ſtudies. Nay he would read even in company itſelf, where be might take ſuch a liberty without offence to good manners. His memory was remarkably ſtrong. He told Mr Pyle of Lyn, that he never forgot any thing which he had once thoroughly apprehended and underſtood. The Doctor, with his intimate friends, was perfectly free and eaſy; but if ſtrangers were introduced, be behaved with much circumſpection, converſing only upon common topics. When he viſited Dr Sykes, his uſual way was to ſit with him upon a couch, and, reclining upon his boſom, to diſcourſe with him, in the moſt familiar manner, upon ſuch ſubjects as were agreeable to the taſte and judgment of both. When Sir John Germaine lay upon his death-bed, and was in great confuſion and trouble of mind, he ſent for Dr Clarke, and requeſted to know of him whether he ſhould receive the ſacrament, and what he ſhould do in his ſad condition. The Doctor, who was well acquainted with Sir John's purſuits and courſe of life, ſedately replied, that he could not adviſe him to receive the ſacrament, and that he did not think it likely to be of any avail to him with reſpect to his final welfare. Having ſaid this, he departed without adminiſtering the communion, having firſt recommended the dying man to the mercy of God.

Dr Clarke was of a cheerful, and even playful diſpoſition. An intimate friend of his, the late Rev. Mr Bott, uſed to relate, that once when he called upon him, he found him ſwimming upon a table. At another time, when the two Dr Clarkes, Mr Bott, and ſeveral men of ability and learning were together, and amuſing themſelves with diverting tricks, Dr Samuel Clarke, looking out of the window, ſaw a grave blockhead approaching to the houſe; upon which he cried out, "Boys, boys, be wiſe, here comes a fool." This turn of his mind hath ſince beeen confirmed by Dr Warton, who, in his obſervations on the following line of Mr Pope,

> "Unthought of frailties cheat us in the wiſe,"

ſays, "Who could imagine that Locke was fond of romances; that Newton once ſtudied aſtrology; that Dr Clarke valued himſelf for his agility, and frequently amuſed himſelf, in a private room of his houſe, in leaping over the tables and chairs; and that our author himſelf was a great epicure?" With reſpect to what is here recorded of Dr Clarke, we can ſcarcely perſuade ourſelves to conſider it as a frailty. To be poſſeſſed of ſuch a temper as his was, muſt have been no ſmall degree of happineſs; as it probably enabled him to purſue his important and ſerious ſtudies with greater vivacity and vigour. To be capable of deriving amuſement from trivial circumſtances, indicates a heart at eaſe, and may generally be regarded as the concomitant of virtue.

Clarke, (William) an Engliſh divine, was born at Haghmon-abbey in Shropſhire, 1696; and after a grammar-education at Shrewſbury ſchool, was ſent to St John's college Cambridge, of which he was elected fellow, Jan. 17, 1716; B. A. 1731, M. A. 1735. He was preſented by archbiſhop Wake in 1724 to the rectory of Buxted in Suſſex, at the particular recommendation of Dr Wotton, whoſe daughter he married. In 1738, he was made prebendary and reſidentiary of the cathedral church of Chiceſter. Some years before this he had given to the public a ſpecimen of his literary abilities, in a preface to his father-in-law Dr Wotton's *Leges Walliæ Eccleſiaſticæ et Civiles Hœli Boni, et aliorum Walliæ Principum*; or, Eccleſiaſtical and Civil Laws of Howel, D Da, and other princes of Wales. There is reaſon likewiſe to ſurmiſe, that an excellent Diſcourſe on the Commerce of the Romans, which was highly extolled by Dr Taylor in his Elements of the Civil Law, might have been written by our author. It came either from his hand or from that of his friend Mr Bowyer, and is reprinted in that gentleman's Miſcellaneous Tracts. But Mr Clarke's chief work was, The Connection of the Roman, Saxon, and Engliſh Coins; deducing the Antiquities, Cuſtoms, and Manners of each people to modern times; particularly the Origin of Feudal Tenures, and of Parliaments: Illuſtrated throughout with critical and hiſtorical Remarks on various Authors, both ſacred and profane. This work was publiſhed, in one volume quarto, in 1767; and its appearance from the preſs was owing to the diſcovery made by Martin Folkes, Eſq; of the old Saxon pound. It was dedicated to the duke of Newcaſtle, whoſe beneficent diſpoſition is celebrated for having conferred obligations upon the author, which were not the effects of importunity. Mr Clarke's performance was peruſed in manuſcript by Arthur Onſlow, Eſq; ſpeaker of the houſe of commons, who honoured him with ſome uſeful hints and obſervations: but he was chiefly indebted to Mr Bowyer, who took upon him all the care of the publication, drew up ſeveral of the notes, wrote part of the diſſertation on the Roman ſeſterce, and formed an admirable index to the whole. By this work our author acquired a great and juſt reputation. Indeed, it reflects honour upon the country by which it is produced; for there are few performances that are more replete with profound and curious learning. Mr Clarke's laſt promotions were the chancellorſhip of the church of Chicheſter, and the vicarage of Amport, which were beſtowed upon him in 1770. Theſe preferments he did not long live to enjoy, departing this life on the 21ſt of October, in the following year. He had reſigned, in 1768, the rectory of Buxted to his ſon Edward. In Mr Nichols's Anecdotes of Bowyer, there are ſeveral letters and extracts of letters, written to that learned printer by Mr Clarke, which diſplay him to great advantage as a man of piety, a friend, and a ſcholar.

In a ſketch of his character in the *Biographia Britannica*, furniſhed by Mr Hayley, who was his intimate acquaintance, he is repreſented as not only a man of extenſive erudition, but as poſſeſſed of the pleaſing talent of communicating his various knowledge in familiar converſation, without any appearance of pedantry or preſumption. Antiquities were the favourite ſtudy of Mr Clarke, as his publications ſufficiently ſhow; but he was a ſecret, and by no means an unſucceſsful, votary of the muſes. He wrote Engliſh verſe with eaſe, elegance, and ſpirit. Perhaps there are few better epigrams in our language than the following, which he compoſed on ſeeing the words *Domus ultima* inſcribed on the vault belonging to the dukes of Richmond in the cathedral of Chicheſter.

Did he, who thus inſcrib'd the wall,
Not read, or not believe St Paul,
Who ſays there is, where'er it ſtands,
Another houſe not made with hands?
Or, may we gather from theſe words,
That houſe is not a houſe of Lords?

Among the happier little pieces of his ſportive poetry, there were ſome animated ſtanzas, deſcribing the character of the twelve Engliſh poets, whoſe portraits, engraved by Vertue, were the favourite ornament of his parlour: but he ſet ſo modeſt and humble a value on his poetical compoſitions, that they were ſeldom committed to paper, and are therefore very imperfectly preſerved in the memory of thoſe to whom he ſometimes recited them. His taſte and judgment in poetry appears very ſtriking in many parts of his learned and elaborate *Connexion of Coins*. His illuſtration of Neſtor's cup, in particular, may be eſteemed as one of the happieſt examples of that light and beauty which the learning and ſpirit of an elegant antiquarian may throw on a cloudy and miſtaken paſſage of an ancient poet. In ſtrict attention to all the duties of his ſtation, in the moſt active and unwearied charity, he might be regarded as a model to the miniſters of God. Though his income was never large, it was his cuſtom to devote a ſhilling in every guinea that he received to the ſervice of the poor. As a maſter, as a huſband, and a father, his conduct was amiable and endearing; and to cloſe this imperfect ſketch of him with his moſt ſtriking feature, he was a man of genuine unaffected piety."

CLARKSON, (David) B. D. an eminent non-conformiſt divine, born in February 1621—2 at Bradford in Yorkſhire. He was admitted fellow of Clare-Hall, Cambridge, in 1642 in the place of Doctor Peter Gunning, afterwards biſhop of Ely, who was ejected by the parliament. On the 28th of April 1647, Mr John Tillotſon, afterwards Archbiſhop of Canterbury, being admitted a penſioner in the ſame college, was placed under his tuition; and ſo continued until the year 1651, when he reſigned his fellowſhip, and put his pupils under the care of Mr Tillotſon, who became his ſucceſſor. He, with Dr John Owen, Dr Thomas Jacomb, Dr William Bates, Dr James Collings, Mr Peter Vinke, John Howe, and Benjamin Alſop, in

June 1682, undertook to finiſh the Engliſh annotations of the Holy Scriptures, in 2. vol. folio, which were begun by Matthew Poole, and carried on by him to the 58th chapter of Iſaiah. Dr Bates, in his funeral ſermon, gives him the character of a man of ſincere godlineſs and true holineſs: humility and modeſty were his diſtinctive characters; and his learning was ſuperior to moſt of his time, as appears by his Treatiſe of Liturgies, his Primitive Epiſcopacy, his practical divinity of Papiſts deſtructive to men's ſouls, and his volume of ſermons, printed after his death. He was ſometime miniſter of Mortlack in Surry, but after his ejectment (in 1671), he gave himſelf up to reading and meditations, ſhifting from one place of obſcurity to another, till the times ſuffered him to come into light; he was then choſen ſucceſſor to the reverend Dr John Owen, in the paſtoral office to his congregation. Mr Baxter, ſays he was a divine of extraordinary worth for ſolid judgment; of healing, moderate principles; of great acquaintance with the fathers; of great miniſterial abilities, and of a godly upright life. Great was his ſolemnity and reverence in prayer; and the method of his ſermons was clear, deep and inſtructive. His death was unexpected; but, as he declared, it was no ſurprize to him, for he was entirely reſigned to the will of God, and deſired to live no longer than to be ſerviceable. This good man, (ſays Dr Bates) like holy Simeon, had Chriſt in his arms, and departed in peace to ſee the ſalvation of God above, in the 66th year of his age. Soon after the revolution, attention was paid to his memory by the appointment of his ſon Matthew Clarkſon to the office of Secretary of the Province of New-York, where he died of a peſtilential diſorder in the year 1703.

CLARO-obscuro, or Clair-obscure, in painting, the art of diſtributing to advantage the lights and ſhadows of a piece, both with reſpect to the eaſing of the eye and the effect of the whole piece. See Painting.

Claro-Obſcuro, or *Chiaro-ſcuro*, is alſo uſed to ſignify a deſign conſiſting only of two colours, moſt uſually black and white, but ſometimes black and yellow; or it is a deſign waſhed only with one colour, the ſhadows being of a duſky brown, and the lights heightened up by white.

The word is alſo applied to prints of two colours taken off at twice: whereof there are volumes in the cabinets of thoſe who are curious in prints.

CLARUS, or Claros, (anc. geog.) a town of Ionia, famous for an oracle of Apollo. It was built by Manto, daughter of Tireſias, who fled from Thebes after it had been deſtroyed by the Epigoni. She was ſo afflicted with her misfortunes, that a lake was formed with her tears, where ſhe firſt founded the oracle. Apollo was from thence firnamed *Clarius*. Alſo an iſland of the Ægean, Between Tenedos and Scios.

CLARY, in botany. See Salvia.

Clary-Water, is compoſed of brandy, ſugar, clary-flowers, and cinnamon, with a little ambergris diſſolved in it. It helps digeſtion, and is cardiac. This water is rendered either purgative or emetic, by adding reſin of jalap and ſcammony, or *crocus metallorum*. Some make clary-water of brandy, juice of cherries, ſtrawberries, and gooſeberries, ſugar, cloves, white pepper, and coriander ſeeds; infuſed, ſugared, and ſtrained.

CLASMIUM, in natural hiſtory, the name of a genus of foſſils, of the claſs of the gypſums; the characters of which are, that they are of a ſoft texture, and of a dull opaque look, being compoſed, as all the other gypſums, of irregularly arranged flat particles.

The word is derived from the Greek κλασμος, a fragment or ſmall particle; from the flaky ſmall particles of which theſe bodies are compoſed. Of this genus there is only one known ſpecies: this is of a tolerably regular and even ſtructure; though very coarſe and harſh to the touch. It is of a very lively and beautiful red in colour; and is found in thick roundiſh maſſes, which, when broken, are to be ſeen compoſed of irregular arrangements of flat particles; and emulate a ſtriated texture. It will neither give fire with ſteel nor ferment with acids; but calcines very freely and eaſily, and affords a very valuable plaſter of Paris as do all the purer gypſums. It is common in Italy, and is greatly eſteemed there; it is alſo found in ſome parts of England, particularly Derbyſhire, but there it is not much regarded.

CLASPERS, or Tendrils. See Cirrhus.

CLASS, an appellation given to the moſt general ſubdiviſions of any thing: thus, *animal* is ſubdivided into the claſſes quadrupeds, birds, fiſhes, &c. which are again ſubdivided in ſerieſes or orders; and theſe laſt into genera. See Botany and Zoology.

Class, is alſo uſed in ſchools, in a ſynonymous ſenſe with *form*, for a number of boys all learning the ſame thing.

CLASSIC, or Classical, an epithet, chiefly applied to authors read in the claſſes at ſchools.

This term ſeems to owe its origin to Tullius Servius, who, in order to make an eſtimate of every perſon's eſtate, divided the Roman people into ſix bands, which he called *claſſes*. The eſtate of the firſt claſs was not to be under 200l. and theſe by way of eminence were called *claſſici*, "claſſics": hence authors of the firſt rank came to be called *claſſics*, all the reſt being ſaid to be *infra claſſem*: thus Ariſtotle is a claſſic author in philoſophy; Aquinas in ſchool divinity, &c.

CLASSICUM was the alarm for battle, given by the Roman generals; and ſounded by trumpets and other martial muſic throughout the army.

CLATHRI, in antiquity, bars of wood or iron, uſed in ſecuring doors and windows. There was a goddeſs called *Clathra*, that preſided over the clathri.

CLAVARIA, club-top: A genus belonging to the cryptogamia claſs of plants, and of the order of fungi; the 58th in the natural method. The fungus is ſmooth and oblong. The hemotades, or oak leather club-top, exactly reſembles tanned leather, except that it is thinner and ſofter. It is of no determined form. It grows in the clifts and hollows of old oaks, and ſometimes on aſh in Ireland and ſome places of England, &c. In Ireland it is uſed to dreſs ulcers, and in Virginia to ſpread plaſters upon, inſtead of leather. The militaris, and one or two other ſpecies, are remarkable for growing only on the head of a dead inſect in the nympha ſtate.

A modern writer on natural hiſtory (Mr Miller), has aſſerted the whole genus of clavaria to belong to the tribe of *zoophytes*, that is, to the animal and not to the vegetable kingdom. According to his method, he ranks them among the Vermes, under a ſubdiviſion which he terms *Fungoſa oſculis atomiferis*; thereby underſtanding them to be compound animals with many orifices on their ſurface, from which are protruded atoms or animalcules which have a viſible ſpontaneous motion, ſomething ſimilar to what is now acknowledged to be a fact with regard to a numerous claſs of marine bodies termed *corallines*. This motion, however, has not been obſerved by other naturaliſts. Schœffer has figured the ſeeds of ſeveral clavariæ as they appeared to him through the microſcope; and none of theſe fungi, when burnt, emit the ſtrong diſagreeable ſmell peculiar to animal ſubſtances.

CLAVARIUM, in antiquity, an allowance the Roman ſoldiers had for furniſhing nails to ſecure their ſhoes with. They raiſed frequent mutinies, demanding largeſſes of the emperors under this pretence.

CLAVATA VESTIMENTA, in antiquity, habits adorned with purple clavi, which were either broad or narrow. See CLAVUS.

CLAUBERGE, (John) a learned profeſſor of philoſophy and divinity at Duiſburg, was born at Solingen in 1622. He travelled into Holland, France, and England, and in each country obtained the eſteem of the learned. The Elector of Brandenburg gave him public teſtimonies of his eſteem. He died in 1665. His works were printed at Amſterdam in 2 vols 4to. The moſt celebrated of theſe is his treatiſe, entitled *Logica vetus et nova*, &c.

CLAUDE of LORRAIN, or *Claude Gelee*, a celebrated landſcape painter, and a ſtriking example of the efficacy of induſtry to ſupply, or at leaſt to call forth, genius. Claude was born in 1600; and being dull and heavy at ſchool, was put apprentice to a paſtry-cook: he afterwards rambled to Rome to ſeek a livelihood; but being very ill-bred, and unacquainted with the language, no body cared to employ him. Chance threw him at laſt in the way of Auguſtino Traſſo, who hired him to grind his colours, and to do all his houſehold drudgery, as he kept no other ſervant. His maſter hoping to make him ſerviceable to him in ſome of his greateſt works, taught him by degrees the rules of perſpective and the elements of deſign. Claude at firſt did not know what to make of thoſe principles of art; but being encouraged, and not failing in application, he came at length to underſtand them. Then his ſoul enlarged itſelf apace, and cultivated the art with wonderful eagerneſs. He exerted his utmoſt induſtry to explore the true principles of painting by an inceſſant examination of nature, that genuine ſource of excellence; for which purpoſe, he made his ſtudies in the open fields; where he very frequently continued from ſun riſe till the duſk of the evening compelled him to withdraw himſelf from his contemplations. It was his cuſtom to ſketch whatever he thought beautiful or ſtriking; and every curious tinge of light, on all kinds of objects, he marked in his ſketches with a ſimilar colour; from which he perfected his landſcapes with ſuch a look of real nature, and gave them ſuch an appearance of truth, as proved ſuperior to any artiſt that ever painted in that ſtyle.

The beauties of his paintings are derived from nature herſelf, which he examined with uncommon aſſiduity; and Sandrat relates, that Claude uſed to explain to him, as they walked through the fields, the cauſes of the different appearances of the ſame proſpect at different hours of the day, from the reflections or refractions of light, from dews or vapours, in the evening or morning, with all the preciſion of a philoſopher. He worked on his pictures with great care, endeavouring to bring them to perfection, by touching them frequently over again; and if any performance did not anſwer his idea, it was cuſtomary with him to alter, to deface, and repaint it again ſeveral times over, till it correſponded with that image pictured in his mind. But whatever ſtruck his imagination, while he obſerved nature abroad, it was ſo ſtrongly impreſſed on his memory, that on his return to his work, he never failed to make the happieſt uſe of it.

His ſkies are warm and full of luſtre, and every object is properly illumined. His diſtances are admirable, and in every part a delightful union and harmony not only excite our applauſe but our admiration. His invention is pleaſing, his colouring delicate, and his tints have ſuch an agreeable ſweetneſs and variety, as have been but imperfectly imitated by the beſt ſubſequent artiſts, but were never equalled. He frequently gave an uncommon tenderneſs to his finiſhed trees by glazing; and in his large compoſitions which he painted in freſco, he was ſo exact that the diſtinct ſpecies of every tree might readily be diſtinguiſhed. As to his figures, if he painted them himſelf, they are very indifferent; and he was ſo conſcious of his deficiency in this reſpect, that he uſually engaged other artiſts who were eminent to paint them for him; of which number were Courtois and Philippo Laura. His pictures are now very rare, eſpecially ſuch as are undamaged; and thoſe are at this time ſo valued, that no price, however great, is thought to be ſuperior to their merit. In order to avoid a repetition of the ſame ſubject, and alſo to detect ſuch copies of his works as might be injurious to his fame, by being ſold for originals, it was his cuſtom to draw (in a paper-book prepared for this purpoſe) the deſigns of all thoſe pictures which were tranſmitted to different countries; and on the back of the drawings, he wrote the name of the perſon who had been the purchaſer. That book, which he intitled *Libro di Verita*, is now in the poſſeſſion of the duke of Devonſhire.

CLAUDE, (John) a Proteſtant divine, born in the province of Angenois in 1619. Meſſ. de Port Royal uſing their utmoſt endeavours to convert M. de Turenne to the catholic faith, preſented him with a piece calculated to that end, which his lady engaged Mr Claude to anſwer; and his performance gave riſe to the moſt famous controverſy that was ever carried on in France between the Roman Catholics and the Proteſtants. On the revocation of the edict of Nantz, he retired to Holland, where he met with a kind reception, and was honoured with a conſiderable penſion by the prince of Orange. He died in 1687; and left a ſon Iſaac Claude, whom he lived to ſee miniſter of the Walloon church at the Hague, and who publiſhed ſeſeveral excellent works of his deceaſed father.

CLAUDIA, a veſtal virgin at Rome, who being ſuſpected of unchaſtity, is ſaid to have been cleared from that imputation in the following manner: the image of Cybele being brought out of Phrygia to Rome in a barge, and it happening to ſtick ſo faſt in the river Tyber that it could not be moved, ſhe tying her girdle, the badge of chaſtity, to the barge, drew it along to the city, which a thouſand men were unable to do.

Claudia Aqua, (Frontinus) water conveyed to Rome by a canal or aqueduct of eleven miles in length, the contrivance of Appius Claudius the cenſor, and the firſt ſtructure of the kind, in the year of Rome 441. Called alſo *Aqua Appia*.

Claudia Copia, (Inſcriptions) a name of *Lugdunum*, or Lyons in France; the birth-place of the emperor Claudius: A Roman colony, called *Claudia*; from its benefactor the emperor; and *Copia*, from its plenty of all neceſſaries, eſpecially corn. See Lugdunum.

Claudia, or *Clodia Via*, (Ovid) was that road which, beginning at the Pons Milvius, joined the Flaminia, paſſing through Etruria, on the ſouth ſide of the Lacus Sabatinus, and ſtriking off from the Caſſia, and leading to Luca (Antonine): large remains of it are to be ſeen above Bracciano (Holſtenius).

Claudia Lex, de Comitiis, was enacted by M. Cl. Marcellus in the year of Rome 702. It ordained, that at public elections of magiſtrates no notice ſhould be taken of the votes of ſuch as were abſent. Another, *de Uſura*, which forbad people to lend money to minors, on condition of payment after the deceaſe of their parents. Another, *de Negotiatione*, by Q. Claudius the tribune, 535. It forbad any ſenator, or father of a ſenator, to have any veſſel containing above 300 amphoræ, for fear of their engaging themſelves in commercial ſchemes. The ſame law alſo forbad the ſame thing to the ſcribes and the attendants of the queſtors, as it was naturally ſuppoſed that people who had any commercial connections could not be faithful to their truſt nor promote the intereſt of the ſtate. Another, 576, to permit the allies to return to their reſpective cities, after their names were enrolled. Liv. 41, c. 9. Another, to take away the freedom of the city of Rome from the coloniſts which Cæſar had carried to Novicomum.

CLAUDIANUS, (Claudius) a Latin poet, flouriſhed in the 4th century, under the emperor Theodoſis, and under his ſons Arcadius and Honorius. It is not agreed of what country he was a native; but he came to Rome in the year of Chriſt 395, when he was about 30 years old; and there inſinuated himſelf into Stilicho's favour; who being a perſon of great abilities both for civil and military affairs, though a Goth by birth, was ſo conſiderable a perſon under Honorius, that he may be ſaid for many years to have governed the weſtern empire. Stilicho afterwards fell into diſgrace, and was put to death; and it is more than probable that the poet was involved in the misfortunes of his patron, and ſeverely perſecuted in his perſon and fortunes by Hadrian, an Egyptian by birth, who was captain of the guards to Honorius, and ſucceeded Stilicho. There is reaſon, however, to think that he roſe afterwards to great favour; and obtained ſeveral honours both civil and military. The princeſs Serena had a great eſteem for Claudian, and recommended, and married him to a lady of great quality and fortune in Libya. There are a few little poems on ſacred ſubjects, which through miſtake have been aſcribed by ſome critics to Claudian; and ſo have made him be thought a Chriſtian. But St Auſtin, who was cotemporary with him, expreſsly ſays that he was a Heathen. The time of Claudian's death is uncertain, nor do we know any further particulars of his life than what are to be collected from his works, and which we have already related above. He is thought to have more of Virgil in his ſtyle than all the other imitators of him.

Claudius I. Roman emperor, A. D. 41. The beginning of his reign was very promiſing; but it was ſoon diſcovered that little better than an ideot filled the throne, who might eaſily be made a tyrant: accordingly he became a very cruel one, through the influence of his empreſs, the infamous Meſſalina: after her death, he married his niece Agrippina, who cauſed him to be poiſoned to make way for Nero, A. D. 54. See (*Hiſtory of*) Rome.

Claudius II. (Aurelius), ſurnamed *Gothicus*, ſignalized himſelf by his courage and prudence under the reigns of Valerian and Julian; and on the death of the latter was declared emperor in 268. He put to death Aureolus, the murderer of Galienus; defeated the Germans: and in 269 marched againſt the Goths, who ravaged the empire with an army of 300,000 men, which he at firſt haraſſed, and the next year entirely defeated: but a contagious diſeaſe, which had ſpread through that vaſt army, was caught by the Romans; and the emperor himſelf died of it a ſhort time after, aged 56. Pollio ſays, that this prince had the moderation of Auguſtus, the virtue of Trajan, and the piety of Antoninus.

CLAVES insulæ, a term uſed in the iſle of Man; where all weighty and ambiguous cauſes are referred to a jury of twelve, who are called *claves inſulæ*, the keys of the iſland.

CLAVICHORD, and Clavicitherium, two muſical inſtrument uſed in the 16th century. They were of the nature of the ſpinet, but of an oblong figure. The firſt is ſtill uſed by the nuns in convents; and that the practitioners may not deſturb the ſiſters in the dormitory, the ſtrings are muffled with ſmall bits of fine wollen cloth.

CLAVICLE. See Anatomy, n° 46.

CLAVICYMBALUM, in antiquity, a muſical inſtrument with 30 ſtrings. Modern writers apply the name to our harpſichords.

CLAVI vestium, were flowers or ſtuds of purple interwoven with or ſewed upon the garments of knights or ſenators; only, for diſtinction, the former uſed them narrow, the latter broad.

CLAVIS properly ſignifies a key; and is ſometimes uſed in Engliſh to denote an explanation of ſome obſcure paſſages of any book or writing.

CLAVIUS, (Chriſtopher) a German Jeſuit born at Bamberg, excelled in the knowledge of the mathematics, and was one of the chief perſons employed to rectify the kalendar; the defence of which he alſo undertook againſt thoſe who cenſured it, eſpecially Scaliger. He died at Rome in 1612, aged 75. His works have been printed in five volumes folio; the principal of which is his commentary on Euclid's elements

CLAUSE, in grammar, denotes a member of a period or ſentence.

Clause ſignifies alſo an article or particular ſtipulation in a contract, a charge or condition in a teſtament, &c.

CLAUSENBURG, a large city of Tranſilvania, ſituated on the river Samos, in E. Long. 20. 50. N. Lat. 47. 10.

CLAVUS, in antiquity, an ornament upon the robes of the Roman ſenators and knights; which was more or leſs broad, according to the dignity of the perſon: hence the diſtinction of tunica anguſti-clavia and laticlavia.

Clavus, in medicine and ſurgery, is uſed in ſeveral ſignifications: 1. Clavus hyſtericus, is a ſhooting pain in the head, between the pericranium and cranium, which affects ſuch as have the green-ſickneſs. 2. Clavus oculorum, according to Celſus, is a callous tubercle on the white of the eye, taking its denomination from its figure. 3. Clavus imports indurated tubercles of the uterus. 4. It alſo imports a chirurgical inſtrument of gold, mentioned by Amatus Luſitanus, deſigned to be introduced into an exulcerated palate, for the better articulation of the voice. And, 5. It ſignifies a callus, or corn on the foot.

Clavus Annalis, in antiquity. So rude and ignorant were the Romans towards the riſe of their ſtate, that the driving or fixing a nail was the only method they had of keeping a regiſter of time; for which reaſon it was called *clavus annalis*. There was an ancient law, ordaining the chief prætor to fix a nail every year on the Ides of September; it was driven into the right ſide of the temple of Jupiter Opt. Max. towards Minerva's temple. This cuſtom of keeping an account of time by means of fixing nails, was not peculiar to the Romans; for the Etrurians uſed likewiſe to drive nails into the temple of their goddeſs Nortia with the ſame view.

CLAW, among zoologiſts, denotes the ſharp-pointed nails with which the feet of certain quadrupeds and birds are furniſhed.

CLAY, in natural hiſtory, a genus of earth, the characters of which are theſe: They are firmly coherent, weighty, and compact; ſtiff, viſcid, and ductile to a great degree, while moiſt, ſmooth to the touch: not eaſily breaking between the fingers, nor readily diffuſible in water; and, when mixed, not readily ſubſiding from it. See Chemistry, nº 647, &c.

Clay ſhrinks remarkably when drying; in ſo much that Dr Lewis obſerves, the purity of it may be known by the degree to which it ſhrinks. He made experiments on it pure, and when mixed with various proportions of ſand. Pure clay he found ſhrunk one part in 18 while drying; but, when mixed with twice its weight of ſand, only one part in 30.

The common clays are never free from ſiliceous earth: the beſt method of obtaining the argillaceous earth in perfect purity is, by diſſolving Roman alum in water, filtering the ſolution, and precipitating it by mild volatile alkali. When procured by this method, its ſpecific gravity is about 1305; it is ſoluble in acids with a little efferveſcence; it forms alum with the vitriolic acid; and deliqueſcent ſalts with the nitrous and marine. When dry it abſorbs water greedily, and becomes ſoft, and acquires ſuch a tenacity that it may be moulded at pleaſure; it contracts, however, greatly in the fire, by which numerous cracks are occaſioned. With a certain degree of heat it becomes ſo hard as to ſtrike fire with ſteel, and by thus burning it looſes its tenacity, the water being excluded by the approach of its particles towards each other. After having this property, it cannot be made to aſſume it again without being diſſolved in an acid, and then precipitated from it. Fixed alkalies alſo diſſolve it in the dry way, as acids do in the moiſt; but of theſe laſt the vitriolic is the moſt proper, as it may be moſt eaſily concentrated.

According to Mr Kirwan, the ſpecific gravity of this earth, when pure, does not exceed 2000. It is exceedingly diffuſible in water, though ſcarcely more ſoluble than magneſia. It is combinable with acids, from whence it may be ſeparated like magneſia, but can ſcarce be precipitated by the vitriolic acid, with which it forms alum, a ſalt that always contains an exceſs of acid, and has an aſtringent taſte. When in combination with any of theſe acids, it cannot be precipitated by acid of ſugar; a criterion by which it is diſtinguiſhed from all the other earths; every one of which (terra ponderoſa alone excepted, which when united to the vitriolic acid, is not affected by any other excepting that of fluor) is precipitated from the vitriolic, nitrous and marine acids, by that of ſugar. The precipitation of theſe earths, however, does not take place if there be an exceſs of the mineral acids, nor does it always appear before the liquors are evaporated. Though clay is hardened by a very ſtrong heat, it cannot be made thereby to aſſume the properties of lime. By a mixture with calcareous earth it readily melts; and hence M. Gerhard has found it fuſilbe in a crucible of chalk, though not in one of clay. Its fuſion is not promoted by fixed alkali, but borax and microcoſmic ſalt diſſolve it; the former with a very ſlight efferveſcence, but the latter with a more perceptible one. It is leſs affected by calces of lead than the calcareous earths are.

M. Beaumé has formed a new hypotheſis concerning this earth; ſuppoſing the baſis of alum, or pure argillaceous earth, to be nothing elſe than flint; and common clay to be ſiliceous earth combined with a little vitriolic acid. This opinion has been examined by Mr Scheele, who began by trying, in the following manner, whether the ſiliceous earth be in reality ſoluble in vitriolic acid. He took an ounce of mountain cryſtal reduced to powder, and mixing it with three ounces of ſalt of tartar, melted the whole by a ſtrong fire. The maſs was then diſſolved in 20 ounces of water, and as much diluted vitriolic acid poured upon it as was more than ſufficient for ſaturation. The liquor being then filtered and evaporated, yielded a drachm and an half of alum, beſides a quantity of ſubacid vitriolated tartar. It now remained therefore to determine whether the precipitated ſiliceous earth, by a repetition of the ſame proceſs, would ſtill continue to yield alum. The operation was therefore repeated ſeven times, and a quantity of alum procured at each operation. But when our author was about to be confirmed in his opinion that Mr. Beaumé was in the right, he happened to inſpect his crucibles, and perceived them to be full of little cavities, and every where rough and uneven on the inſide. Thus he began to ſuſpect that the alkali had diſſolved part of the clay of his crucibles, by which means the alum had been produced; and this ſuppoſition was verified by his afterwards uſing a crucible of iron, when he could not obtain a ſingle particle of alum, nor perceive the ſmalleſt mark of ſolution on the ſiliceous earth.

M. Beaumé alſo pretends that clay contains a little vitriolic acid, and is therefore ſoluble in a large quantity of boiling water. Mr Scheele likewiſe tried this experiment; but found, that of ſeveral kinds of argillaceous earth not the ſmalleſt quantity was diſſolved; and he likewiſe made ſeveral experiments in order to obtain vitriolic acid from pure clay, but without ſucceſs: neither was he able to obtain any hepar either by means of alkali of tartar or with charcoal; nor could he obtain with clay a vitriolic neutral ſalt from the reſiduum of the diſtillation of muriatic and nitrous acid.

The contraction of clay by heat has afforded Mr Wedgewood an opportunity of conſtructing by its means an inſtrument for meaſuring thoſe degrees of heat which are above the reach of the ſcale of common thermometers, as deſcribed under the article THERMOMETER.

Mr Scheele has made ſeveral experiments to diſcover the properties of alum when mixed with other ſubſtances. A ſolution of alum, he finds, is decompoſed by lime-water; and if no more of the water be added than is exactly requiſite for the precipitation, the earth of alum forms a tranſparent precipitate like boiled ſtarch; and if the clear water be filtered, it is found to be a ſolution of gypſum. On adding more lime-water than is neceſſary for precipitation, the precipitated matter is deſtitute of the gelatinous appearance juſt mentioned. If the whole be allowed to ſtand for a quarter of an hour, and frequently agitated during this time, no gypſum, nor even lime, is found in the filtered liquor, unleſs too much lime-water has been uſed. On examining the precipitate in this caſe, our author found it to conſiſt of earth of alum, ſelenite, and lime. This was diſcovered firſt by treating it with muriatic acid, which diſſolved the aluminous earth, leaving the gypſum behind. The addition of cauſtic volatile alkali threw down a tranſparent gelatinous maſs, which was the earth of alum; and on ſtraining it again, and then adding a fixed alkaline lixivium, the lime was thrown down; whence it appeared, that the lime and gypſum had ſeparated from the water, and united with the earth of alum.

To underſtand the reaſon of this uncommon precipitation, Mr Scheele next poured into a ſolution of alum a quantity of cauſtic volatile alkali more than ſufficient to ſaturate the acid, in order to be certain of having it all taken off. The precipitated earth was then edulcorated, and mixed with a ſolution of gypſum, that he might obſerve whether the gypſum would ſeparate from the water, and precipitate with the earth of alum; which, however, did not take place. On mixing lime-water with the precipitate, he found that the former very ſoon loſt its cauſtic taſte, and that the earth of alum became opaque. Some part of the water was ſtrained, and lixivium tartari dropped into it; but it remained clear, nor was any precipitate formed by a ſolution of corroſive ſublimate. He afterwards added muriatic acid to the laſt precipitate, which it diſſolved entirely without leaving any gypſum behind; whence our author concludes, that the earth of alum had united with the lime into a peculiar kind of compound.

Laſtly, he now imagined, that this compound of earth of alum and lime might be capable of ſeparating gypſum from water. To try this, he prepared a large quantity of the compound earth, mixed it with a ſolution of gypſum, and let it reſt for a quarter of an hour; when he found, to his ſurpriſe, that the gypſum ſtill remained ſuſpended in the water, and that the precipitate was entirely ſoluble in muriatic acid. He now mixed a ſolution of gypſum with lime-water, adding earth of alum at the ſame time; when he found, that the whole was precipitated as before, the lime and aluminous earth having fallen to the bottom along with the gypſum, leaving the water pure. On the whole, our author concludes, 1. That the vitriolic acid in gypſum is capable of combining with more lime than is neceſſary to an exact ſaturation. 2. That calcareous earth is capable of forming an union with the earth of alum. 3. That gypſum cannot combine with the earth of alum; but that if a ſuperfluous quantity of lime be united with vitriolic acid, it will then ſerve as a bond of union to combine gypſum with the earth of alum, and thus form a new compound conſiſting of three earths. Pure clay has no effect upon limewater.

Cronſtedt is of opinion, that common clay, eſpecially the blue, grey, and red kinds, may derive their origin from mud; and as the mud proceeds from vegetables, it will thence follow, that the varieties of clay juſt mentioned are nothing elſe but the common mould altered, after a length of time, by means of water. This opinion, he thinks, receives conſiderable ſtrength from the following circumſtances; *viz.* that a great quantity of ſea-plants rot every year in the lakes, and are changed into mud; very little of which, however, is ſeen upon the ſhores after the water is dried in the ſummer-time; and that the clay begins where the mud ceaſes. Profeſſor Bergman has likewiſe hinted, that pure clay may be a calcareous earth combined with ſome acid not yet diſcovered; “ but (ſays he) compoſitions of this kind ought to be conſidered as primitive ſubſtances, with reſpect to our knowledge of them, till they ſhall be experimentally decompoſed: for no ſound knowledge in natural philoſophy can be obtained from the conſideration of mere poſſibilities; ſince daily experience ſhows, that even the moſt probable ſuppoſitions have proved falſe, when the means of putting them to the teſt have afterwards been found out.”—“ Now, therefore, (ſays M. Magellan), that the *argillaceous* is acknowledged to be a ſimple primitive earth, which cannot be decompoſed into any other principles, nor formed by the combination of any other ſimple ſubſtances we know, we ought to reſt ſatisfied at preſent without endeavouring to account for its formation.”

The principal ſpecies of the argillaceous earths or clays are,

1. The *argilla aerata*, or *lac lunæ*. It is generally found in ſmall cakes of the hardneſs of chalk; like which, alſo, it marks white. Its hardneſs is nearly like that of the ſteatites, and it feels leſs fat than clays commonly do. It is of a ſnow-white colour, and about the ſpecific gravity of 1.669. When examined with a microſcope, it is found to conſiſt of ſmall tranſparent cryſtals; and, from Mr Schreber's experiments, appears to be an argillaceous earth ſaturated with fixed air, in conſequence of which it effervesces with acids. It contains alſo a ſmall quantity of calcareous earth, and ſometimes of gypſum, with ſome ſlight traces of iron. It is found at Halles.

2. The *argilla apyra*, porcelain clay, the kaolin of

the Chineſe, is very refractory in the fire, and cannot in any common ſtrong fire be brought into fuſion farther than to acquire a tenacious ſoftneſs without loſing its form. When broken, it has then a dim ſhining appearance, and is of a ſolid texture; ſtrikes fire with ſteel; and has conſequently the beſt chemical properties of any ſubſtance whereof veſſels can be made. It is found of an excellent quality in Japan, and likewiſe in different parts of Europe. In Sweden it is met with in coal-pits between the ſtrata of coal. Cronſtedt informs us, that he has ſeen the root of a tree entirely changed into this kind of earth.

M. Magellan remarks, that we muſt be careful to diſtinguiſh between the pipe-clay of which there is plenty in Devonſhire in England, and that uſed in the porcelain manufactures. The former, in a ſtrong fire, burns to a bluiſh grey or pigeon colour, the latter remains white. The porcelain clay, according to our author, ſeems to be only a decayed feldt-ſpar; and, conſequently, according to Mr Bergman, contains magneſia. Britiſh porcelain clay contains likewiſe quartz, cryſtals, and mica, parts of the granite which it originally compoſed. Before it is uſed, the quartz muſt be ſeparated, but the mica remains.

3. Combined with phlogiſton, and including the white tobacco-pipe clay, with others of a grey, black, or violet colour. Mr Kirwan obſerves, that many of the white clays become grey in a low degree of heat, becauſe the mineral oil with which they are mixed burns to a kind of coal, and tinges them; but this being conſumed in a ſtronger heat, they again become white. The other clays evidently contain phlogiſton; in conſequence of which, they become quite black internally on being expoſed to a quick and ſtrong fire, aſſuming the appearance of common flints both in colour and hardneſs; but if heated by degrees, they are firſt white, and afterwards of a pearl colour. They contain a larger quantity of the inflammable principle in proportion to their apparent fatneſs; which may be judged of both by their ſmoothneſs and unctuoſity, and by their ſhining when ſcraped with the nail. "It is difficult (ſays M. Magellan) to determine whether this ſtrongly adherent phlogiſton is the cauſe of the abovementioned pearl colour, or prevents them from being burned white in a ſtrong fire; yet no heterogeneous ſubſtance can be extracted from them except ſand, which may be ſeparated from ſome by means of water, but does not form any conſtituent part of clay. If they be boiled in aqua-regis in order to extract their iron, they loſe their viſcoſity." In the leſs unctuous clays, our author has found pure quartz in greater and ſmaller grains, and he has likewiſe found that clays of this kind ſometimes attract phlogiſton in the fire.

4. The *lithomarga*, or ſtone-marrow, when dry, feels as flat and ſlippery as ſoap, but is not wholly diffuſible in water. When mixed with this fluid, it falls to pieces either in larger or ſmaller maſſes, ſo as to aſſume the appearance of curds. In the fire it readily melts into a white or reddiſh frothy ſlag; which, in conſequence of its internal vacuities, is then of a larger volume than it formerly was. In the maſs it breaks into irregular ſcaly pieces. This kind is called fuller's earth *(waklera)* in Sweden. In Crim Tartary it is called *keffekil*; and is ſaid to be uſed there inſtead of ſoap, for waſhing. It is found alſo in the Auſtrian Flanders in the barony of Hierges, near Niverle, belonging to the Duke of Arenberg. It was ſhowed to M. Magellan by the Duke's chancellor; who, from the uprightneſs of his behaviour, has obtained the honourable appellation of *Jean de Bien*. At preſent it is only found in ſeparate maſſes; but M. Magellan is of opinion, that ſome conſiderable ſtrata of it might be met with, if properly ſearched for on the ſpot, by digging the ground to a conſiderable depth.

To this ſpecies alſo belongs the yellowiſh-brown earth called *terra lemnia*; which is of a ſhining texture, and falls to pieces in water with a crackling noiſe. According to Mr Bergman, this is a compound of the argillaceous, ſiliceous, and magneſian earths. Its component parts are the ſame as thoſe of the talc, but looſer, and in different proportions. M. Cronſtedt remarks, that "the terra lemnia cannot properly be called a fuller's earth, as it is never uſed in the fulling buſineſs, nor is likely to be applicable to it, as being beſides very ſcarce. The true fuller's earth of England agrees entirely with the deſcription of the ſtone-marrow already given, and in colour and texture reſembles that from Sweden, which is compoſed of coarſe particles. The Hampſhire fuller's earth is of a duſky brown, inclining to green, with veins of a faint yellow; and contains a ſmall portion of muriatic acid, and of a yellow oily matter. Every fine clay that does not communicate a colour, is in general fit for the buſineſs of fulling; even the excrements of hogs, mixed with human urine, are uſed for this purpoſe in various woollen manufactures. The properties required in a good fuller's earth are, that it ſhall carry off the oily impurities of the woollen cloth, and at the ſame time thicken it by cauſing the hairs or fibres to curl up. The beſt is compoſed of fine ſiliceous earth with argilla, and a little calcareous earth without vitriolic acid; a little martial calx, however, is not hurtful, if unattended with any active menſtruum.

The terra lemnia is ſo called from the iſland of Lemnos, now Statimane, in the Ægean Sea, from whence it is procured. It is likewiſe called the *Turkiſh earth*, on account of its being impreſſed with the ſeal of the Grand Signior.

The Swediſh fuller's earth is found in a mountain named *Oſmund* at Ratwick in Eaſt Dalecarlia. The ſtratum is three feet thick, and the mountain itſelf is chiefly calcareous. It is of an aſh colour; harder, and of finer particles than the Lemnian earth.

"All theſe ſubſtances (the fuller's earths)," ſays M. Magellan, "are akin to zeolites, and likewiſe reſemble ſome marles. But in the Oſmundian earths, the connection of the parts is not merely mechanical, as in marles; which on that account efferveſce ſtrongly with acids, though they often contain a ſmaller quantity of calcareous earth or magneſia than the litho marga."

The following table ſhows the proportion of ingredients in each of the fuller's earth.

100 parts contain	Terra lemnia.	Oſmund fuller's earth.	Hampſhire do.
Siliceous earth,	47.0	60.0	51.8
Chalk,	5.4	5.7	3.3
Magneſia,	6.2	0.5	0.7
Argilla,	19.0	11.1	25.0
Calx of iron,	5.4	4.7	3.7
Water or volatile matter,	17.0	18.0	15.5

5. *Bolus*, bole, or iron clay, is a fine and denſe clay of various colours, containing a large quantity of iron, ſo that it is very difficult, or even impoſſible, to know the natural and ſpecific qualities of the bole itſelf. It is not ſo eaſily ſoftened in water when indurated as the porcelain and common clays; but either falls to pieces in the form of ſmall grains, or repels the water, and cannot be made ductile. In the fire it grows black, and is then attracted by the loadſtone.

M. Kirwan thinks the term *bole* a word of ſuch uncertain ſignification, that it ought to be baniſhed from common uſe, or at leaſt from every mineralogical treatiſe. "Some (ſays he) beſtow this name upon very ſmooth compact clays, conſiſting of the fineſt particles: others require beſides, that their colour ſhould be red, yellow, or brown, and that they ſhould contain iron." The red generally blacken in the fire; but according to Rinman, without becoming magnetic. The yellow, when heated, become firſt red; and, in a ſtrong heat, brown or black. What the Italians call *Calamita Bianca*, according to Ferber, is a white bole ſtriated like aſbeſtos. The true ſigillata rubra contains calcareous earth; and, according to Rinman, becomes magnetic after torrefaction. The yellow, red, and brown clays contain moſt iron, ſometimes diſperſed through their ſubſtance, and ſometimes united to the ſiliceous part: in this caſe they are fuſible with greater difficulty. The yellow calx of iron is more dephlogiſticated than the red, and the red than the brown. Theſe clays do not become magnetic after calcination, unleſs they contain 14 or 15 *per cent.* of iron.

The ſoft boles are of various colours, as red, yellow, green, grey, and bluiſh grey. The red kind is that uſed in medicine under the name of *Armenian bole;* an indurated kind of which affords the material for the red pencils. Formerly, when the terræ ſigillatæ were eſteemed in medicine, the druggiſts endeavoured to have them of all different colours; for which reaſon they not only ſealed up all the natural ſorts of clay, but ſuch as had been mixed and coloured artificially; whence the claſs of boles was ſuppoſed to be much more numerous than it really is. Cronſtedt concludes, that "ſince the greateſt part of theſe *terræ ſigillatæ* contain iron, the bole muſt be a martial clay; and as ſuch it ſeems to be more fit for medical uſes than other clays, if any dead earth muſt be uſed internally, when there is ſuch an abundance of finer ſubſtances.

The indurated bole or ſlate is of a reddiſh brown or grey colour, and is found in moſt coalleries between the ſeams of coal. It is met with frequently in pieces like nuts of various ſizes; which, when broken, exhibit impreſſions of plants, as the nodules of copper ſlate from Ilmenaus contain fiſh.

6. With ſcaly particles, the *horn-blende* of the Swedes. This is called *horn rock-ſtone* by Wallerius, who places it among the apyrous ſtones; but Linnæus has put it among the calcareous ſtones by the name of *horn ſlag, talcum corneum.* It is named *talcum ſtriatum* by Rinman, and has the following properties. 1. Its ſpecific gravity is never leſs than 2.660, and frequently riſes to 3.880. 2. It has a ſtrong earthy ſmell, which is particularly ſenſible on breathing upon it, or pouring hot water on it. 3. A toughneſs or viſcidity is perceived on pounding it in a mortar, as is the caſe with mica and horn; from which laſt it derives its name. 4. When pounded it affords a greeniſh-grey powder. 5. It is ſaid to be fuſible *per ſe;* though Mr Kirwan informs us, that he could never melt this ſtone even by the aſſiſtance of a blow-pipe. This ſtone is frequently mixed with pyrites. It is diſtinguiſhed from the martial glimmer or mica by the ſcales being leſs ſhining, thicker, and rectangular. It is of two kinds, black, and greeniſh. The former, when rubbed fine, affords a green powder. It is the *corneum nitens* of Wallerius, and is either of a lamellated or granular texture; the former being ſometimes ſo ſoft as to be ſcraped with the nail, and its ſurface frequently as gloſſy as if it had been greaſed; the ſpecific gravity being from 3600 to 3880. It does not detonate with nitre, but becomes of a ſnuff-colour when heated, and then ſlightly effervesces with diluted nitrous acid; the ſolution aſſuming a greeniſh colour. In order to diſcover the principal on which the ſmell of this ſtone depends, Mr Kirwan boiled its powder in water; but could not diſcover, either by the taſte or by any other method, that any thing had been communicated to the fluid. An hundred parts of the lamellar ſort contain 37 of ſiliceous earth, 22 of pure argillaceous earth, 16 of magneſia, and two of calcareous earth, both in a mild ſtate, together with 23 of calx of iron not much dephlogiſticated. The greeniſh kind is of a granular texture, or ſtriated; the ſpecific gravity of a ſpecimen examined by Mr Kirwan was 2683. The common pale, greeniſh-grey whetſtone ſeems to belong to this ſpecies.

7. The *zeolite* was firſt diſcovered by Cronſtedt, and by him reckoned a genus diſtinct from every other; but on a proper chemical analyſis, both Kirwan and Bergman have reckoned them among the argillaceous earths; and here M. Magellan obſerves, that, "it is not ſo much the quantity as the intenſity or predominancy of property that ſhould in general direct us in the claſſification of mineral bodies; not to mention, that if the rule reſpecting *quantity* were rigorouſly adhered to, the two primitive earths, magneſia and argill, would not be found among the earths; which would doubtleſs be an abſurdity, as Bergman has rightly obſerved."

The properties of zeolite are, 1. It is a little harder than the fluors, and other calcareous ſpars, but is ſcratched by ſteel, and does not ſtrike fire with it. 2. It melts eaſily in the fire, with an ebullition like borax, into a white forthy ſlag, which cannot, without great difficulty, be brought into a ſolid tranſparent ſtate. 3. It diſſolves more readily in the fire by the help of mineral alkali, than that of borax or microcoſmic ſalt. 4. It does not ferment with the latter as lime does, nor with the former as thoſe of the gypſeous kind. 5. It diſſolves very ſlowly, and without effervesſcence, in acids, as oil of vitriol, and ſpirit of nitre. With the former a great heat ariſes, and the powder unites into a maſs. By diſtillation with nitrous acid, ſome fixed and dephlogiſticated airs are procured. Some ſorts of zeolite, however, found in Sweden, do not melt by themſelves in the fire, but are readily diſſolved by the acid of nitre into a kind of jelly. 7. The fuſible kinds, in the very moment of fuſion, emit a phoſphoric light.

With regard to the component parts of zeolite, M. Bayen is of opinion that it conſiſts of equal parts of ſiliceous and argillaceous earths, which is alſo confirmed by M. Guettard; but according to Mr Bergman's analyſis, the red zeolite of Adelfores contains 80 *per cent.* of ſiliceous earth; 9.5 of argillaceous; 6.5 of pure calcareous earth; and four of water. The white, oval, radiated zeolite of *Feroe* in Iceland, contains, according to M. Pelletier, 50 of ſilex; 20 of argillaceous earth; 8 of pure calcareous earth; and 22 of water. According to Mr Mayer's analyſis, a radiated zeolite yielded 58.33 *per cent.* of ſilex: 17.5 of argill; 6.66 of lime; and 17.5 of water. In general the cryſtallized kind contain more water than the other. At any rate, though the proportions of ingredients are various, ſilex always ſeems to predominate.

In general the zeolites are of a cryſtalline form, compoſed of imperfect pyramids turned towards a common centre; their form is ſometimes globular, but ſeldom priſmatic. Meſſrs Faujas and Rome de l'Iſle mention zeolites, of cubic and other forms, found in Iceland, the Cyclops Iſlands near Etna in Sicily, the iſland of Bourbon, &c. their ſpecific gravity is from 2.100 to 3.150; but this laſt is very rare. Fabroni mentions a ſemitranſparent zeolite from Garphyttan in Sweden, which has an electric power. To the ſpecies of zeolite alſo belongs the lapis lazuli, from which ultramarine is made. See *Lapis Lazuli*, and Ultramarine.

The ſparry zeolite reſembles a calcareous ſpar; but is of a more irregular figure, as well as more brittle. It is found in Sweden of a light red or orange colour.

The cryſtallized zeolites are met with in greater plenty than the other kinds; and are found in Sweden of various forms and colours. Brunich informs us, that in the north, the countries of the zeolites and of the chalcedony and caſholong, pieces are ſhown as curioſities, in which the zeolite is incloſed in the chalcedony; but this is not ſufficient to prove that the one was produced from the other.

Cronſtedt obſerves, that the zeolites have nearly the ſame qualities in the fire as the boles. The property of ſwelling in the fire, like borax, is peculiar to the cryſtallized kind; the others riſe only in ſome ſmall bliſters, which are of a white colour at their edges, and inſtantly cover themſelves with a white glaſſy ſkin, after which they become quite refractory. According to Bergman they have a great affinity to the ſchoerls; but their component parts are not ſo ſtrongly connected as to hinder the action of acids, which can deſtroy their combination, without being previouſly treated with fixed alkali; this laſt being a neceſſary requiſite for analyſing ſchoerls. Mr Pazumot is of opinion that the zeolites cannot be a volcanic production, but only a ſecondary one formed by the decompoſition of volcanic earths. Pure baſaltes and volcanic lavas have indeed the ſame component parts with the zeolites: and theſe laſt have not yet been found but among volcanic matters: but, as M. Faujas obſerves, there are many inſtances of true zeolites being quite buried within the bodies of ſolid baſaltes, ſome being only fragments, and others complete zeolites; "which, (ſays M. Magellan), undeniably proves, that the latter have been completely formed before theſe volcanic maſſes were produced by ſubterraneous fires.

8. *Tripoli* uſed in poliſhing hard ſubſtances. See Tripoli.

9. The common or *brick clay*, has the following properties. 1. It acquires a red colour, more or leſs deep, in the fire. 2. It melts pretty eaſily into a greeniſh glaſs. 3. It conſiſts of a mixture of pure clay, ſiliceous and martial earth, containing alſo a ſmall quantity of vitriolic acid. It is found in a ſtate of purity of various colours, as red, pale-red, grey, and blue. In ſome provinces of Sweden a white kind is met with, often in a ſlaty form, with fine ſand between its ſtrata; which when burnt is of a paler colour than any of the preceding, and does not cake well in the fire; it is alſo more fuſible than any of them. In this country alſo is found a ſpecies called, by Cronſtedt, *fermenting clay, argilla intumeſcens*. It is very like the preceding as to the external appearance and other qualities: but, when both are found in the ſame place, they ſeem to be different in regard to the fermenting property of this variety. "This fermentation (ſays our author) cannot be the effect of the ſand mixed with it, becauſe ſand is found in them both: and beſides, this kind ferments in the ſame manner when it is mixed with gravel or ſtones; and then it ferments later in the ſpring than the other, ſince by the ſtones, perhaps, the froſt is longer retained in it.

This kind of clay is alſo found mixed with calcareous earth, in which caſe it is called Marle. It is alſo found in an indurated ſtate, and that either pure or mixed with phlogiſton and a large quantity of vitriolic acid; in which caſe it conſtitutes the ores of alum. It is alſo found in this ſtate mixed with calcareous earth, forming ſtone marle.

10. *Argillaceous foſſile ſtones.* The moſt remarkable of theſe are, 1. The *ſchiſtus regularis*, or common houſe-ſlate. It is of a bluiſh purple colour, does not ſtrike fire with ſteel, and may be ſlightly ſcraped with the nail. It is very brittle, of a lamellar texture, and of the ſpecific gravity 2.876; giving a clear ſound when in pieces of half an inch thick. It is never tranſparent, but has a moderately fine grain, effervеſcing ſlightly with acids when powdered, but not otherwiſe. In the fire it loſes upwards of 2 *per cent.* of its weight; detonates ſlightly with nitre, and then aſſumes a browniſh red colour; however, it is not rendered magnetic by calcination. By a vehement heat it is fuſible *per ſe*, and melts into a black ſcoria. It melts with difficulty in the dry way with mineral alkali, but more eaſily with borax, and microcoſmic ſalt, with little effervеſcence; and it melts with equal eaſe in chalk or clay veſſels. By digeſtion for two months in dephlogiſticated ſpirit of nitre, the menſtruum aſſumes a green colour. According to Mr Kirwan, it contains 26 parts of argillaceous earth; 46 of ſiliceous; 8 of magneſia; 4 of calcareous earth; and 14 of iron. Part of the iron ſeems to be phlogiſticated by a mineral oil united with it; and part dephlogiſticated, or in a red calx. This laſt is united to the argillaceous part as well as to the ſiliceous, and cannot be ſeparated without great difficulty. The colour of this ſlate varies to the pale, to the ſlightly purple, and to the bluiſh. The laminæ of the laſt are thicker, their texture coarſer, and they contain more ſiliceous earth

and leſs iron than the foregoing. Other ſtones are alſo made uſe of for covering houſes; but their laminæ are much thicker, their ſurface more uneven, and their texture coarſer. They belong chiefly to the ſand-ſtones, or to the calcareous kinds. The dark blue *ſchiſtus ſcriptorius* contains more magneſia and leſs iron than the foregoing, and therefore efferveſces more briſkly with acids. Its ſpecific gravity is 2.701. 2. The *pyritaceous ſchiſtus*, to which alſo belongs that from which alum is made, is of a grey, blue, brown, or black colour; and is more or leſs decompoſable by its expoſure to air, according to the quantity of the pyrites, and the ſtate of the iron in it. When the iron is in a ſemiphlogiſticated ſtate, the ſchiſtus will be eaſily decompoſed; but much more ſlowly, if at all, when the clax is much dephlogiſticated. 3. The *bituminous ſchiſtus* is generally black, of a lamellar texture, and various degrees of hardneſs. It never gives fire with ſteel, but emits a ſtrong ſmell when heated, and ſometimes without being heated. When ſcraped it does not produce any white mark like the other ſchiſtus. M. Magellan mentions a ſpecimen found in Yorkſhire which burned like coal, with a ſtrong ſmell of bitumen.

There are various other ſpecies of argillaceous earths, as the flag-ſtone, ſand or free ſtone, toad-ſtone, &c. for a deſcription of which ſee theſe articles.

Clays are of very extenſive uſe in common life. Some varieties of the porcelain clay become perfectly white in the fire; and it is not to be doubted but theſe are uſed in the porcelain manufactories. The indurated porcelain clay, however, cannot be eaſily heated without cracking, and therefore we can go no great length in hardening it. The boles have almoſt loſt their value as medicines; but are ſtill employed to make bricks, potter's ware, &c. Tripoli is of indiſpenſable uſe in the buſineſs of poliſhing, and is likewiſe, on many occaſions, uſed for making moulds to caſt metals in.

In agriculture, clay is indiſpenſably neceſſary; excepting, however, according to Cronſtedt, the white and fermenting clays abovementioned, for which no uſe has yet been diſcovered. By its coherency clay retains humidity; on which perhaps its chief power of promoting vegetation depends.

Dr Black obſerves, that clay, when mixed with a large proportion of water, and kneaded a little, becomes a remarkable ductile adheſive maſs, which is not eaſily diſſolved in more water, and to render it thin and fluid requires great trouble. Hence it is employed for confining large quantities of water, as in making canals and dykes: but the ſoil muſt either contain a great quantity of clay naturally, or ſome quantity of it muſt be ſpread on the bottom; or the water itſelf muſt depoſit a quantity of clay ſufficient to render it tight. Hence alſo we ſee the bad effects of allowing cattle to tread much in clay-grounds when wet; for the clay is reduced to ſuch an adheſive maſs as not to admit the roots to penetrate the ſoil, or the water to enter to the roots.

Clay is uſed in the refining of ſugar; for which no other property is requiſite than that it may not dry too ſoon: but that ſpecies uſed in fulling muſt, if we were to judge *a priori*, beſides the fineneſs of its particles, be of a dry nature, or ſuch as attracts oils; tho' this quality perhaps may not be found in all thoſe clays that are now employed in the buſineſs. According to Fabroni, the pure white clay being calcined in a ſtrong heat, acquires a phoſphoreſcent quality.

Clay, a town of Norfolk in England, ſeated on an arm of the ſea between two rivers, in E. Long. 0. 30. N. Lat. 47. 28.

Clay-*Lands*, thoſe abounding with clay, whether black, blue, yellow, white, &c. of which the black and the yellow are the beſt for corn.

All clay-ſoils are apt to chill the plants growing on them in moiſt ſeaſons, as they retain too much water: in dry ſeaſons, on the contrary, they turn hard and choke the plants. Their natural produce is weeds, gooſe-graſs, large daiſies, thiſtles, docks, poppies, &c. Some clay-ſoils will bear clover and rye-graſs; and, if well manured, will produce the beſt grain: they hold manure the beſt of all lands; and the moſt proper for them are horſe-dung, pigeons dung, ſome kinds of marle, folding of ſheep, malt-duſt, aſhes, chalk, lime, ſoot, &c.

CLAYTON, (Dr Robert) a prelate of great learning, of diſtinguiſhed worth and probity, and a reſpectable member of the royal and Antiquarian Societies at London, was advanced to the biſhopric of Killala, Jan. 23, 1729; tranſlated to the ſee of Cork, Dec. 19, 1735; to that of Clogher, Aug. 26, 1745: and died much lamented, Feb. 25, 8758. His publications are, 1. A Letter in the Philoſophical Tranſactions, nº 461, p. 813. giving an account of a Frenchman 70 years old (at Iniſhanan, in his dioceſe of Cork), who ſaid he gave ſuck to a child.—2. The Chronology of the Hebrew Bible vindicated, &c. 1751, 4to.—3. An impartial Inquiry into the Time of the Coming of the Meſſiah; 1751, 8vo.—4. An Eſſay on Spirit, 1751, 8vo.—5. A Vindication of the Hiſtories of the Old and New Teſtament, in Anſwer to the Objections of the late lord Bolingbroke: in Two Letters to a young Nobleman, 1752, 8vo, reprinted in 1753.—6. A defence of the Eſſay on Spirit, with Remarks on the ſeveral pretended Anſwers; and which may ſerve as an Antidote againſt all that ſhall ever appear againſt it, 1753, 8vo. 7. A Journal from Grand Cairo to Mount Sinai, and back again, tranſlated, from a Manuſcript written by the Prefetto of Egypt, in Company with ſome Miſſionaries *de propaganda fide* at Grand Cairo; to which are added, Remarks on the Origin of Hieroglyphics, and the Mythology of the ancient Heathens, 1753, 8vo, two editions 4to and 8vo. It was ſoon after this publication that his Lordſhip became (in March 1754) a fellow of the Society of Antiquaries.—8. Some Thoughts on Self-love, Innate Ideas, Free-will, Taſte, Sentiments, Liberty, and Neceſſity, &c. occaſioned by reading Mr Hume's Works, and the ſhort Treatiſe written in French by Lord Bolingbroke on Compaſſion, 1754, 8vo.—9. A Vindication of the Hiſtories of the Old and New Teſtament, Part II. Adorned with ſeveral Explanatory Cuts, 1754, 8vo.—10. Letters between the biſhop of Clogher and Mr William Penn, concerning Baptiſm, 1755, 8vo.—11. A Speech made in the Houſe of Lords in Ireland, on Monday, Feb. 2, 1756, for omitting the the Nicene and Athanaſian Creeds out of the Liturgy, &c. 1756, 8vo.—12. A Vindication, part III. 1758, 8vo. The three parts of the "Vindication, with the Eſſay on Spirit, were reprinted by Mr Bowyer, in one vol. 8vo, 1759; with ſome additional notes, and an index of texts of ſcripture illuſtrated or explained.

CLAYTONIA, in botany: A genus of the monogynia order, belonging to the pentandria claſs of plants; and in the natural method ranking under the 13th order, *Succulentæ*. The clayx is bivalved; the corolla pentapetalous; the ſtigma trifid; the capſule trivalved, unilocular, and triſpermous. There are two ſpecies, natives of America. They are very low herbaceous plants, with white flowers; and are poſſeſſed of no remarkable property.

CLAZOMENÆ ARUM, (Herodotus, Strabo, Velleius, Pliny); *Clazomena, ae*, (Mela); one of the twelve ancient cities of Ionia. The country of Anaxagoras; ſituated in the neighbourhood of Colophon. The city was ſmall, its port on the N. N. W. ſide of the iſland. Traces of the walls, Dr Chandler informs us, are found by the ſea, and in a hill are veſtiges of a theatre. Three or four trees grow on it; and by one is a cave hewn in the rock, and affording water. A vaulted room with a chimney at one end, and a hovel or two made with ſtones piled, are all the preſent ſtructures; and theſe are chiefly frequented by fiſhermen, and by perſons employed to watch and to drive away birds when the grain ripens. Referring to this confined ſituation of Clazomenæ, a famous ſophiſt, when importuned to adorn his native city by reſiding in it rather than at Smyrna, replied, *The nightingale refuſes to ſing in a cage.*

CLEANTHES, a ſtoic philoſopher, diſciple of Zeno, flouriſhed 240 years before Chriſt. He maintained himſelf in the day by working in the night: being queſtioned by the magiſtrates how he ſubſiſted, he brought a woman for whom he kneaded bread, and a gardener for whom he drew water; and refuſed a preſent from them. He compoſed ſeveral works, of which there are now only a few fragments remaining.

CLEAR, as a naval term, is variouſly applied to the weather, the ſea-coaſts, cordage, navigation, &c. The weather is ſaid to be clear when it is fair and open, as oppoſed to cloudy or foggy. The ſea-coaſt is called clear when the navigation is not interrupted, or rendered dangerous by rocks, ſands, or breakers, &c. It is expreſſed of cordage, cables, &c. when they are unembarraſſed or diſentangled, ſo as to be ready for immediate ſervice. It is uſually oppoſed to *foul* in all theſe ſenſes.

CLEARCHUS, a tyrant of Heraclea in Pontus, who was killed by Chion and Leonidas, Plato's pupils, during the celebration of the feſtivals of Bacchus. He had enjoyed the ſovereign power during 12 years. A Lacedaemonian ſent to quiet the Byzantines. He was recalled, but refuſed to obey, and fled to Cyrus the younger, who made him captain of 13,000 Greek ſoldiers. He obtained a victory over Artaxerxes; who was ſo enraged at the defeat, that when Clearchus fell into his hands by the treachery of Tiſſaphernes, he put him immediately to death.

CLEATS, in naval affairs, pieces of wood having one or two projecting ends whereby to faſten the ropes: ſome of them are faſtened to the ſhrouds below for this purpoſe, and others nailed to different places of the ſhip's deck or ſides.

CLECHE, in heraldry, a kind of croſs, charged with another croſs of the ſame figure, but of the colour of the field.

CLEDGE, among miners, denotes the upper ſtratum of fuller's earth.

CLEDONISM, CLEDONISMUS, a kind of divination, in uſe among the ancients. The word is formed from κληδων, which ſignifies two things, *rumor*, "a report," and *avis*, "a bird." In the firſt ſenſe, cledoniſm ſhould denote a kind of divination drawn from words occaſionally uttered. Cicero obſerves, that the Pythagoreans made obſervation not only of the words of the gods, but of thoſe of men; and accordingly believed the pronouncing of certain words, v. g. *incendium*, at a meal, very unhappy. Thus, inſtead of priſon, they uſed the word *domicilium*; and to avoid *erinnys*, furies, ſaid *eumenides*. In the ſecond ſenſe, *cledoniſm* ſhould ſeem a divination drawn from birds; the ſame with ornithomantia.

CLEEVERS. See CLIVERS.

CLEF, or CLIFF, in muſic, derived from the Latin word *clavis*, a *key*; becauſe by it is expreſſed the fundamental ſound in the diatonic ſcale, which requires a determined ſucceſſion of tones or ſemitones, whether major or minor, peculiar to the note from whence we ſet out, and reſulting from its poſition in the ſcale. Hence, as it opens a way to this ſucceſſion, and diſcovers it, the technical term *key* is uſed with great propriety. But clefs rather point out the poſition of different muſical parts in the general ſyſtem, and the relations which they bear one to another.

A clef, ſays Rouſſeau, is a character in muſic placed at the beginning of a ſtave, to determine the degree of elevation occupied by that ſtave in the general claviary or ſyſtem, and to point out the names of all the notes which it contains in the line of that clef.

Anciently the letters by which the notes of the gamut had been ſignified were called *clefs*. Thus the letter A was the clef of the note *la*, C the clef of *ut*, E the clef of *mi*, &c. In proportion as the ſyſtem was extended, the embarraſſment and ſuperfluity of this multitude of clefs were felt.

Gui d'Arezzo, who had inverted them, marked a letter or clef at the beginning of each line in the ſtave; for as yet he had placed no notes in the ſpaces. In proceſs of time they marked no more than one of the ſeven clefs at the beginning of one of the lines only; and this was ſufficient to fix the poſition of all the reſt, according to their natural order: at laſt, of theſe ſeven lines or clefs they ſelected four, which were called *claves ſignatæ*, or *diſcriminating clefs*; becauſe they ſatisfied themſelves with marking one of them upon one of the lines, from which the powers of all the others might be recognized. Preſently afterwards they even retrenched one of theſe four, viz. the gamma, of which they made uſe to mark the *ſol* below, that is to ſay, the hypoproſlambanomene added to the ſyſtem of the Greeks.

In reality Kircher aſſerts, that if we underſtood the characters in which ancient muſic was written, and examined minutely the forms of our clefs, we ſhould find that each of them repreſents the letter a little altered in its form, by which the note was originally named. Thus the clef of *ſol* was originally a G, the clef of *ut* a C, and the clef of *fa* an F.

Plate CXXXVIII. fig. 9.

We have then three clefs, one a fifth above the other: the clef of F, or *fa*, which is the loweſt; the clef of *ut*, or C, which is a fifth above the former; and the clef of *ſol*, or G, which is a fifth above that of *ut*. Theſe clefs, both as marked by foreigners and in Britain, may be ſeen in art. 170 of MUSIC; upon which it is neceſſary to remark, that by a remain of ancient practice, the clef is always placed upon a line and never in a ſpace. It deſerves notice, that the clef of *fa* is marked in three different manners: one in muſic which is printed; another in muſic which is written or engraven; and a third in the full harmony of the chorus.

By adding four lines above the clef of *ſol*, and three lines beneath the clef of *fa*, which gives both above and below the greateſt extent of permanent or eſtabliſhed lines, it appears, that the whole ſcale of notes which can be placed upon the gradations relative to theſe clefs amounts to 24; that is to ſay, three octaves and a fourth from the F, or *fa*, which is found beneath the firſt line, to the *ſi*, or B, which is found above the laſt, and all this together forms what we call the *general claviary*; from whence we may judge, that this compaſs has, for a long time, conſtituted the extent of the ſyſtem. But as at preſent it is continually acquiring new degrees, as well above as below, the degrees are marked by leger lines, which are added above or below as occaſion requires.

Inſtead of joining all the lines, as has been done by Rouſſeau in his Dictionary, (plate A, fig. 5.) to mark the relation which one clef bears to another, they ſeparate them five by five; becauſe it is pretty nearly within the degrees to which the compaſs of ordinary voices extends. This collection of five lines is called a *ſtave*; and in theſe they place a clef, to determine the names of the notes, the poſitions of ſemitones, and to ſhow what ſtation the ſtave occupies in the claviary or general ſcale.

In whatever manner we take five ſucceſſive lines in the claviary, we ſhall find one clef comprehended; nay, ſometimes two; in which caſe one may be retrenched as uſeleſs. Cuſtom has even preſcribed which of the two ſhould be retrenched, and which retained; it is this likewiſe which has determined the number of poſitions aſſigned to each clef.

If I form a ſtave of the firſt five lines in the claviary, beginning from below, I find the clef of *fa* in the fourth line. This then is one poſition of the clef, and this poſition evidently relates to the loweſt note; thus likewiſe it is that of the baſs clef.

If I wiſh to gain a third in aſſent, I muſt add a line above; I muſt then obliterate one below, otherwiſe the ſtave will contain more than five lines. The clef of *fa* then is found transferred from the fourth to the third, and the clef of *ut* is likewiſe found upon the fifth; but as two clefs are uſeleſs, they retrench here that of *ut*. It is evident, that the ſtave of this clef is a third higher than the former.

By throwing away ſtill one line below to gain another above, we have a third kind of ſtave, where the clef of *fa* will be found upon the ſecond line, and that of *ut* upon the fourth. Here we leave out the clef of *fa*, and retain that of *ut*. We have now gained another third above and loſt it below.

By continuing theſe alterations from line to line, we paſs ſucceſſively through four different poſitions of the clef of *ut*. Having arrived at that of *ſol*, we find it placed upon the ſecond line, and then upon the firſt. This poſition includes the five higheſt lines, and gives the ſharpeſt diapaſon which the clefs can ſignify.

The reader may ſee in Rouſſeau's Muſical Dictionary, Plate A. fig. 5. this ſucceſſion of clefs from the loweſt to the higheſt; which in all conſtitutes eight ſtaves, clefs, or different poſitions of clefs.

Whatever may be the character and genius of any voice or inſtrument, if its extent above or below does not ſurpaſs that of the general claviary, in this number may be found a ſtation and a clef ſuitable to it; and there are, in reality, clefs determined for all the parts in muſic. If the extent of a part is very conſiderable, ſo that the number of lines neceſſary to be added above or below may become inconvenient, the clef is then changed in the courſe of the muſic. It may be plainly perceived by the figure, what clef it is neceſſary to chooſe, for raiſing or depreſſing any part, under whatever clef it may be actually placed.

It will likewiſe appear, that in order to adjuſt one clef to another, both muſt be compared by the general claviary, by means of which we may determine what every note under one of the clefs is with reſpect to the other. It is by this exerciſe repeated that we acquire the habit of reading with eaſe all the parts.

From this manœuvre it follows, that we may place whatever note we pleaſe of the gamut upon any line or ſpace whatever of the ſtave, ſince we have the choice of eight different poſitions, which is equal to the number of notes in the octave. Thus you may mark a whole tune upon the ſame line, by changing the clef at each gradation. The 7th fig. of the ſame plate in Rouſſeau's Muſical Dictionary, to which we formerly referred, ſhows by the ſeries of clefs the order of the notes, *re, fa, la, ut, mi, ſol, ſi, re*, riſing by thirds, although all placed upon the ſame line. The fig. following repreſents upon the order of the ſame clefs the note *ut*, which appears to deſcend by thirds upon all the lines of the ſtave; and further, which yet, by means of changing the clef, ſtill preſerves its uniſon. It is upon ſuch examples as this, that ſcholars ought to exerciſe themſelves, in order to underſtand at the firſt glance the powers of all the clefs, and their ſimultaneous effect.

There are two of their poſitions, viz. the clef of *ſol* upon the firſt line, and that of *fa* upon the third, which ſeem daily to fall more and more into deſuetude. The firſt of theſe may ſeem leſs neceſſary, becauſe it produces nothing but a poſition entirely ſimilar to that of *fa* upon the fourth line, from which however it differs by two octaves. As to the clef of *fa*, it is plain, that in removing it entirely from the third line, we ſhall no longer have any equivalent poſition, and that the compoſition of the claviary, which is at preſent complete, will by theſe means become defective.

Thus much for Rouſſeau's account of clefs. He proceeds to explain their tranſpoſition; but as this would render the preſent article too long and intricate, we remit the curious to his *Muſical Dictionary*, vol. i. page 162. See alſo *Malcom's Diſſertation on Muſic.*

CLEFT, in a general ſenſe, is a ſpace made by the ſeparation of parts. Green timber is very apt to ſplit and cleave in ſeveral places, after it is wrought into form; and theſe cracks in it are very diſagreeable to the ſight. The common method of the country carpenters is to fill up theſe cracks with a mixture of greaſe and ſaw duſt; but the neateſt way of all is, the ſoaking both ſides well with the fat of beef-broth, and then dipping pieces of ſponge into the ſame broth, and filling up all the cracks with them: they ſwell out ſo as to fill the whole crack; and accommodate themſelves ſo well to it, that the deficiency is hardly ſeen.

CLEFTS, or *Cracks*, in farriery, appear on the bought of the paſterns, and are cauſed by a ſharp and malignant humour. See FARRIERY, ſect. xxxiii.

CLEMA, in antiquity, a twig of the vine, which ſerves as a badge of the Centurion's office.

CLEMATIS, VIRGIN'S-BOWER: A genus of the polygynia order, belonging to the polyandria claſs of plants; and in the natural method ranking under the 26th order, *Multiſiliquæ*. There is no calyx; the petals are four, rarely five; the ſeeds have a train. There are twelve ſpecies; all of which, except two are ſhrubby climbing plants, very hardy, and adorned with quadrupetalous flowers of red, blue, purple, white, and greeniſh colours. They are very eaſily propagated by layers or cuttings. The vitis alba, one of the ſpecies, is very acrid to the taſte, and without any ſmell. It is frequently uſed as a cauſtic, and for cleanſing old ulcers. The root is ſaid to be purgative. The leaves of all the ſpecies bruiſed and applied to the ſkin, burn it into carbuncles as in the plague; and if applied to the noſtrils in a ſultry day immediately after being cropped, will cauſe the ſame uneaſy ſenſation as a flame applied to that part would occaſion. Hence the title of *flammula*, or "little flame," by which this genus of plants was formerly diſtinguiſhed.

CLEMENCY, denotes much the ſame with mercy; and implies a remiſſion of ſeverity towards offenders. The term is moſt generally uſed in ſpeaking of the forgiveneſs exerciſed by princes or perſons of high authority. It is the reſult, indeed, of a diſpoſition which ought to be cultivated by all ranks, though its effects cannot be equally conſpicuous or extenſive. In praiſe of clemency joined with power, it is obſerved, that it is not only the privilege, the honour, and the duty of a prince, but it is alſo his ſecurity, and better than all his garriſons, forts, and guards, to preſerve himſelf and his dominions in ſafety: That that prince is truly royal, who maſters himſelf; looks upon all injuries as below him; and governs by equity and reaſon, not by paſſion or caprice. In illuſtration of this ſubject, the following examples are ſelected out of many recorded in hiſtory.

Sueton. c. 9. 1. Two patricians having conſpired againſt Titus the Roman emperor, were diſcovered, convicted, and ſentenced to death by the ſenate: but the good-natured prince ſent for them, and in private admoniſhed them, that in vain they aſpired to the empire, which was given by deſtiny; exhorting them to be ſatisfied with the rank in which by Providence they had been placed, and offering them any thing elſe which was in his power to grant. At the ſame time he diſpatched a meſſenger to the mother of one of them, who was then at a great diſtance, and under deep concern about the fate of her ſon, to aſſure her, that her ſon was not only alive, but forgiven.

2. Licinius having raiſed a numerous army, Zoſimus ſays 130,000 men, endeavoured to wreſt the government out of the hands of his brother-in-law Conſtantine the emperor. But his army being defeated, Licinius fled with what forces he could rally to Nicomedia, whither Conſtantine purſued him, and immediately inveſted the place: but on the ſecond day of the ſiege, the emperor's ſiſter intreating him, with a flood of tears, by the tenderneſs he had ever ſhown for her, to forgive her huſband, and grant him at leaſt his life, he was prevailed upon to comply with her requeſt; and the next day, Licinius, finding no means of making his eſcape, preſented himſelf before the conqueror, and throwing himſelf at his feet, yielded to him the purple and the other enſigns of ſovereignty. Conſtantine received him in a very friendly manner, entertained him at his table, and afterwards ſent him to Theſſalonica, aſſuring him, that he ſhould live unmoleſted ſo long as he raiſed no new diſturbances. *Zoſ.* ii. 674

3. The council of thirty, eſtabliſhed at Athens by Lyſander, committed the moſt execrable cruelties. Upon pretence of reſtraining the multitude within their duty, and to prevent ſeditions, they had cauſed guards to be aſſigned them, had armed 3000 of the citizens for that purpoſe, and at the ſame time diſarmed all the reſt. The whole city was in the utmoſt terror and diſmay. Whoever oppoſed their injuſtice and violence fell a victim to their reſentment. Riches was a crime that never failed of drawing a ſentence upon their owners, always followed with death and the confiſcation of eſtates; which the thirty tyrants divided amongſt themſelves. They put more people to death (ſays Xenophon) in eight months of a peace, than their enemies had done in a war of thirty years. All the citizens of any conſideration in Athens, and who retained a love of liberty, quitted a place reduced to ſo hard and ſhameful a ſlavery, and ſought elſewhere an aſylum and retreat, where they might live in ſafety. At the head of theſe was Thraſybulus, a perſon of extraordinary merit, and who beheld with the moſt lively affliction the miſeries of his country.

The Lacedemonians had the inhumanity to endeavour to deprive thoſe unhappy fugitives of this laſt reſource. They publiſhed an edict to prohibit the cities of Greece from giving them refuge, decreed that they ſhould be delivered up to the thirty tyrants, and condemned all ſuch as ſhould contravene the execution of this edict to pay a fine of five talents. Only two cities rejected with diſdain ſo unjuſt an ordinance, Megara and Thebes; the latter of which made a decree to puniſh all perſons whatſoever that ſhould ſee an Athenian attacked by his enemies without doing his utmoſt to aſſiſt him. Lyſias, an orator of Syracuſe who had been baniſhed by the thirty, raiſed 500 ſoldiers at his own expence, and ſent them to the aid of the common country of Eloquence. Thraſybulus loſt no time. After having taken Phyta, a ſmall fort in Attica, he marched to the Piræus, of which he made himſelf maſter. The thirty flew thither with their troops, and a battle enſued. The tyrants were overthrown. Critias, the moſt ſavage of them all, was killed on the ſpot: and as the army was taking to flight, Thraſybulus cried out, "Wherefore do you fly from me as from a victor, rather than aſſiſt me as the avenger of your liberty? We are not enemies, but fellow-citizens; nor have we declared war againſt the city, but againſt the thirty tyrants." He continued with bidding them to remember, that they had the ſame origin, country, laws, and religion: he exhorted them to compaſſionate their exiled brethren, to reſtore their country to them, and reſume their own liberty. This diſcourſe had the deſired effect. The army, upon their return to Athens, expelled the thirty, and ſubſtituted ten perſons to govern in their room, whoſe conduct proved no better than theirs: but king Pauſanias, moved with compaſſion for the deplorable condition to which a city, once ſo flouriſhing, was reduced, had the generoſity to favour the Athenians in ſecret, and at length obtained a peace for them. It was ſealed with the blood of the tyrants, who having taken arms to reinſtate themſelves in the government, were all put to the ſword, and left Athens in the full poſſeſſion of its liberty. All the exiles were recalled. Thraſybulus at that time propoſed the celebrated amneſty, by which the citizens engaged upon oath, that all paſt tranſactions ſhould be buried in oblivion. The government was re-eſtabliſhed upon its ancient foot, the laws were reſtored to their priſtine vigour, and magiſtrates elected with the uſual form.

This (ſays Rollin) is one of the fineſt events in ancient hiſtory, worthy the Athenian clemency and benevolence, and has ſerved as a model to ſucceſſive ages in all good governments. Never had tyranny been more cruel and bloody than that the Athenians had lately thrown off. Every houſe was in mourning, every family bewailed the loſs of ſome relation: it had been a ſeries of public robbery and rapine, in which licence and impunity had authoriſed all manner of crimes. The people ſeemed to have a right to demand the blood of all accomplices in ſuch notorious malverſations, and even the intereſt of the ſtate to authoriſe ſuch a claim, that by exemplary ſeverities ſuch enormous crimes might be prevented for the future. But Thraſybulus riſing above theſe ſentiments, from the ſuperiority of his more extenſive genius, and the views of a more diſcerning and profound policy, foreſaw, tha tby giving in to the puniſhment of the guilty, eterna lſeeds of diſcord and enmity would remain, to weaken the public by domeſtic diviſions, when it was neceſſary to unite againſt the common enemy, and alſo occaſion the loſs to the ſtate of a great number of citizens, who might render it important ſervices from the view of making amends for paſt miſbehaviour.

4. Such conduct, after great troubles in a ſtate, has always ſeemed, with the ableſt politicians, the moſt certain and ready means to reſtore the public peace and tranquillity. Cicero, when Rome was divided into two factions upon the occaſion of Cæſar's death, who had been killed by the conſpirators, calling to mind this celebrated amneſty, propoſed, after the example of the Athenians, to bury all that had paſſed in eternal oblivion.

5. Cardinal Mazarine obſerved to Don Lewis de Haro, prime miniſter of Spain, that this gentle and humane conduct in France had prevented the troubles and revolts of that kingdom from having any fatal conſequences, and "that the king had not loſt a foot of land by them to that day;" whereas "the inflexible ſeverity of the Spaniards was the occaſion that the ſubjects of that monarchy, whenever they threw off the maſk, never returned to their obedience but by the force of arms; which ſufficiently appears (ſays he) in the example of the Hollanders, who are in the peaceable poſſeſſion of many provinces, that not an age ago were the patrimony of the king of Spain."

6. Leonidas the Lacedemonian having, with 300 men only, diſputed the paſs of Thermopylæ againſt the whole army of Xerxes; and being killed in that engagement, Xerxes, by the advice of Mardonius one of his generals, cauſed his dead body to be hung upon a gallows, making thereby the intended diſhonour of his enemy his own immortal ſhame. But ſome time after, Xerxes being defeated, and Mardonius ſlain, one of the principal citizans of Ægina came and addreſſed himſelf to Pauſanias, deſiring him to avenge the indignity that Mardonius and Xerxes had ſhown to Leonidas, by treating Mardonius's body after the ſame manner. As a farther motive for doing ſo, he added, that by thus ſatisfying the manes of thoſe who were killed at Thermopylæ, he would be ſure to immortalize his own name throughout all Greece, and make his memory precious to the lateſt poſterity. "Carry thy baſe counſels elſewhere (replied Pauſanias); thou muſt have a very wrong notion of true glory to imagine, that the way for me to acquire it is to reſemble the Barbarians. If the eſteem of the people of Ægina is not to be purchaſed but by ſuch a proceeding, I ſhall be content with preſerving that of the Lacedemonians only, amongſt whom the baſe and ungenerous pleaſure of revenge is never put in competition with that of ſhowing clemency and moderation to their enemies, eſpecially after their death. As for the ſouls of my departed countrymen, they are ſufficiently avenged by the death of the many thouſand Perſians ſlain upon the ſpot in the laſt engagement." *Herod.* lib. ix. c. 77, 78.

CLEMENS Romanus, biſhop of Rome, where he is ſaid to have been born; and to have been fellow-labourer with St Peter and St Paul. We have nothing remaining of his works that is clearly genuine, excepting one epiſtle, written to quiet ſome diſturbances in the church of Corinth; which, next to holy writ, is eſteemed one of the moſt valuable remains of eccleſiaſtical antiquity.

Clemens Alexandrinus, ſo called to diſtinguiſh him from the former, was an eminent father of the church, who flouriſhed at the end of the ſecond and beginning of the third centuries. He was the ſcholar of Pantaenus, and the inſtuctor of Origen. The beſt edition of his works is that in 2 vols folio, publiſhed in 1725, by archbiſhop Potter.

CLEMENT V. (pope) the firſt who made a public ſale of indulgences. He tranſplanted the holy ſee to Avignon in France; greatly contributed to the ſuppreſſion of the knights templars; and was author of a compilation of the decrees of the general councils of Vienna, ſtyled *Clementines*. He died in 1314.

Clement VII. (Julius de Medicis), pope, memorable for his refuſing to divorce Catherine of Arragon from Henry VIII.; and for the bull he publiſhed upon the king's marriage with Anne Boleyn; which according to the Romiſh authors, loſt him England. He died in 1534.

CLEMENT XIV. (Francis Laurentius Ganganelli), the late pope, was born at St Angelo in the duchy of Urbino, in October 1705; and choſen pope, though not yet a biſhop, in 1769: at which time the ſee of Rome was involved in a moſt diſagreeable and dangerous conteſt with the houſe of Bourbon. His reign was rendered troubleſome by the colliſion of parties on the affairs of the Jeſuits; and it is pretended that his latter days were embittered by the apprehenſions of poiſon. Though this report was probably apocryphal, it is ſaid that he often complained of the heavy burden which he was obliged to bear; and regretted, with great ſenſibility, the loſs of that tranquillity which he enjoyed in his retirement when only a ſimple Franciſcan. He was, however, fortunate in having an opportunity, by a ſingle act, to diſtinguiſh a ſhort adminiſtration of five years in ſuch a manner as will ever prevent its ſinking into obſcurity. His death was immediately attributed to poiſon, as if an old man of 70, loaded with infirmities and diſorders, could not quit the world without violence. His proceedings againſt the Jeſuits furniſhed a plauſible pretence for this charge; and the malevolence of their enemies embelliſhed it with circumſtances. It even ſeems as if the miniſters of thoſe powers who had procured their diſſolution did not think it beneath them to countenance the report; as if falſehood was neceſſary to prevent the revival of a body which had already ſunk, in its full ſtrength, under the weight of real miſconduct. The charge was the more ridiculous, as the pontiff had undergone a long and painful illneſs, which originally proceeded from a ſuppreſſion of urine, to which he was ſubject; yet the report was propagated with the greateſt induſtry: and though the French and Spaniſh miniſters were preſent at the opening of his body, the moſt horrible circumſtances were publiſhed relative to that operation. It was confidently told that the head fell off from the body, and that the ſtench poiſoned and killed the operators. It availed but little that the operators ſhowed themſelves alive and in good health, and that the ſurgeons and phyſicians proved the falſehood of every part of the report. Clement XIV. appears to have been a man of a virtuous character, and poſſeſſed of conſiderable abilities. He died much regretted by his ſubjects.

CLEMENTINE, a term uſed among the Auguſtins, who apply it to a perſon who, after having been nine years a ſuperior, ceaſes to be ſo, and becomes a private monk, under the command of a ſuperior. The word has its riſe hence, that pope Clement, by a bull, prohibited any ſuperior among the Auguſtins from continuing above nine years in his office.

CLEMENTINES, in the canon law, are the conſtitutions of pope Clement V. and the canons of the councils of Vienne.

CLENARD, (Nicholas) a celebrated grammarian in the 16th century, was born at Dieſt; and after having taught humanity at Louvain, travelled into France, Spain, Portugal, and Africa. He wrote in Latin, 1. Letters relating to his Travels, which are very curious and ſcarce. 2. A Greek Grammar, which has been reviſed and corrected by many grammarians; and other works. He died at Grenoble in 1542.

CLEOBIS and BITON, two youths, ſons of Cydippe the prieſteſs of Juno at Argos. When oxen could not be procured to draw their mother's chariot to the temple of Juno, they put themſelves under the yoke, and drew it 45 ſtadia to the temple, amidſt the acclamations of the multitude, who congratulated the mother on account of the piety of her ſons. Cydippe intreated the goddeſs to reward the piety of her ſons with the beſt gift that could be granted to a mortal. They went to reſt and awoke no more; and by this the goddeſs ſhowed that death is the only true happy event that can happen to a man. The Argives raiſed them ſtatues at Delphi.

CLEOBULUS, ſon of Evagoras, and one of the Grecian ſages; he was valiant, a lover of learning, and an enemy to vice. Flouriſhed about 560 years before Chriſt.

CLEOMBROTUS, a king of Sparta, ſon of Anaxandrides. He was deterred from building a wall acroſs the iſthmus of Corinth againſt the approach of the Perſians, by an eclipſe of the ſun. He died in the 75th Olympiad, and was ſucceeded by Pliſtarchus, ſon of Leonidas, a minor.

CLEOMBROTUS II. ſon of Pauſanias king of Sparta, after his brother Ageſipolis I. He made war againſt the Bœotians; and leſt he ſhould be ſuſpected of treacherous communications with Epaminondas, he gave that general battle at Leuctra, in a very diſadvantageous place. He was killed in the engagement, and his army deſtroyed, in the year of Rome 382.

CLEOMBROTUS III. a ſon-in-law of Leonidas king of Sparta, who for a while uſurped the kingdom after the expulſion of his father-in-law. When Leonidas was recalled, Cleombrotus was baniſhed, and his wife Chelonis who had accompanied her father, now accompanied her huſband in his exile.

CLEOME, in botany: A genus of the ſiliquoſa order, belonging to the tetradynamia claſs of plants; and in the natural method ranking under the 25th order, *Putamineæ*. There are three nectariferous glandules, one at each ſinus of the calyx except the loweſt; the petals all riſing upwards; the ſiliqua unilocular and bivalved. There are 15 ſpecies; all of them, except two, natives of warm climates. They are herbaceous plants riſing from one to two feet high; and are adorned with flowers of various colours, as red, yellow, fleſh colour, &c. They are propagated by ſeeds, and require no other care than what is common to other exotics which are natives of warm countries.

CLEOMENES, king of Sparta, conquered the Argives, and freed Athens from the tyranny of the Piſiſtratidæ. By bribing the oracle he pronounced Demaratus, his colleague on the throne, illegitimate, becauſe he refuſed to puniſh the people of Ægina, who had deſerted the Greeks. He killed himſelf in a fit of madneſs.

CLEOMENES II. ſucceeded his brother Ageſipolis II. He reigned 34 years in the greateſt tranquillity, and was father to Acrotatus and Cleonymus. He was ſucceeded by Areus I. ſon of Acrotatus.

CLEOMENES III. ſucceeded his father Leonidas. He was of an enterpriſing ſpirit, and reſolved to reſtore the ancient diſcipline of Lycurgus in its full force. He killed the Ephori, and removed by poiſon his royal colleague Eurydamides, and made his own brother Euclidas king, againſt the laws of the ſtate, which forbad more than one of the ſame family to ſit on the throne. He made war againſt the Achæans, and attempted to deſtroy the Achæan league. Aratus the general of the Achæans, who ſuppoſed himſelf inferior to his enemy, called Antigonus to his aſſiſtance; and Cleomenes, when he had fought the unfortunate battle of Sellaſia, retired into Egypt to the court of Ptolemy Evergetes, where his wife and children had gone before him. Ptolemy received him with great cordiality; but his ſucceſſor, weak and ſuſpicious, ſoon expreſſed his jealouſy of this noble ſtranger, and impriſoned him. Cleomenes killed himſelf, and his body was flayed and expoſed on a croſs, 140 Olymp.

CLEON, the name of ſeveral noted men of antiquity. 1. Of an Athenian, who, though originally a tanner, became general of the armies of the ſtate by his intrigues and eloquence. He took Thoron in Thrace, and was killed at Amphipolis in a battle with Braſidas the Spartan general, Olymp. 89th. 2. A general of Meſſenia, who diſputed with Ariſtodemus for the ſovereignty. 3. A ſtatuary. 4. A poet who wrote a poem on the Argonauts. 5. An orator of Halicarnaſſus who compoſed an oration for Lyſander, in which he intimated the propriety of making the kingdom of Sparta elective. 6. A Magneſian who wrote ſome commentaries, in which he ſpeaks of portentous events, &c.

CLEONÆ, (anc. geog.) a town of Argolis, above Mycenæ, on the road which leads from Argos to Corinth; ſtanding on an eminence, on every ſide occupied by houſes. In the foreſt near this town was ſlain by Hercules the huge lion (Sil. Italicus, Seneca). *Cleonæus* the epithet; *Cleonæum Sidus*, the lion.—Another *Cleonæ* on Mount Athos in Chalcidice.

CLEOPATRA, the celebrated queen of Egypt, was daughter of Ptolemy Auletes. By her extraordinary beauty, ſhe ſubdued the two renowned Roman generals, Julius Cæſar and Marc Antony: the latter of whom, it is thought, loſt the empire of Rome by his attachment to her. At length, Marc Antony being ſubdued by Octavius Cæſar, ſhe tried the force of her declining charms upon the conqueror, but in vain; upon which, expecting no mercy from him, ſhe poiſoned herſelf, 30 years before Chriſt. According to ſome authors, ſhe was the reſtorer of the Alexandrian library, to which ſhe added that of Pergamos; and it is ſaid, that ſhe ſtudied philoſophy to conſole her for the abſence of Antony. With her death ended the family of the Ptolemies in Egypt, after it had reigned from the death of Alexander 294 years: for Egypt, after this, was reduced to a Roman province; in which dependence it remained till it was taken from them by the Saracens, A. D. 641.

CLEOPATRIS, (anc. geog.) a town of Egypt, on the Arabian Gulf. See Arsinoe. Now ſaid to be *Suez*, ſituated at the bottom of the gulf of the Red Sea. E. Long. 34. 30. N. Lat. 30. 0.

CLEOSTRATUS, a celebrated aſtronomer born in Tenedos, was, according to Pliny, the firſt who diſcovered the ſigns of the Zodiac; others ſay, that he only diſcovered the ſigns Aries and Sagittarius. He alſo corrected the errors of the Grecian year about the 306th before Chriſt.

CLEPSYDRA, an inſtrument or machine ſerving to meaſure time by the fall of a certain quantity of water.

The word comes from κλεπτω, *condo*, ιδωρ, *aqua*, "water"; though there have likewiſe been clepſydræ made with mercury.

The Egyptians, by this machine, meaſured the courſe of the ſun. Tycho Brahe, in our days, made uſe of it to meaſure the motion of the ſtars, &c. and Dudley uſed the ſame contrivance in making all his maritime obſervations. The uſe of clepſydræ is very ancient: they were invented in Egypt under the Ptolemies; as were alſo ſun-dials. Their uſe was chiefly in the winter; the ſun-dials ſerved in the ſummer. They had two great defects; the one, that the water ran out with a greater or leſs facility, as the air was more or leſs denſe; the other, that the water ran more readily at the beginning than towards the concluſion. M. Amontons has invented a clepſydra free from both theſe inconveniences; and which has theſe three grand advantages, of ſerving the ordinary purpoſe of clocks, of ſerving in navigation for the diſcovery of the longitude, and of meaſuring the motion of the arteries.

Conſtruction of a Clepsydra. To divide any cylindric veſſel into parts to be emptied in each diviſion of time; the time wherein the whole, and that wherein any part, is to be evacuated, being given.

Suppoſe, *v. gr.* a cylindric veſſel, whoſe charge of water flows out in twelve hours, were required to be divided into parts to be evacuated each hour. 1. As the part of time 1 is to the whole time 12; ſo is the ſame time 12 to a fourth proportional, 144. 2. Divide the altitude of the veſſel into 144 equal parts: here the laſt will fall to the laſt hour; the three next above to the laſt part but one; the five next to the tenth hour, &c.; laſtly, the 23 laſt to the firſt hour. For ſince the times increaſe in the ſeries of the natural numbers 1, 2, 3, 4, 5, &c. and the altitudes, if the numeration be in retrograde order from the twelfth hour, increaſe in the ſeries of the unequal numbers 1, 3, 5, 7, 9, &c. the altitude, computed from the twelfth hour, will be as the ſquares of the times 1, 4, 9, 16, 25, &c. therefore the ſquare of the whole time 144 comprehends all the parts of the altitude of the veſſel to be evacuated. But a third proportional to 1 and 12 is the ſquare of 12, and conſequently it is the number of equal parts into which the altitude is to be divided, to be diſtributed according to the ſeries of the unequal numbers, through the equal intervals of hours. Since in lieu of parts of the ſame veſſel, other leſs veſſels equal thereto may be ſubſtituted; the altitude of a veſſel emptied in a given ſpace of time being given, the altitude of another veſſel to be emptied in a given time may be found; *viz.* by making the altitudes as the ſquares of the times. For a further deſcription, with a figure, ſee Hydrostatics.

CLERC, (John le) a moſt celebrated writer and univerſal ſcholar, born at Geneva in 1657. After he had paſſed through the uſual courſe of ſtudy at Geneva, and had loſt his father in 1676, he went to France in 1678; but returning the year after, he was ordained with the general applauſe of all his examiners. In 1682, le Clerc viſited England with a view to learning the language. He preached ſeveral times in the French

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churches in London, and viſited ſeveral biſhops and men of learning: but the ſmoky air of the town not agreeing with his lungs, he returned to Holland within the year, where he at length ſettled. He preached before a ſynod held at Rotterdam by the remonſtrants in 1684; and was admitted profeſſor of philoſophy, polite literature, and the Hebrew tongue, in their ſchool at Amſterdam. The remainder of his life affords nothing but the hiſtory of his works, and of the controverſies he was engaged in; but theſe would lead into too extenſive a detail. He continued to read regular lectures; and becauſe there was no ſingle author full enough for his purpoſe, he drew up and publiſhed his Logic, Ontology, Pneumatology, and Natural Philoſophy. He publiſhed *Ars Critica*; a Commentary on the Old teſtament; a Compendium of Univerſal Hiſtory; an Eccleſiaſtical Hiſtory of the two firſt Centuries; a French Tranſlation of the New Teſtament, &c. In 1686, he began, jointly with M. de la Croſe, his *Bibliotheque Univerſelle et Hiſtorique*, in imitation of other literary journals; which was continued to the year 1693, incluſive, in 26 vols. In 1703, he began his *Bibliotheque Choiſie*, and continued it to 1714, and then commenced another work on the ſame plan called *Bibliotheque Ancienne et Moderne*, which he continued to the year 1728; all of them juſtly deemed excellent ſtores of uſeful knowledge. In 1728, he was ſeized with a palſy and fever; and after ſpending the laſt ſix years of his life with little or no underſtanding, died in 1736.

Clerc, (John le) called *Chevalier*, an eminent hiſtorical painter, was born at Nanci in 1587, but ſtudied in Italy, where he reſided for twenty years; and was a diſciple of Carlo Venetiano, with whom he worked a long time, and whoſe ſtyle he ſo effectually ſtudied and imitated, that ſeveral of the pictures which were finiſhed by le Clerc were taken for the work of Venetiano. He was moſt highly eſteemed at Venice for his extraordinary merit; and as a token of public reſpect, he was made a knight of St Mark. His freedom of hand was remarkable; he had a light pencil; and in his colouring he reſembled his maſter. He died in 1633.

Clerc, (Sebaſtian le) engraver and deſigner in ordinary to the French king, was born at Metz in 1637. After having learnt deſigning, he applied himſelf to mathematics, and was engineer to the marſhal de la Ferte. He went to Paris in 1665, where he applied himſelf to deſigning and engraving with ſuch ſucceſs, that M. Colbert gave him a penſion of 600 crowns. In 1672, he was admitted into the royal academy of painting and ſculpture; and in 1680 was made profeſſor of geometry and perſpective in the ſame academy. He publiſhed, beſides a great number of deſigns and prints, 1. A Treatiſe on theoretical and practical Geometry. 2. A Treatiſe on Architecture; and other works: and died in 1714.—He was an excellent artiſt, but chiefly in the petit ſtyle. His genius ſeldom exceeds the dimenſions of ſix inches. Within thoſe limits he could draw up 20,000 men with great dexterity. No artiſt except Callot and Della Bella could touch a ſmall figure with ſo much ſpirit. His moſt eſteemed prints are: 1 The *paſſion of our Saviour*, on 36 ſmall plates, lengthwiſe, from his own compoſitions. The beſt impreſſions are without the borders. 2. The *miracle of the feeding five thouſand*, a middling ſized plate, lengthwiſe. In the firſt impreſſions, which are very rare, a town appears in the back-ground; in place of which a mountain is ſubſtituted in the common ones. 3. The *elevation of the large ſtones uſed in building the front of the Louvre*, a large plate, lengthwiſe. The firſt impreſſions are without the date 1677, which was afterwards added. 4. The *academy of the ſciences*, a middling ſized plate, lengthwiſe. The firſt impreſſions are before the ſkeleton of the ſtag and tortoiſe were added. The ſecond impreſſions are before the ſhadow was enlarged at the bottom, towards the right hand ſide of the print. Both theſe impreſſions are very ſcarce. The firſt is rarely met with. This print was copied for Chamber's Dictionary. 5. The *May of the Gobelins*, a middling-ſized plate, lengthwiſe. The firſt impreſſion is before the woman was introduced, who covers the wheel of the coach. 6. The *four conqueſts*, large plates, lengthwiſe, repreſenting the taking of Tournay, the taking of Dovay, the defeat of the comte de Marſin, and the Switzerland alliance. 7. The *battles of Alexander*, from Le Brun, ſix ſmall long plates, including the title, which repreſents the picture gallery at the Gobelins. The firſt impreſſions of the tent of Darius, which plate makes part of this ſet, is diſtinguiſhed by the ſhoulder of the woman, who is ſeated in the front, being without the ſhadow, which was afterwards added; for which reaſon they are called the *prints with the naked ſhoulder*. 8. The *entry of Alexander into Babylon*, a middling-ſized plate, lengthwiſe. In the firſt impreſſions, the face of Alexander is ſeen in profile; in the ſecond, it is a three quarter face, and therefore called *the print with the head turned*.

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Clerc, (George le) count de Buffon, a celebrated naturaliſt, was born at Montbard, in Burgundy, the 7th of September 1707: his father was a counſellor of the parliament of Dijon, and the ſon was deſtined to the ſame office, if ſcience had not drawn him away from the law. He ſtudied at Dijon; and his eager activity, his acuteneſs, penetration, and robuſt conſtitution, fitted him to purſue buſineſs and pleaſure with equal ardour. His early paſſion was for aſtronomy, and the young Le Clerc was never without Euclid in his pocket. At the age of twenty, he went with an Engliſh nobleman and his governor to Italy; but he overlooked the choiceſt remains of art, and, amidſt the ruins of an elegant and luxurious people, he firſt felt the charms of natural hiſtory, whoſe zealous and ſucceſsful admirer he afterwards proved. On his return to France, he fought, on ſome occaſional quarrel, with an Engliſhman, whom he wounded, and was obliged to retire to Paris. He there tranſlated Newton's Fluxions, from the Latin, and Hales's Statics from the Engliſh, into the French language. He afterwards came to England, at the age of twenty-five; and this journey concluded his travels: he ſtaid there about three months. At the age of twenty-one, he ſucceeded to the eſtate of his mother, which was valued at about 300,000 livres (above 12,000 pounds ſterling); and he was one of thoſe whoſe eaſy or affluent circumſtances urge on literary purſuits, and clear the path of ſome of its thorns. Perhaps this was the period of his retirement to Montbard, where he ſpent much time, and where his leiſure was little interrupted: while in the capital, Clerc, Clergy.

his office of intendant of the king's garden and cabinet engaged much of his time. He loved much company, and was partial to the fair; but he loved glory more. He ſpent 14 hours every day in ſtudy; and, when we examine the extent of his knowledge, and the number of his works, we wonder at his having executed ſo much even in this time. At five in the morning he retired to a pavilion in his vaſt gardens, and he was then inacceſſible. This was, as prince Henry of Pruſſia called it, the cradle of natural hiſtory; but ſhe was indifferently accommodated. The walls were naked, an old writing-table, with pen, ink, and paper, and an elbow chair of black leather, were the only furniture of his ſtudy. His manuſcripts were in a cabinet in another building, and he went occaſionally from one to the other. The eras of Buffon's works are pretty well known. When each was finiſhed, it was put aſide, in order that he might forget it, and he then returned to it with the ſeverity of a critic. He was anxious to have it perſpicuous; and if thoſe to whom he read his works heſitated a moment, he changed the paſſage. The works of others he at laſt read like Magliabechi, the titles, the contents, and the moſt intereſting parts; but he read M. Neckar's Compte Rendu, and the Adminiſtration of the Finances, at length: he ſpoke of them alſo with no little enthuſiaſm. His favourite authors were Fenelon, Monteſquieu, and Richardſon.

M. de Buffon's converſation was unadorned, rarely animated, but ſometimes very cheerful. He was exact in his dreſs, particularly in dreſſing his hair. He ſat long at table, and then ſeemed at his eaſe. His converſation was at this time, unembarraſſed, and his gueſts had frequently occaſion to notice ſome happy turn of phraſe, or ſome deep reflection. His complaiſance was very conſiderable: he loved praiſe, and even praiſed himſelf; but it was with ſo much frankneſs, and with ſo little contempt of others, that it was never diſagreeable. Indeed, when we conſider the extent of his reputation, the credit of his works, and the attention with which they were always received, we do not wonder that he was ſenſible of his own value. It would perhaps have diſplayed a ſtronger mind to have concealed it. His father lived to 93, and almoſt adored his ſon; his grandfather to 87; and the ſubject of the preſent article exceeded only 80. He died in April 1788. Fifty-ſix ſtones were found in his bladder; but if he had conſented to the operation, he might probably have lived longer. One ſon remains; who near a high tower in the gardens of Montbard has placed a low column, with the following inſcription:

Excelſæ Turri
Humilis Columna,
Parenti ſuo
Fil. Buffon.

CLERGY, a general name given to the body of eccleſiaſtics of the Chriſtian church, in contradiſtinction to the laity. See LAITY.

The diſtinction of Chriſtians into clergy and laity, was derived from the Jewiſh church, and adopted into the Chriſtian by the apoſtles themſelves: whenever any number of converts was made, as ſoon as they were capable of being formed into a congregation or church, a biſhop or preſbyter, with a deacon, were ordained to miniſter to them. Of the biſhops, prieſts, and deacons, the clergy originally conſiſted; but in the third, century, many inferior orders were appointed, as ſubſervient to the office of deacon, ſuch as ACOLUTHISTS, READERS, &c.

Clergy.

Blackſt. Comment.

This venerable body of men being ſeparate and ſet apart from the reſt of the people, in order to attend the more cloſely to the ſervice of Almighty God, have therefore large privileges allowed them by the municipal laws: and had formerly much greater, which were abridged at the time of the reformation, on account of the ill uſe which the popiſh clergy had endeavoured to make of them. For, the laws having exempted them from almoſt every perſonal duty, they attempted a total exemption from every ſecular tie. But it is obſerved by Sir Edward Coke, that as the overflowing of waters doth many times make the river to loſe its proper channel, ſo, in times paſt, eccleſiaſtical perſons, ſeeking to extend their liberties beyond their due bounds, either loſt, or enjoyed not, thoſe which of right belonged to them. The perſonal exemptions do indeed for the moſt part continue: a clergyman cannot be compelled to ſerve on a jury, nor to appear at a court-leet, or view of frank-pledge, which almoſt every other perſon is obliged to do: but if a layman is ſummoned on a jury, and before the trial takes orders, he ſhall notwithſtanding appear and be ſworn. Neither can he be choſen to any temporal office, as bailiff, reeve, conſtable, or the like; in regard of his own continual attendance on the ſacred function. During his attendance on divine ſervice, he is privileged from arreſts in civil ſuits. In caſes alſo of felony, a clerk in orders ſhall have the benefit of his clergy, without being branded in the hand; and may likewiſe have it more than once: in both which particulars he is diſtinguiſhed from a layman But, as they have their privileges, ſo they have alſo their diſabilities, on account of their ſpiritual avocations. Clergymen are incapable of ſitting in the houſe of commons; and by ſtatute 21 Hen. VIII. c. 13. are not in general allowed to take any lands or tenants to farm, upon pain of 10*l*. *per* month, and total avoidance of the leaſe; nor, upon like pain, to keep any taphouſe or brew-houſe: nor ſhall engage in any manner of trade, nor ſell any merchandize, under forfeiture of the treble value. Which prohibition is conſonant to the canon law.

Benefit of CLERGY, is an ancient privilege whereby one in orders claimed to be delivered to his ordinary to purge himſelf of felony.

After trial and conviction * of a criminal, the judgment of the court regularly follows, unleſs ſuſpended or arreſted by ſome intervening circumſtance; of which the principal is *benefit of clergy*: a title of no ſmall curioſity as well as uſe; and concerning which, therefore, it may not be improper to inquire, 1. Into its original, and the various mutations which this privilege of the clergy has ſuſtained. 2. To what perſons it is to be allowed at this day. 3. In what caſes. 4. The conſequences of allowing it.

*See the articles *Arraignment*, *Plea*, *Trial*, and *Conviction*.

Blackſt. Comment.

I. Clergy, the *privilegium clericale*, or (in common ſpeech) the benefit of clergy, had its original from the pious regard paid by Chriſtian princes to the Church in its infant ſtate, and the ill uſe which the popiſh eccleſiaſtics ſoon made of that pious regard. The exemptions

tions which they granted to the church were principally of two kinds: 1, Exemptions of places conſecrated to religious duties from criminal arreſts; which was the foundation of ſanctuaries. 2. Exemption of the perſons of clergymen from criminal proceſs before the ſecular judge in a few particular caſes; which was the true original and meaning of the *privilegium clericale*.

But the clergy increaſing in wealth, power, honour, number, and intereſt, ſoon began to ſet up for themſelves; and that which they obtained by the favour of the civil government, they now claimed as their inherent right, and as a right of the higheſt nature, indefeaſible, and *jure divino*. By their canons, therefore, and conſtitutions, they endeavoured at, and where they met with eaſy princes, obtained, a vaſt extenſion of thoſe exemptions; as well in regard to the crimes themſelves, of which the liſt became quite univerſal, as in regard to the perſons exempted; among whom were at length comprehended, not only every little ſubordinate officer belonging to the church or clergy, but even many that were totally laymen.

In England, however, although the uſurpations of the pope were very many and grievous, till Henry VIII. totally exterminated his ſupremacy, yet a total exemption of the clergy from ſeculiar juriſdiction could never be thoroughly effected, though often endeavoured by the clergy: and therefore, though the ancient *privilegium clericale* was in ſome capital caſes, yet it was not univerſally allowed. And in thoſe particular caſes, the uſe was for the biſhop or ordinary to demand his clerks to be remitted out of the king's courts as ſoon as they were indicted: concerning the allowance of which demand there was for many years a great uncertainty; till at length it was finally ſettled in the reign of Henry VI. that the priſoner ſhould firſt be arraigned; and might either then claim his benefit of clergy by way of declinatory plea; or, after conviction by way of arreſt of judgment. This latter way is moſt uſually practiſed, as it is more to the ſatiſfaction of the court to have the crime previouſly aſcertained by confeſſion or the verdict of a jury; and alſo it is more advantageous to the priſoner himſelf, who may poſſibly be acquitted, and ſo need not the benefit of his clergy at all.

Originally the law was held that no man ſhould be admitted to the benefit of clergy, but ſuch as had the *habitum et tonſuram clericalem*. But, in proceſs of time, a much wider and more comprehenſive criterion was eſtabliſhed; every one that could read (a great mark of learning in thoſe days of ignorance and her ſiſter ſuperſtition) being accounted a clerk, or *clericus*, and allowed the benefit of clerkſhip, though neither initiated in clerkſhip, nor trimmed with the holy tonſure. But when learning, by means of the invention of printing and other concurrent cauſes, began to be more generally diſſeminated than formerly; and reading was no longer a competent proof of clerkſhip, or being in holy orders; it was found that as many laymen as divines were admitted to the *privilegium clericale*; and therefere by ſtatue 4 Henry VII. c. 13. a diſtinction was once more drawn between mere lay ſcholars and clerks that were really in orders. And, though it was thought reaſonable ſtill to mitigate the ſeverity of the law with regard to the former, yet they were not put upon the ſame footing with actual clergy; being ſubjected to a ſlight degree of puniſhment, and not allowed to claim the clerical privilege more than once. Accordingly the ſtatue directs, that no perſon, once admitted to the benefit of clergy ſhall be admitted thereto a ſecond time, until he produces his orders: and in order to diſtinguiſh their perſons, all laymen who are allowed this privilege, ſhall be burned with a hot-iron in the brawn of the left thumb. This diſtinction between learned laymen and real clerks in orders was aboliſhed for a time by the ſtatutes 28 Hen. VIII. c. 1. and 32 Hen. VIII. c. 3. ; but is held to have been virtually reſtored by ſtatute 1 Edw. VI. c. 12. which ſtatute alſo enacts, that lords of parliament and peers of the realm may have the benefit of their peerage, equivalent to that of clergy, for the firſt offence (although they cannot read, and without being burnt in the hand), for all offences then clergyable to commoners, and alſo for the crimes of houſe-breaking, highway-robbery, horſe-ſtealing, and robbing of churches.

After this burning, the laity, and before it the real clergy, were diſcharged from the ſentence of the law in the king's courts, and delivered over to the ordinary, to be dealt with according to the eccleſiaſtical canons. Whereupon the ordinary, not ſatisfied with the proofs adduced in the profane ſecular court, ſet himſelf formally to make a purgation of the offender by a new canonical trial; although he had been previouſly convicted by his country, or perhaps by his on confeſſion. This trial was held before the biſhop in perſon, or his deputy; and by a jury of twelve clerks: And there, firſt, the party himſelf was required to make oath of his own innocence: next, there was to be the oath of twelve compurgators, who ſwore they believed he ſpoke the truth: then, witneſſes were to be examined upon oath, but on behalf of the priſoner only: and, laſtly, the jury were to bring in their virdict upon oath, which uſually acquitted the priſoner: otherwiſe, if a clerk, he was degraded, or put to penance. A learned judge in the beginning of laſt century, remarks with much indignation the vaſt complication of perjury, and ſubornation of perjury in this ſolemn farce of a mock trial: the witneſſes, the compurgators, and the jury, being all of them partakers in the guilt: the delinquent party alſo, though convicted in the cleareſt manner, and conſcious of his own offence, yet was permitted, and almoſt compelled, to ſwear himſelf not guilty; nor was the good biſhop himſelf, under whoſe countenance this ſcene was tranſacted, by any means exempt from a ſhare of it. And yet, by this purgation, the party was reſtored to his credit, his liberty, his lands, and his capacity of purchaſing afreſh, and was entirely made a new and an innocent man.

This ſcandalous proſtitution of oaths, and the forms of juſtice, in the almoſt conſtant acquittal of felonious clerks by purgation, was the occaſion that, upon very heinous and notorious circumſtances of guilt, temporal courts would not truſt the ordinary with the trial of the offender, but delivered over to him the convicted clerk, *abſque purgatione faciendo*: in which ſituation the clerk convict could not make purgation; but was to continue in priſon during life, and was incapable of acquiring any perſonal property, or receiving the profits of his lands, unleſs the king ſhould pleaſe to pardon him. Both theſe courſes were in ſome degree exceptionable; the latter perhaps being too rigid, as the former was productive of the moſt abandoned perjury. As therefore theſe mock trials took their riſe from factious and popiſh tenets, tending to exempt one part of the nation from the general municipal law; it became high time, when the reformation was thoroughly eſtabliſhed, to aboliſh ſo vain and impious a ceremony.

Accordingly the ſtatute 18 Eliz. c. 7. enacts, that, for the avoiding ſuch perjuries and abuſes, after the offender has been allowed his clergy, he ſhall not be delivered to the ordinary as formerly; but, upon ſuch allowance, and burning of the hand, he ſhall forthwith be enlarged and delivered out of priſon; with proviſo, that the judge may, if he thinks fit, continue the offender in gaol for any time not exceeding a year. And thus the law continued unaltered for above a century; except only, that the ſtatute 21 Jac. I. c. 6. allowed, that women convicted of ſimple larcenies under the value of 10s. ſhould (not properly have the benefit of clergy, for they were not called upon to read; but) be burned in the hand, whipped, or ſtocked, or impriſoned for any time not exceeding a year. And a ſimilar indulgence by the ſtatutes 3 and 4 Will. and Mary c. 9. and 4 and 5 Will. and Mary c. 24. was extended to women guilty of any clergyable felony whatever; who were allowed once to claim the benefit of the ſtatute, in like manner as men might claim the benefit of clergy, and to be diſcharged upon being burned in the hand, and impriſoned for any time not exceeding a year. All women, all peers, and all male commoners who could read, were therefore diſcharged in ſuch felonies abſolutely, if clerks in orders; and for the firſt offence upon burning in the hand, if lay; yet all liable (except peers), if the judge ſaw occaſion, to impriſonment not exceeding a year. And theſe men who could not read, if under the degree of peerage, were hanged.

Afterwards, indeed, it was conſidered, that education and learning were no extenuations of guilt, but quite the reverſe: and that if the puniſhment of death for ſimple felony was too ſevere for thoſe who had been liberally inſtructed, it was, *à fortiori*, too ſevere for the ignorant alſo. And thereupon, by ſtatute 5 Anne, c. 6. it was enacted that the benefit of clergy ſhould be granted to all thoſe who were intitled to aſk it, without requiring them to read by way of conditional merit. And, experience having ſhown that ſo univerſal a lenity was frequently inconvenient, and an encouragement to commit the lower degrees of felony; and that though capital puniſhments were too rigorous for theſe inferior offences, yet no puniſhment at all (or next to none, as branding or whipping), was as much too gentle; it was enacted by the ſame ſtatute 5 Anne, c. 6, that when any perſon, is convicted of any theft or larceny, and burnt in the hand for the ſame, he ſhall, at the diſcretion of the judge, be committed to the houſe of correction or public work-houſe, to be there kept to hard labour for any time not leſs than ſix months, and not exceeding two years; with a power of inflicting a double confinement in caſe of the party's eſcape from the firſt. And it is alſo enacted by the ſtatutes 4 Geo. I. c. 11. and 6. Geo. I. c. 23. that when any perſons ſhall be convicted of any larceny, either grand or petit, or any felonious ſtealing or taking of money or goods and chattels, either from the perſon or the houſe of any other, or in any other manner, and who by the law ſhall be intitled to the benefit of clergy, and liable only to the penalties of burning in the hand, or whipping; the court, in their diſcretion, inſtead of ſuch burning in the hand, or whipping, may direct ſuch offenders to be tranſported to America for ſeven years; and if they return, or are ſeen at large in that kingdom within that time, it ſhall be felony without benefit of clergy.

In this ſtate does the benefit of clergy at preſent ſtand; very conſiderably different from its original inſtitution: the wiſdom of the Engliſh legiſlature having, in the courſe of a long and laborious proceſs, extracted, by a noble alchemy, rich medicines out of poiſonous ingredients; and converted, by gradual mutations, what was at firſt an unreaſonable exemption of particular popiſh eccleſiaſtics, into a merciful mitigation of the general law with reſpect to capital puniſhments.

From the whole of this detail, we may collect, that however in times of ignorance and ſuperſtition, that monſter in true policy may for a while ſubſiſt, of a body of men reſiding in a ſtate, and yet independent of its laws: yet when learning and rational religion have a little enlightened mens minds, ſociety can no longer endure an abſurdity ſo groſs, as muſt deſtroy its very fundamentals. For, by the original contract of government, the price of protection by the united force of individuals, is that of obedience to the united will of the community. This united will is declared in the laws of the land: and that united force is exerted in their due, and univerſal execution.

II. We are next to inquire, to what perſons the benefit of clergy is to be allowed at this day: and this muſt chiefly be collected from what has been obſerved in the preceding article. For, upon the whole, we may pronounce, that all clerks in orders are, without any branding, and of courſe without any tranſportation (for that is only ſubſtituted in lieu of the other), to be admitted to this privilege, and immediately diſcharged, or at moſt only confined for one year; and this as often as they offend. Again, all lords of parliament, and peers of the realm, by the ſtatute 1 Edw. VI. c. 12. ſhall be diſcharged in all clergyable and other felonies provided for by the act without any burning in the hand, in the ſame manner as real clerks convict: but this is only for the firſt offence. Laſtly, all the commons of the realm, not in orders, whether male or female, ſhall, for the firſt offence, be diſcharged of the puniſhment of felonies, within the benefit of clergy, upon being burnt in the hand, and ſuffering diſcretionary impriſonment; or, in caſe of larceny, upon being tranſported for ſeven years, if the court ſhall think proper.

III. The third point to be conſidered is, for what crimes the *privilegium clericales*, or benefit of clergy, is to be allowed. And it is to be obſerved, that neither in high treaſon, nor in petit larceny, nor in any mere miſdemeanors, it was indulged at the common law: and therefore we may lay it down as a rule, that it was allowable only in petit treaſon and capital felonies; which for the moſt part became legally intitled to this indulgence by the ſtatute *de clero*, 25 Edw. III. ſtat. 3. c. 4. which provides, that clerks convict for treaſon or felonies, touching other perſons than the king himſelf or his royal majeſty, ſhall have the privilege of holy church. But yet it was not allowed in all caſes whatſoever: for in ſome it was denied even in common law, viz. *inſidiatio viarum*, or lying in wait for one on the highway; *depopulatio agrorum*, or deſtroying and ravaging a country; *combuſtio domorum*, or arſon, that is, burning of houſes; all which are a kind of hoſtile acts, and in ſome degree border upon treaſon. And farther, all theſe identical crimes, together with petit treaſon, and very many other acts of felony, are ouſted of clergy by particular acts of parliament.

Upon the whole, we may obſerve the following rules. 1. That in all felonies, whether new created, or by common law, clergy is now allowable, unleſs taken away by act of parliament. 2. That where clergy is taken away from the principal, it is not of courſe taken away from the acceſſory, unleſs he be alſo particularly included in the words of the ſtatute. 3. That when the benefit of clergy is taken away from the offence (as in caſe of murder, buggery, robbery, rape, and burglary), a principal in the ſecond degree, being preſent, aiding and abetting the crime, is as well excluded from his clergy as he that is a principal in the firſt degree: but, 4. That where it is only taken away from the perſon committing the offence (as in the caſe of ſtabbing, or committing larceny in a dwelling-houſe), his aiders and abettors are not excluded, through the tenderneſs of the law which hath determined that ſuch ſtatutes ſhall not be taken literally.

IV. Laſtly, We are to inquire what the conſequences are to the party, of allowing him this benefit of clergy. We ſpeak not of the branding, impriſonment, or tranſportation; which are rather concomitant conditions, than conſequences, of receiving this indulgence. The conſequences are ſuch as affect his preſent intereſt, and future credit and capacity: as having been once a felon, but now purged from that guilt by the privilege of clergy; which operates as a kind of ſtatute pardon. And we may obſerve, 1. That, by his conviction, he forfeits all his goods to the king; which, being once veſted in the crown, ſhall not afterwards be reſtored to the offender. 2. That, after conviction, and till he receives the judgment of the law by branding or the like, or elſe is pardoned by the king, he is, to all intents and purpoſes, a felon; and ſubject to all the diſabilities and other incidents of a felon. 3. That, after burning or pardon, he is diſcharged for ever of that, and all other felonies before committed, within the benefit of clergy; but not of felonies from which ſuch benefit is excluded; and this by ſtatutes 8 Eliz. c. 4. and 18. Eliz. c. 7. 4. That, by the burning, or pardon of it, he is reſtored to all capacities and credits, and the poſſeſſion of his lands, as if he had never been convicted. 5. That what is ſaid with regard to the advantages of commoners and laymen, ſubſequent to the burning in the hand, is equally applicable to all peers and clergymen, although never branded at all. For they have the ſame privileges, without any burning, to which others are intitled after it.

CLERK, (*clericus*) a word formerly uſed to ſignify a learned man, or man of letters. The word comes from the Greek κλῆρος, uſed for *clergy*; but more properly ſignifying *lot* or *heritage*, in regard the lot and portion of clerks or eccleſiaſtics is to ſerve God. Accordingly *clerus* was at firſt uſed to ſignify thoſe who had a particular attachment to the ſervice of God. The origin of the expreſſion is derived from the Old Teſtament, where the tribe of Levi is called the *lot*, *heritage*, κλῆρος; and God is reciprocally called *their portion*; by reaſon that tribe was conſecrated to the ſervice of God, and lived on the offerings made to God, without any other ſettled proviſion as the reſt had. Thus, Paſquier obſerves, the officers of the counts (*comites*) were anciently created under the title of *clerks of accompts*; and ſecretaries of ſtate were called *clerks of the ſecret*. So *clericus domini regis*, in the time of Edward I. was Engliſhed, *the king's ſecretary*, or *clerk of his council*. The term was applied indifferently to all who made any profeſſion of learning; or who knew how to manage the pen: though originally it was appropriated to eccleſiaſtics. As the nobility and gentry were uſually brought up to the exerciſe of arms, there was none but the clergy left to cultivate the ſciences: hence, as it was the clergy alone who made any profeſſion of letters, a very learned man came to be called a *great clerk*, and a ſtupid ignorant man a *bad clerk*.

Clerk is alſo applied to ſuch as by their courſe of life exerciſe their pens in any court or office; of which there are various kinds: thus,

Clerk of the Bails, in England, an officer in the court of king's bench, whoſe buſineſs is to file all bail-pieces taken in that court, where he always attends.

Clerk of the Check, an officer belonging to the king's court; ſo called, becauſe he has the check and controulment of the yeomen that belong to the king, queen, or prince. He likewiſe, by himſelf or deputy, ſets the watch in the court. There is alſo an officer in the navy of the ſame name, belonging to the king's yards.

Clerk of the Crown, an officer in the king's bench, who frames, reads, and records all indictments againſt offenders, there arraigned or indicted of any public crime. He is likewiſe termed *clerk of the crown-office*, in which capacity he exhibits information by order of the court for divers offences.

Clerk of the Crown, in chancery, an officer whoſe buſineſs it is conſtantly to attend the lord chancellor in perſon or by deputy; to write and prepare for the great ſeal ſpecial matters of ſtate by commiſſion, both ordinary and extraordinary, *viz.* commiſſions of lieutenancy, of juſtices of aſſize, oyer and terminer, gaol-delivery, and of the peace; all general pardons, granted either at the king's coronation, or in parliament: the writs of parliament, with the names of the knights, citizens, and burgeſſes, are alſo returned into his office. He alſo makes out ſpecial pardons and writs of execution on bonds of ſtatute-ſtaple forfeited.

Clerk of the Deliveries of the Ordnance. See Ordnance.

Clerk of the Errors, in the court of common pleas, an officer who tranſcribes and certifies into the king's bench, the tenor of the record of the action on which the writ of error, made out by the curſitor, is brought there to be determined. In the king's bench, the clerk of the errors tranſcribes and certifies the records of cauſes, by bill, in that court, into the exchequer. And the buſineſs of the clerk of the errors in the exchequer, is to tranſcribe the records certified thither out of the king's bench, and to prepare them for judgment in the exchequer-chamber.

Clerk *of the Eſſoins*, in the court of common pleas, keeps the eſſoin roll, or enters eſſoins: he alſo provides parchment, cuts it into rolls, marks the number on them, delivers out all the rolls to every officer, and receives them again when written. See Essoin.

Clerk *of the Eſtreats*, an officer in the exchequer, who every term receives the eſtreats out of the lord-treaſurer's remembrancer's office, and writes them out to be levied for the crown.

Clerk *of the Green-cloth*, formerly an officer in chancery, but now aboliſhed.

Clerk *of the Hamper*, or *Hanaper*, an officer in chancery, whoſe buſineſs is to receive all money due to the king for the ſeals of charters, letters patent, commiſſions, and writs; alſo the fees due to the officers for enrolling and examining them.

Clerk *Comptroller of the King's Houſehold*, an officer of the king's court, authoriſed to allow or diſallow the charges of purſuivants, meſſengers of the green-cloth, &c. to inſpect and controul all defects of any of the inferior officers; and to ſit in the counting-houſe with the lord-ſteward and other officers of the houſehold for regulating ſuch matters.

Clerk *of the King's Silver*, an officer of the common pleas, to whom every fine is brought, after it has paſſed the office of the *cuſtos brevium;* and who enters the effect of writs of covenant, into a book kept for that purpoſe, according to which all the fines of that term are recorded in the rolls of the court.

Clerk *of the Market*, an officer of the king's houſe, to whom is given the charge of the king's meaſures and weights, the ſtandards of thoſe that ought to be uſed all over England.

Clerk *of the Nichils*, or *Nihils*, an officer of the exchequer, who makes a roll of all ſuch ſums as are nichilled by the ſheriffs upon their eſtreats of green wax, and delivers them in to the remembrancer of the treaſury, to have execution done upon them for the king. See Nihil.

Clerk *of the Ordnance*. See Ordnance.

Clerk *of the Outlawries*, an officer of the common pleas, and deputy to the attorney-general, for making out all writs of *capias utlegatum* after outlawry, to which there muſt be the king's attorney's name.

Clerk *of the Paper-office*, an officer belonging to the king's bench, whoſe buſineſs is to make up the paper-books of ſpecial pleadings in that court.

Clerk *of the Peace*, an officer belonging to the ſeſſions of the peace, whoſe buſineſs is to read indictments, inrol the proceedings, and draw the proceſs: he likewiſe certifies into the king's bench tranſcripts of indictments, outlawries, attainders, and convictions had before the juſtices of peace, within the time limited by ſtatute, under a certain penalty. This office is in the gift of the *cuſtos rotulorum*, and may be executed by deputy.

Clerk *of the Pells*, an officer that belongs to the exchequer, whoſe buſineſs is to enter every teller's bill into a parchment-roll called *pellis receptorum*; and to make another roll of payments called *pellis exituum*.

Clerk *of the petty Bag*, an officer of the court of chancery, whereof there are three, the maſter of the rolls being the chief: their buſineſs is to record the return of all inquiſitions out of every ſhire; to make out patents of cuſtomers, gaugers, comptrollers, &c.; liberates upon extent of ſtatutes-ſtaple; *conge d' elires* for biſhops; ſummons of the nobility, clergy, and burgeſſes to parliament; and commiſſions directed to knights and others of every ſhire, for aſſeſſing ſubſidies and taxes.

Clerk *of the Pipe*, an officer of the exchequer, who having the accounts of all debts due to the king, delivered out of the remembrancer's office, charges them in a great roll folded up like a pipe. He writes out warrants to ſheriffs, to levy the ſaid debts on the goods and chattels of the debtors; and if they have no goods, then he draws them down to the treaſurer's remembrancer to write eſtreats againſt their lands.

Clerk *of the Pleas*, an officer of the exchequer, in whoſe office all the officers of the court, having ſpecial privilege, ought to ſue or be ſued in any action. In this office alſo actions at law may be proſecuted by other perſons, but the paintiff ought to be tenant or debtor to the king, or ſome way accountable to him. The under clerks are attorneys in all ſuits.

Clerks *of Privy-ſeal*, four officers that attend the lord privy ſeal, for writing and making out all things that are ſent by warrant from the ſignet to the privy ſeal, and to be paſſed the great ſeal; and likewiſe to make out privy ſeals, upon ſpecial occaſions of his majeſty's affairs, as for loan of money, or the like.

Clerk *of the Rolls*, an officer of the chancery, whoſe buſineſs is to make ſearches after, and copies of deeds, officers, &c.

Clerk *of the Signet*, an officer continually attending upon his majeſty's principal ſecretary, who has the cuſtody of the privy ſignet, as well for ſealing the king's private letters as thoſe grants which paſs the king's hand by bill ſigned. There are four of theſe officers who have their diet at the ſecretary's table.

Six Clerks, officers in chancery next in degree below the twelve maſters, whoſe buſineſs is to inrol commiſſions, pardons, patents, warrants, &c. which paſs the great ſeal. They were anciently *clerici*, and forfeited their places if they married. Theſe are alſo attorneys for parties in ſuits depending in the court of chancery.

Clerk *of the Treaſury*, an officer belonging to the court of common pleas, who has the charge of keeping the records of the court, makes out all records of *niſi-prius*, and likewiſe all exemplifications of records being in the treaſury. He has the fees due for all ſearches; and has under him an under keeper, who always keeps one key of the treaſury-door.

Clerk *of the Warrants*, an officer of the common pleas, whoſe buſineſs is to enter all warrants of attorney for plaintiffs and defendants in ſuit; and to inrol deeds of bargain and ſale, that are acknowledged in court, or before a judge. His office is likewiſe to eſtreat into the exchequer all iſſues, fines, eſtreats, and amercements, which grow due to the crown in that court.

CLERKE, (Captain Charles) a celebrated Engliſh navigator, was bred up in the navy from his youth, and was preſent in ſeveral actions during the war of 1755. In that between the Bellona and Courageux he was in great danger; for having been ſtationed in the mizen-top on board the former, the maſt was carried overboard by a ſhot, and he fell into the ſea along with it: but, however, was taken up without having received any injury. When Commodore Byron made his firſt voyage round the world, Mr Clerke ſerved on board his ſhip in quality of a midſhipman; and was afterwards on the American ſtation. In the year 1768, he ſailed round the world a ſecond time in the Endeavour, on board which he ſerved in the ſtation of maſter's mate; but, during the voyage, ſucceeded to a lieutenancy. He returned in 1775, and was ſoon after appointed maſter and commander. When Captain Cook undertook his laſt voyage, Mr Clerke was appointed Captain of the Diſcovery; and in conſequence of the death of Captain Cook, naturally ſucceeded to the ſupreme command. He did not, however, long enjoy his new dignity. Before his departure from England, he had manifeſt ſymptoms of a conſumption. Of this diſeaſe he lingered during the whole of the voyage; and his long reſidence in the cold northern climates cut off all hopes of recovery: but though ſenſible that the only chance he had of prolonging his life was by a ſpeedy return to a warmer climate, his attention to his duty was ſo great, that he perſevered in ſearch of a paſſage between the Aſiatic and American continents until every one of the officers was of opinion that it was impracticable. He bore his diſtemper with great firmneſs and equanimity, retaining a good flow of ſpirits to the laſt; and died on the 22d of Auguſt 1778, in the 38th year of his age, the ſhip being then within view of the coaſt of Kamtſchatka.

Clerke's Iſland lies on the weſtern ſide of the American continent, in N. Lat. 63. 15. and E. Long. 190. 30. It was diſcovered by Captain Cook in his laſt voyage, but a landing could not be effected. At a diſtance it appeared to be of conſiderable extent, and to have ſeveral hills connected with the low grounds in ſuch a manner as to make it look like a group of iſlands. Near its eaſtern extremity is a little Iſland remarkable for having three elevated rocks upon it. Both the large and ſmall iſland are uninhabited.

CLERMONT, a conſiderable, rich, and populous town of France, in Auvergne, with a biſhop's ſee. The cathedral, the public ſquares, and walks, are very fine. Here is a bridge naturally formed, as they pretend, by the petrifying quality of a fountain. E. Long. 3. 18. N. Lat. 45. 47.

Clermont Manuſcript, is a copy of St Paul's Epiſtles, found in the monaſtery of Clermont in France, and uſed by Beza, together with the Cambridge MS. in preparing his edition of the New Teſtament. This copy is in the octavo form, and is written on fine vellum in Greek and Latin, with ſome mutilations. Beza ſuppoſes that it is of equal antiquity with the Cambridge copy; but both were probably written by a Latin ſcribe in a later period than he aſſigns to them. The various readings of this MS. were communicated to archbiſhop Uſher, and they are preſerved by Walton. The MS. itſelf was in the poſſeſſion of Morinus; and after his death depoſited among the MS. copies of the Royal Library at Paris, N° 2245.

CLEROMANCY, a kind of divination performed by the throwing of dice, or little bones; and obſerving the points, or marks, turned up. The word comes from κλερος, "lot," and μαντεια, "divination." At Bura, a city of Achaia, was a temple and celebrated oracle of Hercules; where ſuch as conſulted the oracle, after praying to the idol, threw four dies, the points whereof being well ſcanned by the prieſt, he was ſuppoſed to draw an anſwer from them.

Something of this kind ſeems to have been practiſed with regard to Jonah.

CLERVAL, a town of France, in the Franche Comté, ſeated on the river Doux, belonging to the houſe of Wirtemberg, but depends on the crown of France. E. Long. 5. 57. N. Lat. 46. 35.

CLERVAUX, one of the moſt celebrated and fineſt abbeys of France, in Champagne, five miles from Bar-ſur-Aube, and ſeated in a valley ſurrounded with woods and mountains. It is the chief of the Ciſtercian order. Here is a famous tun of St Bernard, which will hold 800 tuns of wine. Near this abbey is a ſmall town.

CLESIDES, a Greek painter, about 276 years before Chriſt, in the reign of Antiochus I. He revenged the injuries he had received from queen Stratonice by repreſenting her in the arms of a fiſherman. However indecent the painter might repreſent the queen, ſhe was drawn with ſuch perſonal beauty, that ſhe preſerved the piece and liberally rewarded the artiſt.

CLETHRA, in botany: A genus of the monogynia order, belonging to the decandria claſs of plants; and in the natural method ranking under the 18th order, *Bicornes*. The calyx is quinquepartite; the petals five; the ſtigma trifid; the capſule trilocular and three-valved. There is but one ſpecies, *viz.* the Alnifolia. This is a native of Virginia and Carolina, where it grows in moiſt places, and near the ſides of rivulets, riſing near eight or ten feet high. The leaves are ſhaped like thoſe of the alder-tree, but longer; theſe are placed alternately upon the branches: the flowers are produced in cloſe ſpikes at the extremities of the branches; they are white, compoſed of five petals, and have ten ſtamina in each, nearly of the ſame length with the petals. This is hardy enough to bear the open air in Britain, and is one of the moſt beautiful flowering ſhrubs. Its ſeaſon is commonly about the beginning of July; and, if the ſeaſon is not very hot, there will be part of the ſpikes in beauty till the middle of September. This ſhrub will thrive beſt in moiſt land, and requires a ſheltered ſituation, where it may be defended from ſtrong winds, which frequently break off the branches where they are too much expoſed to their violence. It is propagated by layers, but they are generally two years before they take root. It may alſo be propagated by ſuckers, which are ſent out from the roots: if theſe are carefully taken off with fibres in the autumn, and planted in a nurſery-bed, they will be ſtrong enough in two years to tranſplant where they are to remain.

CLEVELAND, a diſtrict in the north riding of

Yorkſhire in England, from whence the noble family of Fitzroy took the title of Duke, but which is now extinct.

CLEVELAND, (John) an Engliſh poet of ſome eminence in his time, who during the civil war under Charles I. engaged as a literary champion in the royal cauſe againſt the parliamentarians. He died in 1658, and was much extolled by his party. His works, which conſiſt of poems, characters, orations, epiſtles, *&c.* were printed in octavo in 1677.

CLEVES, the duchy of, a province of the circle of Weſtphalia, in Germany. It is divided into two parts by the Rhine, and is about 40 miles in length from eaſt to weſt, and 20 in breadth from north to ſouth. It is a fine agreeable country, and pretty populous. The towns are, Cleves the capital, Calcar, Gennet, Santen, Orſoy, Bureck, and Greit. Theſe lie on the left ſide the river. On the right, Duyſburgh, Weſe, Rees, and Emmerick. There have been great conteſts about this duchy, but it now belongs to the king of Pruſſia.

CLEVES, a city of Germany, in the duchy of Cleves, of which it is the capital. It ſtands upon a pleaſant hill, about three miles from the Rhine, with which it communicates, by means of a canal which is large enough for great barges. The caſtle ſtands upon a mountain, and, though old, is very agreeable. Calviniſts, Lutherans, and Roman Catholics, are all tolerated in this city. E. Long. 5. 36. N. Lat. 51. 40.

CLIENT, among the Romans, a citizen who put himſelf under the protection of ſome great man, who in reſpect of that relation was called *patron*.

This patron aſſiſted his client with his protection, intereſt, and goods; and the client gave his vote for his patron, when he ſought any office for himſelf or his friends. Clients owed reſpect to their patrons, as theſe owed them their protection.

The right of patronage was appointed by Romulus, to unite the rich and poor together, in ſuch a manner as that the one might live without contempt, and the other without envy; but the condition of a client, in courſe of time, became little elſe but a moderate ſlavery.

CLIENT is now uſed for a party in a law-ſuit, who has turned over his cauſe into the hands of a counſellor or ſolicitor.

CLIFFORTIA, in botany; A genus of the polyandria order, belonging to the diœcia claſs of plants; and in the natural method ranking under the 38th order, *Tricoccæ*. The male calyx is triphyllous; no corolla; the ſtamina near 30 in number; the female calyx is triphyllous, ſuperior to the receptacle of the fruit; no corolla; two ſtyles; with a bilocular capſule; and a ſingle ſeed. There are three ſpecies, all of them natives of Africa; ſo require to be kept in a green-houſe when cultivated in Britain. Their flowers make no great appearance; but the plants themſelves are very ornamental evergreens. They grow to the height of four or five feet; and are propagated by cuttings, which muſt be young ſhoots of five or ſix inches length. If theſe are planted in pots in ſpring or ſummer, and plunged in a hot bed, they will readily take root. They muſt be watered plentifully in ſummer, but very ſparingly in winter.

CLIMACTERIC, among phyſicians, (from *climacter*, "a ladder"), a critical year in a perſon's life.

According to ſome, this is every ſeventh year; but others allow only thoſe years produced by multiplying 7 by the odd number 3, 5, 7, and 9, to be climacterical. Theſe years, they ſay, bring with them ſome remarkable change with reſpect to health, life, or fortune: the grand climacteric is the 63d year; but ſome, making two, add to this the 81ſt: the other remarkable climacterics are the 7th, 21ſt, 35, 49th, and 56th.

CLIMATE, or CLIME, in geography, a part of the ſurface of the earth, bounded by two circles parallel to the equator; and of ſuch a breadth, as that the longeſt day in the parallel nearer the pole exceeds the longeſt day in that next the equator by ſome certain ſpaces; *viz.* half an hour. The word comes from the Greek κλιμα, "inclinamentum." an inclination.

The *beginning* of the climate, is a parallel circle wherein the day is the ſhorteſt. The *end* of the climate, is that wherein the day is the longeſt. The climates therefore are reckoned from the equator to the pole; and are ſo many bands, or zones, terminated by lines parallel to the equator: though, in ſtrictneſs, there are ſeveral climates in the breadth of one zone. Each climate only differs from its contiguous ones, in that the longeſt day in ſummer is longer or ſhorter by half an hour in the one place than in the other. As the climates commence from the equator, the firſt climate at its beginning has its longeſt day preciſely 12 hours long; at its end, 12 hours and an half: the ſecond, which begins where the firſt ends, *viz.* at 12 hours and an half, ends at 13 hours; and ſo of the reſt, as far as the polar circles, where, what the geographers call *hour-climates* terminate, and *month-climates* commence. As an hour-climate is a ſpace compriſed between two parallels of the equator, in the firſt of which the longeſt day exceeds that in the latter by half an hour; ſo the month-climate is a ſpace terminated between two circles parallel to the polar circles, whoſe longeſt day is longer or ſhorter than that of its contiguous one by a month or 30 days.

The ancients, who confined the climates to what they imagined the habitable parts of the earth, only allowed of ſeven. The firſt they made to paſs through Meroe, the ſecond through Sienna, the third through Alexandria, the fourth through Rhodes, the fifth through Rome, the ſixth through Pontus, and the ſeventh through the mouth of the Boryſthenes. The moderns, who have ſailed further toward the poles, make 30 climates on each ſide; and, in regard the obliquity of the ſphere makes a little difference in the length of the longeſt day, inſtead of half an hour, ſome of them only make the difference of climates a quarter.

Vulgarly the term *climate* is beſtowed on any country or region differing from another either in reſpect of the ſeaſons, the quality of the ſoil, or even the manners of the inhabitants; without any regard to the length of the longeſt day. Abulfeda, an Arabic author, diſtinguiſhes the firſt kind of climates by the term *real climates*, and the latter by that of *apparent climates*. Varenius gives us a table of 30 climates; but without any regard to the refraction. Ricciolus furniſhes a more accurate one, wherein the refractions are allowed for; an abſtract of which follows:

Middle of *Clim.*	Longeſt Day.	Latit.	Middle of *Clim.*	Longeſt Day.	Latit.	Middle of *Clim.*	Latit.	Cont. Light.	North Night.	Cont. Light.	South Night.
I	12th 30	7° 18	VIII	16th 0	48 15	XV	66° 53	31^d	27^d	30^d	28^d
II	13 0	15 36	IX	17 0	53 46	XVI	69 30	62	58	60	59
III	13 30	23 8	X	18 0	57 44	XVII	73 0	93	87	89	88
IV	14 0	29 49	XI	19 0	60 39	XVIII	78 6	124	117	120	118
V	14 30	35 35	XII	20 0	62 44	XIX	84 0	156	148	150	149
VI	15 0	40 32	XIII	22 0	65 10	XX	90 0	188	180	178	177
VII	15 30	44 42	XIV	24 0	65 5						

CLIMAX, or GRADATION, in rhetoric, a figure wherein the word or expreſſion which ends the firſt member of a period begins the ſecond, and ſo on; ſo that every member will make a diſtinct ſentence, taking its riſe from the next foregoing, till the argument and period be beautifully finiſhed; as in the following gradation of Dr Tillotſon: "After we have practiſed good actions a while, they become eaſy; and when they are eaſy, we begin to take pleaſure in them; and when they pleaſe us, we do them frequently; and by frequency of acts, a thing grows into a habit; and confirmed habit is a kind of ſecond nature; and ſo far as any thing is natural, ſo far it is neceſſary; and we can hardly do otherwiſe; nay, we do it many times when we do not think of it."

CLINCH, in the ſea-language, that part of a cable which is bended about the ring of the anchor, and then ſeized or made faſt.

CLINCHING, in the ſea-language, a kind of ſlight caulking uſed at ſea, in a proſpect of foul weather, about the poſts: it conſiſts in driving a little oakum into their ſeams, to prevent the water coming in at them.

CLINIC, a term applied by the ancient church-hiſtorians to thoſe who received baptiſm on their death-bed.

CLINIC Medicine, was particularly uſed for the method of viſiting and treating ſick perſons in bed, for the more exact diſcovery of all the ſymptoms of their diſeaſe.

CLINIAS, a Pythagorean philoſopher, and muſician, in the 65th Olympiad. He was wont to aſſuage his paſſion, being very choleric, by his lyre.

CLINOPODIUM, FIELD-BASIL: A genus of the gymnoſpermia order, belonging to the didynamia claſs of plants; and in the natural method ranking under the 41ſt order, *Aſperifoliæ*. The involucrum conſiſts of many ſmall briſtles under the verticillus or whirl of flowers. There are ſix ſpecies, all of them herbaceous plants, growing from one to two feet high. They are remarkable only for their ſtrong odour, being ſomewhat between marjoram and baſil.

CLIO, in pagan mythology, the firſt of the muſes, daughter of Jupiter and Mnemoſyne. She preſided over hiſtory. She is repreſented crowned with laurels, holding in one hand a trumpet, and a book in the other. Sometimes ſhe holds a plectrum or quill with a lute. Her name ſignifies honour and reputation, κλεος, *gloria*; and it was her office faithfully to record the actions of brave and illuſtrious heroes. She had Hyacintha by Pierius, ſon of Magnes.

Plate CCXXXVIII.

CLIO, in zoology, a genus of inſects belonging to the order of vermes molluſca. The body is oblong and fitted for ſwimming; and it has two membranaceous wings placed oppoſite to each other. The ſpecies are three, principally diſtinguiſhed by the ſhape of their vagina, and are all natives of the ocean.

CLIPEUS, in natural hiſtory, a name given to the flat depreſſed centroniæ, from their reſembling a ſhield. See CENTRONIA.

CLISTHENES, a famous Athenian magiſtrate, the author of the mode of baniſhing ambitious citizens by oſtraciſm, or writing their names upon a ſhell: the intention was patriotic, but it was abuſed like all other human inſtitutions; ſome of the worthieſt citizens of Athens being thus exiled. He died 510 years before Chriſt.

CLITOMACHUS, the philoſopher, flouriſhed about 140 years before Chriſt. He was born at Carthage; quitted his country at 40 years of age; and went to Athens, where he became the diſciple and ſucceſſor to Carneades. He compoſed many books, but they are all loſt.

CLITORIA, in botany: A genus of the decandria order, belonging to the diadelphia claſs of plants; and in the natural method ranking under the 32d order, *Papilionaceæ*. The corolla is ſupine, or turned down-ſide up; with the vexillum or flag-petal very large, patent, and almoſt covering the alæ or wing-petals. There are four ſpecies, all of them herbaceous perennials, or annuals, of the kidney-bean kind, growing naturally in both the Indies. The ſtalk is climbing, ſlender, and of the height of a man. The leaves are winged, placed alternately, and conſiſt of two, three, or five pair of lobes, terminated by an odd one. The flowers, which are elegant, ſtand ſingly, each on its proper foot-ſtalk. They are very large, and generally of a deep blue, but ſometimes of a white colour. From the fruit of this plant is diſtilled an eye-water. The beans reduced to powder, and taken in broth, to the quantity of two drachms, prove a gentle purge; and Grimmius remarks, in his *Labor Ceyl.* that the powder of the dried beans, being mixed with the milk of the cocoa nut, or with broth, and adminiſtered in quantity from one to three drachms, not only mitigates colic pains, but is very uſeful, and much uſed in Ceylon, in all diſorders of the ſtomach and bowels. Theſe plants are propagated by ſeeds; and, in Britain, muſt be kept continually in a ſtove.

CLITORIS, in anatomy, is a part of the external pudenda, ſituated at the angle which the nymphæ form with each other. Like the penis it has an erection, and it is thought to be the principal ſeat of venereal pleaſure. The clitoris is of different ſizes in different women; but in general it is ſmall, and covered with the labia. The preternaturally enlarged clitoris is what conſtitutes an hermaphrodite. When the clitoris is too large, it may be ſo extirpated as to remove the unneceſſary part; but this requires much care, for a farther extirpation ſubjects the patient to an involuntary diſcharge of urine.

CLITUMNUS, (anc. geog.) a river of Umbria, on this ſide the Apennine. According to Pliny, it was a fountain conſiſting of ſeveral veins, ſituated between Hiſpellum and Spoletium; which ſoon after ſwelled into a very large and navigable river, running from eaſt to weſt into the Tinia, and both together into the Tiber. A river famous for its milk-white flocks and herds, (Virgil.) The god of the river was called *Clitumnus*.

CLITUS, brother to Alexander the Great's nurſe, followed that prince in his conqueſts, and ſaved his life by cutting off the hand of Roſaces, which held an ax lifted up to kill him at the paſſage of the Granicus. Alexander, who had a great regard for him, ſome time after invited him to ſupper; when Clitus, at the end of the repaſt, being heated with wine, diminiſhed the exploits of that prince, in order to magnify thoſe of Philip his father. This ſo enraged Alexander, that he killed him with his own hand; but he was afterwards ſo afflicted at it, that he attempted his own life.

CLIVE, (Robert) lord, ſon of Richard Clive, Eſq; of Styche near Drayton in Salop in England, was born in 1725. Toward the cloſe of the war in 1741, he was ſent as a writer in the Eaſt India ſervice to Madras; but being fonder of the camp than the compting-houſe, he ſoon availed himſelf of an opportunity to exchange his pen for a pair of colours. He firſt diſtinguiſhed himſelf at the ſiege of Pondicherry in 1748; acted under major Laurence at the taking of Devi Cotta in Tanjore, who wrote of his military talents in high terms; commanded a ſmall party for the taking of Arcot, and afterwards defended that place againſt the French; and performed many other exploits, which, conſidering the remoteneſs of the ſcene of action, would require a long detail to render ſufficiently intelligible. He was, however, in brief, looked upon and acknowledged as the man who firſt rouſed his countrymen to ſpirited action, and raiſed their reputation in the Eaſt: ſo that when he came over to England in 1753, he was preſented, by the court of directors, with a rich ſword ſet with diamonds, as an acknowledgment of paſt, and an incitement to future, ſervices. Captain Clive returned to India in 1755, as governor of fort St David, with the rank of lieutenant-colonel in the king's troops; when as commander of the company's troops, he, in conjunction with admiral Watſon, reduced Angria the pirate, and became maſter of Geria, his capital, with all his accumulated treaſure. On the loſs of Calcutta and the well known barbarity of the ſoubah Surajah Dowla, they ſailed to Bengal; where they took fort William, in January 1757; and colonel Clive defeating the ſoubah's army ſoon after, accelerated a peace. Surajah Dowla's perfidy, however, ſoon produced freſh hoſtilities, which ended in his ruin; he being totally defeated by colonel Clive at the famous battle of Plaſſey. The next day the conqueror entered Muxadabad in triumph; and placed Jaffier Ally Cawn, one of the principal generals, on the throne: the depoſed ſoubah was ſoon after taken, and privately put to death by Jaffier's ſon. Admiral Watſon died at Calcutta; but colonel Clive commanded in Bengal the two ſucceeding years: he was honoured by the Mogul with the dignity of an Omrah of the empire; and was rewarded by the new ſoubah with a grant of lands, or a jaghire, producing 27,000l. a-year. In 1760, he returned to England, where he received the unanimous thanks of the company, was elected member of parliament for Shrewſbury, and was raiſed to an Iriſh peerage by the title of Lord Clive Baron of Plaſſey. In 1764, freſh diſturbances taking place in Bengal, lord Clive was eſteemed the only man qualified to ſettle them, and was accordingly again appointed to that preſidency; after being honoured with the order of the Bath, and with the rank of major-general. When he arrived in India he exceeded the moſt ſanguine expectation, in reſtoring tranquillity to the province without ſtricking a blow, and fixed the higheſt ideas of the Britiſh power in the minds of the natives. He returned home in 1767; and, in 1772, when a parliamentary inquiry into the conduct of the Eaſt India company was agitated, he entered into an able juſtification of himſelf in a maſterly ſpeech in the houſe of commons. He died *ſuddenly* towards the cloſe of the year 1774.

CLOACÆ, in antiquity, the common ſewers of Rome, to carry off the dirt and ſoil of the city into the Tiber; juſtly reckoned among the grand works of the Romans. The firſt common ſewer, called *Cloaca Maxima*, was built by Tarquinius, ſome ſay Priſcus, others Superbus, of huge blocks of ſtone joined together without any cement, in the manner of the edifices of thoſe early times; conſiſting of three rows of arches one above another, which at length conjoin and unite together; meaſuring in the clear 18 palms in height, and as many in width. Under theſe arches they rowed in boats; which made Pliny ſay that the city was ſuſpended in air, and that they ſailed beneath the houſes. Under theſe arches alſo were ways through which carts loaded with hay could paſs with eaſe. It began in the Forum Romanum; meaſured 300 paces in length; and emptied itſelf between the temple of Veſta and the Pons Senatorius. There were as many principal ſewers as there were hills. Pliny concludes their firmneſs and ſtrength from their ſtanding for ſo many ages the ſhocks of earthquakes, the fall of houſes, and the vaſt loads and weights moved over them.

CLOACINA, the goddeſs of jakes and common ſewers, among the Romans.

CLOCK, a machine conſtructed in ſuch a manner, and regulated ſo by the uniform motion of a pendulum (A), as to meaſure time, and all its ſubdiviſions, with great exactneſs.

The invention of clocks with wheels is referred to Pacificus, archdeacon of Verona, who lived in the time of Lotharius ſon of Louis the Debonnair, on the credit of an epitaph quoted by Ughelli, and borrowed by him from Penvinius. They were at firſt called *nocturnal dials*, to diſtinguiſh them from ſun-dials, which ſhowed the hour by the ſun's ſhadow. Others aſcribe the invention to Boethius, about the year 510. Mr Derham makes clock-work of a much older ſtanding; and ranks Archimedes's ſphere mentioned by Claudian, and that of Poſidonius mentioned by Cicero, among the machines of this kind: not that either their form or uſe were the ſame with thoſe of ours, but that they had their motion from ſome hidden weights or ſprings, with wheels, or pullies, or ſome ſuch clock-work principle. But be this as it will, it is certain the art of making clocks, ſuch as are now in uſe, was either firſt invented, or at leaſt retrieved, in Germany, about 200 years ago. The water clocks, or clepſydræ, and ſun-dials, have both a much better claim to antiquity. The French annals mention one of the former kind ſent by Aaron, king of Perſia, to Charlemagne, about the year 807, which, ſeemed to bear ſome reſemblance to the modern clocks: it was of braſs, and ſhowed the hours by twelve little balls of the ſame metal, which fell at the end of each hour, and in falling ſtruck a bell and made it ſound. There were alſo figures of 12 cavaliers, which at the end of each hour came forth at certain apertures or windows in the ſide of the clock, and ſhut them again, &c.

The invention of pendulum-clocks is owing to the happy induſtry of the laſt age: the honour of it is diſputed by Huygens and Galileo. The former, who has written a volume on the ſubject, declares it was firſt put in practice in the year 1657, and the deſcription thereof printed in 1658. Becher *de Nova Temporis dimetiendi Theoria, anno* 1680, contends for Galileo; and relates, though at ſecond-hand, the whole hiſtory of the invention; adding, that one Treſler, clock-maker to the then father of the Grand Duke of Tuſcany, made the firſt pendulum-clock at Florence, by direction of Galileo Galilei; a pattern of which was brought into Holland. The Academy de'l Cimento ſay expreſsly, that the application of the pendulum to the movement of a clock was firſt propoſed by Galileo, and firſt put in practice by his ſon Vincenzo Galilei, in 1649. Be the inventor who he will, it is certain the invention never flouriſhed till it came into Huygens's hands, who inſiſts on it, that if ever Galileo thought of ſuch a thing, he never brought it to any degree of perfection. The firſt pendulum-clock made in England was in the year 1662, by Mr Fromantil a Dutchman.

Amongſt the modern clocks, thoſe of Straſburg and Lyons are very eminent for the richneſs of their furniture, and the variety of their motions and figures. In the firſt, a cock claps his wings, and proclaims the hour; the angel opens a door, and ſalutes the virgin; and the Holy Spirit deſcends on her, &c. In the ſecond, two horſemen encounter, and beat the hour on each other; a door opens, and there appears on the theatre the Virgin, with Jeſus Chriſt in her arms; the Magi, with their retinue, marching in order, and preſenting their gifts; two trumpeters ſounding all the while to proclaim the proceſſion. Theſe, however are excelled by two lately made by Engliſh artiſts, and intended as a preſent from the Eaſt India company to the Emperor of China. The clocks we ſpeak of are in the form of chariots, in which are placed, in a fine attitude, a lady, leaning her right hand upon a part of the chariot, under which is a clock of curious workmanſhip, little larger than a ſhilling, that ſtrikes and repeats, and goes eight days. Upon her finger ſits a bird finely modelled, and ſet with diamonds and rubies, with its wings expanded in a flying poſture, and actually flutters for a conſiderable time on touching a diamond button below it; the body of the bird (which contains part of the wheels that in a manner give life to it) is not the bigneſs of the 16th part of an inch. The lady holds in her left hand a gold tube not much thicker than a large pin, on the top of which is a ſmall round box, to which a circular ornament ſet with diamonds not larger than a ſixpence is fixed, which goes round near three hours in a conſtant regular motion. Over the lady's head, ſupported by a ſmall fluted pillar no bigger than a quill, is a double umbrella, under the largeſt of which a bell is fixed at a conſiderable diſtance from the clock, and ſeems to have no connection with it; but from which a communication is ſecretly conveyed to a hammer, that regularly ſtrikes the hour, and repeats the ſame at pleaſure, by touching a diamond button fixed to the clock below. At the feet of the lady is a gold dog; before which from the point of the chariot are two birds fixed on ſpiral ſprings; the wings and feathers of which are ſet with ſtones of various colours, and appear as if flying away with the chariot, which, from another ſecret motion, is contrived to run in a ſtraight, circular, or any other direction; a boy that lays hold of the chariot behind, ſeems alſo to puſh it forward. Above the umbrella are flowers and ornaments of precious ſtones; and it terminates with a flying dragon ſet in the ſame manner. The whole is of gold, moſt curiouſly executed, and embelliſhed with rubies and pearls.

Of the general Mechaniſm of CLOCKS, *and how they meaſure Time.* The firſt figure of Plate CXXXIX. is a profile of a clock: P is a weight that is ſuſpended by a rope that winds about the cylinder or barrel C, which is fixed upon the axis *a a*; the pivots *b b* go into holes made in the plates TS, TS, in which they turn freely. Theſe plates are made of braſs or iron, and are connected by means of *four pillars* ZZ; and the whole together is called the *frame*.

The weight P, if not reſtrained, would neceſſarily turn the barrel C with an uniform accelerated motion, in the ſame manner as if the weight was falling freely from a height. But the barrel is furniſhed with a ratchet wheel KK, the right ſide of whoſe teeth ſtrikes againſt the click, which is fixed with a ſcrew to the wheel

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(A) A balance not unlike the fly of a kitchen-jack, was formerly uſed in place of the pendulum.

wheel DD, as repreſented in fig. 2. ſo that the action of the weight is communicated to the wheel DD, the teeth of which act upon the teeth of the ſmall wheel *d* which turns upon the pivots *cc*. The communication or action of one wheel with another is called the *pitching*; a ſmall wheel like *d* is called a *pinion*, and its teeth are leaves of the pinion. Several things are requiſite to form a good pitching, the advantages of which are obvious in all machinery where teeth and pinions are employed. The teeth and pinion leaves ſhould be of a proper ſhape, and perfectly equal among themſelves: the ſize alſo of the pinion ſhould be of a juſt proportion to the wheel acting into it; and its place muſt be at a certain diſtance from the wheel, beyond or within which it will make a bad pitching.

The wheel EE is fixed upon the axis of the pinion *d*; and the motion communicated to the wheel DD by the weight is tranſmitted to the pinion *d*, conſequently to the wheel E E, as likewiſe to the pinion *e* and wheel F F, which moves the pinion *f*, upon the axis of which the crown or balance wheel G H is fixed. The pivots of the pinion *f*, play in holes of the plates L M, which are fixed horizontally to the plates TS. In a word, the motion begun by the weight is tranſmitted from the wheel G H to the palettes I K, and by means of the fork U X rivetted on the palettes communicates motion to the pendulum A B, which is ſuſpended upon the hook A. The pendulum A B deſcribes, round the point A, an arc of a circle alternately going and returning. If then the pendulum be once put in motion by a puſh of the hand, the weight of the pendulum at B will make it return upon itſelf, and it will continue to go alternately backward and forward till the reſiſtance of the air upon the pendulum, and the friction at the point of ſuſpenſion at A, deſtroys the original impreſſed force. But as, at every vibration of the pendulum, the teeth of the balance-wheel G H act ſo upon the palettes I K (the pivots upon the axis of theſe pallettes play in two holes of the potence *s t*), that after one tooth H has communicated motion to the palette K, that tooth eſcapes; then the oppoſite tooth G acts upon the palette I, and eſcapes in the ſame manner; and thus each tooth of the wheel eſcapes the palettes I K, after having communicated their motion to the palettes in ſuch a manner that the pendulum, inſtead of being ſtopt, continues to move.

The wheel E E revolves in an hour; the pivot *c* of this wheel paſſes through the plate, and is continued to *r*; upon the pivot is a wheel N N with a long ſocket faſtened in the centre; upon the extremity of this ſocket *r* the minute-hand is fixed. The wheel N N acts upon the wheel O; the pinion of which *p* acts upon the wheel *gg*, fixed upon a ſocket which turns along with the wheel N. This wheel *gg* makes its revolution in 12 hours, upon the ſocket of which the hour-hand is fixed.

From the above deſcription it is eaſy to ſee, 1. That the weight *p* turns all the wheels, and at the ſame time continues the motion of the pendulum. 2. That the quickneſs of the motion of the wheels is determined by that of the pendulum. 3. That the wheels point out the parts of time divided by the uniform motion of the pendulum.

When the cord upon which the weight is ſuſpended is entirely run down from off the barrel, it is wound up again by means of a key, which goes on the ſquare end of the arbour at Q, by turning it in a contrary direction from that in which the weight deſcends. For this purpoſe, the inclined ſide of the teeth of the wheel R (fig. 2.) removes the click C, ſo that the ratchet-wheel R turns while the wheel D, is at reſt; but as ſoon as the cord is wound up, the click falls in between the teeth of the wheel D, and the right ſide of the teeth again act upon the end of the click, which obliges the wheel D to turn along with the barrel; and the ſpring A keeps the click between the teeth of the ratchet-wheel R.

We ſhall now explain how time is meaſured by the motion of the pendulum; and how the wheel E, upon the axis of which the minute-hand is fixed, makes but one preciſe revolution in an hour. The vibrations of a pendulum are performed in a ſhorter or longer time in proportion to the length of the pendulum itſelf. A pendulum of 3 feet 8½ French lines in length, makes 3600 vibrations in an hour: *i. e.* each vibration is performed in a ſecond of time, and for that reaſon it is called a *ſecond pendulum*. But a pendulum of 9 inches 2¼ French lines makes 7200 vibrations in an hour, or two vibrations in a ſecond of time, and is called *a half ſecond pendulum*. Hence, in conſtructing a wheel whoſe revolution muſt be performed in a given time, the time of the vibrations of the pendulum which regulates its motion muſt be conſidered. Suppoſing, then, that the pendulum A B makes 7200 vibrations in an hour, let us conſider how the wheel E ſhall take up an hour in making one revolution. This entirely depends on the number of teeth in the wheels and pinions. If the balance-wheel conſiſts of 30 teeth, it will turn once in the time that the pendulum makes 60 vibrations; for at every turn of the wheel, the ſame tooth acts once on the palette I, and once on the palette K, which occaſions two ſeparate vibrations in the pendulum: and the wheel having 30 teeth, it occaſions twice 30, or 60 vibrations. Conſequently, this wheel muſt perform 120 revolutions in an hour; becauſe 60 vibrations, which it occaſions at every revolution, are contained 120 times in 7200, the number of vibrations performed by the pendulum in an hour. Now, in order to determine the number of teeth for the wheels E F, and their pinions *e f*; it muſt be remarked, that one revolution of the wheel E muſt turn the pinion *e* as many times as the number of teeth in the pinion is contained in the number of teeth in the wheel. Thus, if the wheel E contains 72 teeth, and the pinion *e* 6, the pinion will make 12 revolutions in the time that the wheel makes 1; for each tooth of the wheel drives forward a tooth of the pinion, and when the 6 teeth of the pinion are moved, a complete revolution is performed; but the wheel E has by that time only advanced 6 teeth, and has ſtill 66 to advance before its revolution be completed, which will occaſion 11 more revolutions of the pinion. For the ſame reaſon, the wheel F having 60 teeth, and the pinion *f* 6, the pinion will make 10 revolutions while the wheel performs one. Now, the wheel F being turned by the pinion *e*, makes 12 revolutions for one of the wheel E; and the pinion *f* makes 10 revolutions for one of the wheel F; conſequently, the pinion *f* performs 10 times 12 or

120 revolutions in the time the wheel E performs one. But the wheel G, which is turned by the pinion *f*, occaſions 60 vibrations in the pendulum each time it turns round; conſequently the wheel G occaſions 60 times 120 or 7200 vibrations of the pendulum while the wheel E performs one revolution; but 7200 is the number of vibrations made by the pendulum in an hour, and conſequently the wheel E performs but one revolution in an hour; and ſo of the reſt.

From this reaſoning, it is eaſy to diſcover how a clock may be made to go for any length of time without being wound up; 1. By increaſing the number of teeth in the wheels; 2. By diminiſhing the number of teeth in the pinions; 3. By encreaſing the length of the cord that ſuſpends the weight; 4. By increaſing the length of the pendulum; and, 5. By adding to the number of wheels and pinions. But, in proportion as the time is augmented, if the weight continues the ſame, the force which it communicates to the laſt wheel G H will be diminiſhed.

It only remains to take notice of the number of teeth in the wheels which turn the hour and minute hands.

The wheel E performs one revolution in an hour; the wheel N N, which is turned by the axis of the wheel E, muſt likewiſe make only one revolution in the ſame time; and the minute-hand is fixed to the ſocket of this wheel. The wheel N has 30 teeth, and acts upon the wheel O, which has likewiſe 30 teeth, and the ſame diameter; conſequently the wheel O takes one hour to a revolution: now the wheel O carries the pinion *p*, which has 6 teeth, and which acts upon the wheel *qq* of 72 teeth; conſequently the pinion *p* makes 12 revolutions while the wheel *qq* makes one, and of courſe the wheel *qq* takes 12 hours to one revolution; and upon the ſocket of this wheel the hour-hand is fixed. All that has been ſaid here concerning the revolutions of the wheels, *&c.* is equally applicable to watches as to clocks.

The ingenious Dr Franklin has contrived a clock to ſhow the hours, minutes, and ſeconds, with only three wheels and two pinions in the whole movement. The dial plate (fig. 3.) has the hours engraven upon it in ſpiral ſpaces along two diameters of a circle containing four times 60 minutes. The index A goes round in four hours, and counts the minutes from any hour by which it has paſſed to the next following hour. The time, therefore, in the poſition of the index ſhown in the figure is either 32½ minutes paſt XII. III. or VIII; and ſo in every other quarter of the circle it points to the number of minutes after the hours which the index laſt left in its motion. The ſmall hand B, in the arch at top, goes round once in a minute, and ſhows the ſeconds. The wheel-work of this clock may be ſeen in fig. 4. A is the firſt or great wheel, containing 160 teeth and going round in four hours with the index A in fig. 3. let down by a hole on its axis. This wheel turns a pinion B of 10 leaves, which therefore goes round in a quarter of an hour. On the axis of this pinion is the wheel C of 120 teeth: which goes round in the ſame time, and turns a pinion D of eight leaves round in a minute, with the ſecond hand B of fig. 3. fixed on its axis, and alſo the common wheel E of 30 teeth for moving a pendulum (by palettes) that vibrates ſeconds, as in a common clock. This clock is wound up by a line going over a pully on the axis of the great wheel, like a common thirty hour clock. Many of theſe admirably ſimple machines have been conſtructed, which meaſure time exceedingly well. It is ſubject, however, to the inconvenience of requiring frequent winding by drawing up the weight, and likewiſe to ſome uncertainty as to the particular hour ſhown by the index A. Mr Ferguſon has propoſed to remedy theſe inconveniences by the following conſtruction. In the dial-plate of his clock (fig. 5.) there is an opening, *a b c d*, below the centre; through which appears part of a flat plate, on which the 12 hours, with their diviſions into quarters, are engraved. This plate turns round in 12 hours; and the index A points out the true hour, &c. B is the minute-hand, which goes round the large circle of 60 minutes whilſt the plate *a b c d* ſhifts its place one hour under the fixed index A. There is another opening *e f g*, through which the ſeconds are ſeen on a flat moveable ring at the extremity of a fleur-de-lis engraved on the dial-plate. A in fig. 6. is the great wheel of this clock, containing 120 teeth, and turning round in 12 hours. The axis of this wheel bears the plate of hours, which may be moved by a pin paſſing through ſmall holes drilled in the plate, without affecting the wheel-work. The great wheel A turns a pinion B of ten leaves round in an hour, and carries the minute-hand B on its axis round the dial-plate in the ſame time. On this axis is a wheel C of 120 teeth, turning round a pinion D of ſix leaves in three minutes; on the axis of which there is a wheel E of 90 teeth, that keeps a pendulum in motion, vibrating ſeconds by palettes, as in a common clock, when the pendulum-wheel has only 30 teeth, and goes round in a minute. In order to ſhow the ſeconds by this clock, a thin plate muſt be divided into three times ſixty, or 180 equal parts, and numbered 10, 20, 30, 40, 50, 60, three times ſucceſſively; and fixed on the ſame axis with the wheel of 90 teeth, ſo as to turn round near the back of the dial-plate; and theſe diviſions will ſhow the ſeconds through the opening *e f g h*, fig. 5. This clock will go a week without winding, and always ſhow the preciſe hour; but this clock, as Mr Ferguſon candidly acknowledges, has two diſadvantages of which Dr Franklin's clock is free. when the minute-hand B is adjuſted, the hour-plate muſt alſo be ſet right by means of a pin; and the ſmallneſs of the teeth in the pendulum-wheel will cauſe the pendulum ball to deſcribe but ſmall arcs in its vibrations; and therefore the momentum of the ball will be leſs, and the times of the vibrations will be more affected by any unequal impulſe of the pendulum-wheel on the palettes. Beſides, the weight of the flat ring on which the ſeconds are engraved will load the pivots of the axis of the pendulum-wheel with a great deal of friction, which ought by all poſſible means to be avoided. To remedy this inconvenience, the ſecond plate might be omitted.

A clock ſimilar to Dr Franklin's was made in Lincolnſhire about the end of laſt century or beginning of this; and is now in London in the poſſeſſion of a grandſon of the perſon who made it.

A clock, ſhowing the apparent diurnal motions of the ſun and moon, the age and phaſes of the moon, with the time of her coming to the meridian, and the times

Fig. 3.

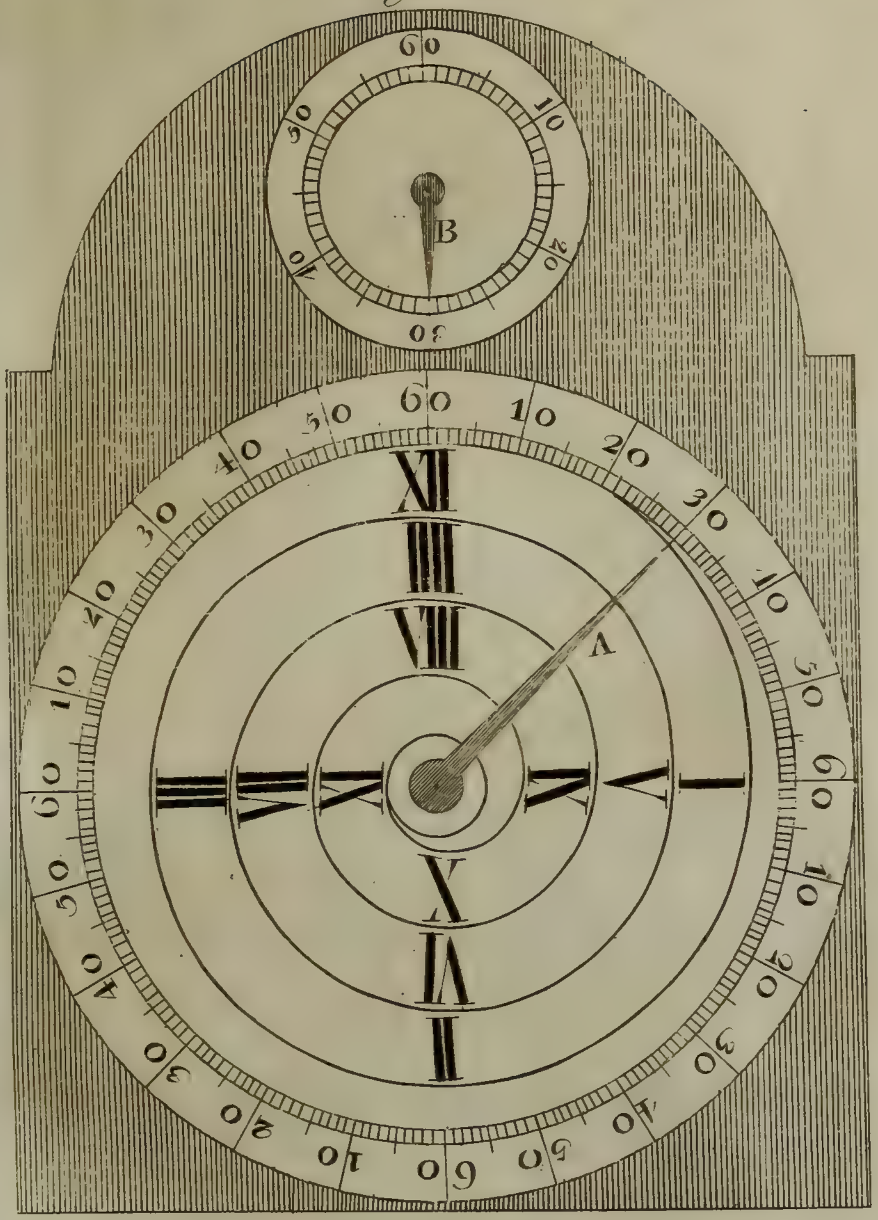


Fig. 1.

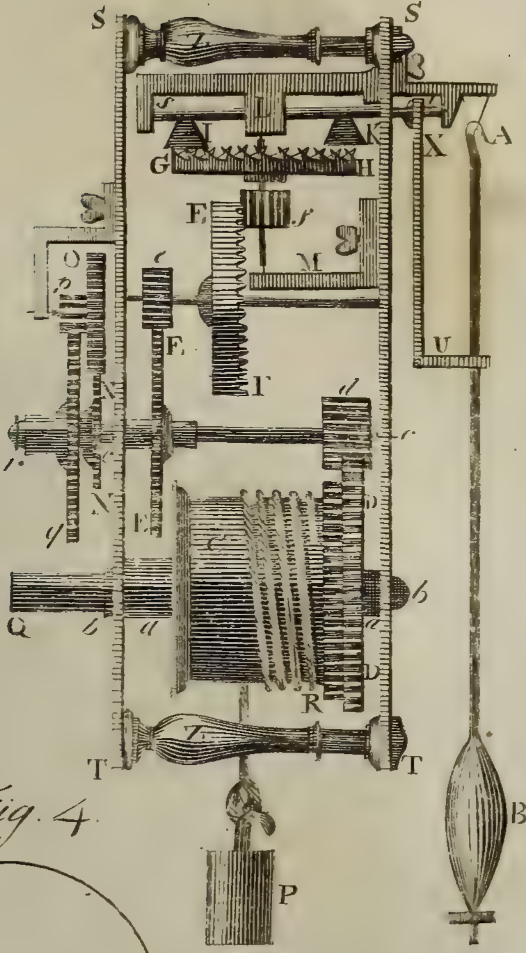


Fig. 4.

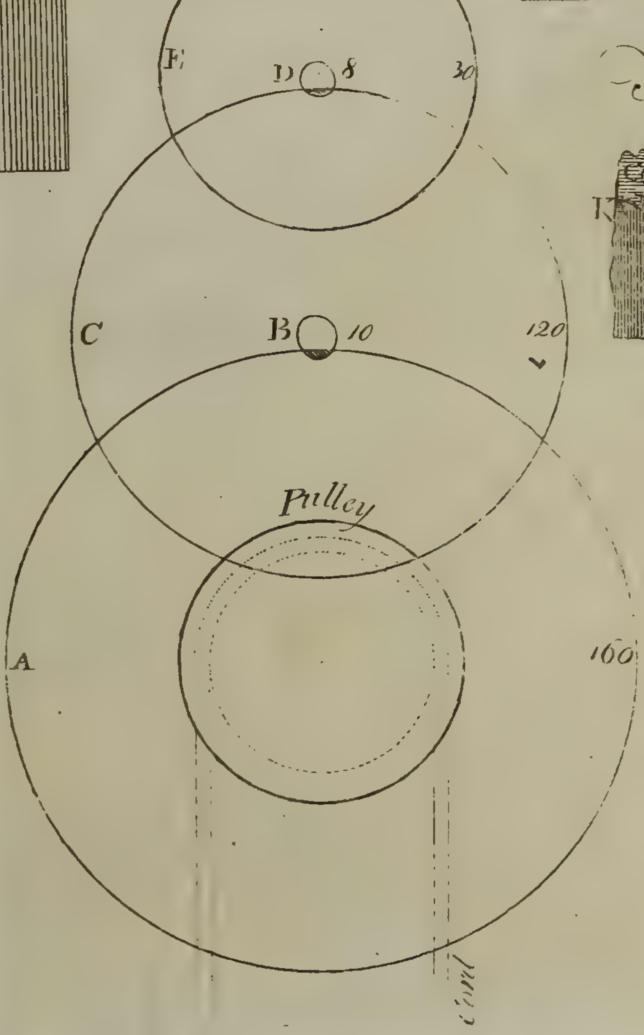


Fig. 2.

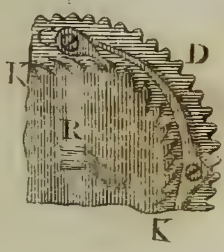


Fig. 5.

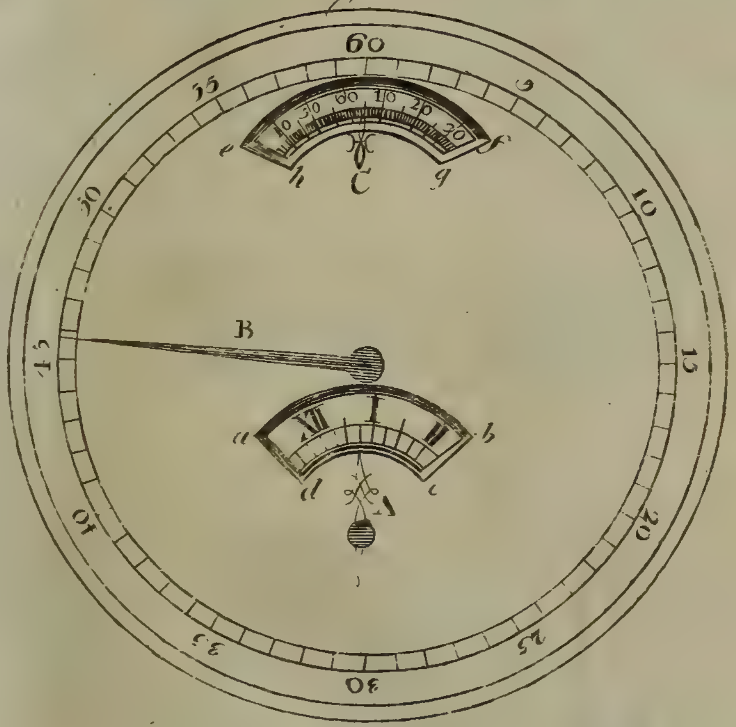


Plate CLX.

times of high and low water, by having only two wheels and a pinion added to the common movement, was contrived by Mr Ferguſon, and deſcribed in his Select Exerciſes. The dial-plate of this clock (fig 7.) contains all the twenty-four hours of the day and night. S is the ſun, which ſerves as an hour index, by going round the dial-plate in twenty-four hours; and M is the moon, which goes round in twenty-four hours fifty minutes and a half, the time of her going round in the heavens from one meridian to the ſame meridian again. The ſun is fixed to a circular plate (ſee fig. 8.), and carried round by the motion of that plate on which the twenty-four hours are engraven; and within them is a circle divided into twenty-nine and a half equal parts for the days of the moon's age, reckoning from new moon to new moon; and each day ſtands directly under the time, in the twenty-four hour circle of the moon's coming to the meridian; the XII under the ſun ſtanding for noon, and the oppoſite XII for midnight. The moon M is fixed to another circular plate (fig. 6.) of the ſame diameter with that which carries the ſun, part of which may be ſeen through the opening, over which the ſmall wires *r* and *b* paſs in the moon-plate. The wire *a* ſhows the moon's age and time of her coming to the meridian, and *b* ſhows the time of high-water for that day in the ſun-plate. The diſtance of theſe wires anſwers to the difference of time between the moon's coming to the meridian and high-water at the place for which the clock is made. At London their difference is two hours and a half. Above the moon-plate there is a fixed plate N, ſupported by a wire A, fixed to it at one end and fixed at right angles into the dial-plate at the midnight XII. This plate may repreſent the earth, and the dot L London, or the place to which the clock is adapted. Around this plate there is an elliptic ſhade on the moon-plate, the higheſt points of which are marked high-water, and the loweſt low-water. As this plate turns round below the plate N, theſe points come ſucceſſively even with L, and ſtand over it at the times when it is high or low water at the given place; which times are pointed by the ſun S on the dial-plate; and the plate H above XII at noon riſes or falls with the tide. As the ſun S goes round the dial-plate in twenty-four hours, and the moon M in twenty-four hours fifty minutes and a half, it is plain that the moon makes only twenty-eight revolutions and a half, whilſt the ſun makes twenty-nine and a half; ſo that it will be twenty-nine days and a half from conjunction to conjunction. And thus the wire *a* ſhifts over one day of the moon's age on the ſun-plate in twenty-four hours. The phaſes of the moon for every day of her age may be ſeen through a round hole *m* in the moon-plate: thus, at conjunction or new moon, the whole ſpace ſeen through *m* is black; at oppoſition or full moon this ſpace is white; at either quadrature half black and half white; and at every poſition the white part reſembles the viſible part of the moon for every day of her age. The black ſhaded ſpace N *f* F *l* (fig. 8.) on the ſun-plate ſerves for theſe appearances. N repreſents the new moon, F the full moon, and *f* her firſt quarter, and *l* her laſt quarter, &c. The wheel-work and tide-work of this clock are repreſented in fig. 9. A and B are two wheels of equal diameters: A has fifty-ſeven teeth, with an hollow axis that paſſes through the dial of the clock, and carries the ſun-plate with the ſun S. B has fifty-nine teeth, with a ſolid ſpindle for its axis, which turns within the hollow axis of A, and carries the moon-plate with the moon M: both wheels are turned round by a pinion C of nineteen leaves, and this pinion is turned round by the common clock-work in eight hours; and as nineteen is the third part of fifty-ſeven, the wheel A will go round in twenty-four-hours; and the wheel B in twenty-four hours fifty minutes and a half: fifty-ſeven being to twenty-four as fifty-nine to twenty-four hours fifty minutes and a half very nearly. On the back of the wheel B is fixed an elliptical ring D, which, in its revolution, raiſes and lets down a lever EF, whoſe centre of motion is on a pin at F; and this, by the upright bar G, raiſes and lets down the tide-plate H twice in the time of the moon's revolving from the meridian to the meridian again: this plate moves between four rollers R, R, R, R. A clock of this kind was adapted by Mr Ferguſon to the movement of an old watch: the great wheel of a watch goes round in four hours; on the axis of this he fixed a wheel of twenty teeth, to turn a wheel of forty teeth on the axis of the pinion C; by which means that pinion was turned round in eight hours, the wheel A in twenty-four, and the wheel B in twenty-four hours fifty minutes and a half.

Plate CXLI.

To this article we ſhall ſubjoin a brief account of two curious contrivances. The firſt, for giving motion to the parts of a clock by making it to deſcend along an inclined plane, is the invention of Mr Maurice Wheeler; and the clock itſelf may be ſeen in Don Saltero's coffee-houſe at Chelſea. DE, fig. 10. is the inclined plane on which the clock A B C deſcends; this conſiſts externally of a hoop about an inch broad, and two ſides or plates ſtanding out beyond the hoop about one-eighth of an inch all round, with indented edges, that the clock may not ſlide, but turn round whilſt it moves down. One of theſe plates is inſcribed with the twenty-four hours, which paſs ſucceſſively under the index LP, fig. 11. which is always in a poſition perpendicular to the horizon, and ſhows the hour on the top of the machine: for this reaſon the lower part of the index, or H L, is heavieſt, that it may preponderate the other H P, and always keep it pendulous, with its point to the vertical hour, as the movement goes on. Inſtead of this index, an image may be fixed for ornament on the axis *g*, which with an erected finger performs the office of an index. In order to deſcribe the internal part or mechaniſm of this clock, let L E T Q be the external circumference of the hoop, and *f f* the ſame plate, on which is placed the train of wheel-work 1, 2, 3, 4, which is much the ſame as in other clocks, and is governed by a balance and regulator as in them. But there is no need of a ſpring and fuſee in this clock; their effects being otherwiſe anſwered, as we ſhall ſee. In this machine the great wheel of 1 is placed in the centre, or upon the axis of the movement, and the other wheels and parts towards one ſide, which would therefore prove a bias to the body of the clock, and cauſe it to move, even on an horizontal plane, for ſome ſhort diſtance; this makes it neceſſary to fix a thin plate of lead at C, on the oppoſite part of the hoop, to reſtore the equilibrium of the movement. This being done, the machine will abide at reſt in any poſition on the horizontal plane H H;

HH; but if that plane be changed into the inclined plane D E, it will touch it in the point D; but it cannot reſt there, becauſe the centre of gravity at M acting in the direction M I, and the point T having nothing to ſupport it, muſt continually deſcend, and carry the body down the plane. But now if any weight P be fixed on the other ſide of the machine, ſuch as ſhall remove the centre of gravity from M to the point V in the line L D which paſſes through the point D, it will then reſt upon the inclined plane, as in the caſe of the rolling cylinder. If this weight P be ſuppoſed not fixed, but ſuſpended at the end of an arm, or vectis, which arm or lever is at the ſame time faſtened to a centrical wheel 1, moving on the axis M of the machine, which wheel by its teeth ſhall communicate with the train of wheels, &c. on the other ſide, and the power of the weight be juſt equal to the friction or reſiſtance of the train, it will remain motionleſs as it did before when it was fixed; and conſequently the clock alſo will be at reſt on the inclined plane. But ſuppoſing the power of the weight P to be ſuperior to the reſiſtance of the train, it will then put it into motion, and of courſe the clock likewiſe; which will then commence a motion down the plane; while the weight P, its vectis PM, and the wheel 1, all conſtantly retain the ſame poſition which they have at firſt when the clock begins to move. Hence it is eaſy to underſtand, that the weight P may have ſuch an intrinſic gravity, as ſhall cauſe it to act upon the train with any required force, ſo as to produce a motion in the machine of any required velocity; ſuch, for inſtance, as ſhall carry it once round in twenty-four hours: then, if the diameters of the plates ABC be four inches, it will deſcribe the length of their circumference, *viz.* 12,56 inches in one natural day; and therefore, if the plane be of a ſufficient breadth, ſuch a clock may go ſeveral days, and would furniſh a perpetual motion, if the plane were infinitely extended. Let S D be drawn through M perpendicular to the inclined plane in the point D; alſo let LD be perpendicular to the horizontal line HH, paſſing thro' D; then is the angle $HDE = LDS = DMT$; whence it follows that the greater the angle of the plane's elevation is, the greater will be the arch DT; and conſequently the further will the common centre of gravity be removed from M; therefore the power of P will be augmented, and of courſe the motion of the whole machine accelerated. Thus it appears, that by duly adjuſting the intrinſic weight of P, at firſt to produce a motion ſhowing the mean time as near as poſſible, the time may be afterwards corrected, or the clock made to go faſter or ſlower by raiſing or depreſſing the plane, by means of the ſcrew at S. The angle to which the plane is firſt raiſed is about ten degrees. The marquis of Worceſter is alſo ſaid to have contrived a watch that moved on a declivity. See farther, Phil. Tranſ. Abr. vol. 1. p. 468, &c. or nº 161.

The other contrivance is that of M. de Gennes for making a clock aſcend on an inclined plane. To this end let ABC (fig. 12.) be the machine on the inclined plane EDE, and let it be kept at reſt upon it, or in equilibrio by the weight P at the end of the lever PM. The circular area CF is one end of a ſpring barrel in the middle of the movement, in which is included a ſpring as in a common watch. To this end of the barrel the arm or lever PM is fixed upon the centre M; and thus, when the clock is wound up, the ſpring moves the barrel, and therefore the lever and weight P in the ſituation PM. In doing this, the centre of gravity is conſtantly removed farther from the centre of the machine, and therefore it muſt determine the clock to move upwards, which it will continue to do as long as the ſpring is unbending itſelf; and thus the weight and its lever PM will preſerve the ſituation they firſt have, and do the office of a chain and fuſee. Phil. Tranſ. nº 140. or Abridg. vol. i. p. 467.

By ſtat. 9 and 10 W. III. cap. 28. § 2. no perſon ſhall export, or endeavour to export out of England, any outward or inward box-caſe or dial-plate, of gold, ſilver, braſs, or other metal, for clock or watch, without the movement in or with every ſuch box, *&c.* made up fit for uſe, with the maker's name engraven thereon; nor ſhall any perſon make up any clock or watch without putting his name and place of abode or freedom, and no other name or place, on every clock or watch; on penalty of forfeiting every ſuch box, caſe, and dial-plate, clock and watch, not made up and engraven as aforeſaid; and 20l. one moiety to the king, the other to thoſe that ſhall ſue for the ſame.

CLOCKS, *portable*, or *pocket*, commonly denominated *Watches*. See the article WATCH.

CLOCK-Work, properly ſo called, is that part of the movement which ſtrikes the hours, *&c.* on a bell; in contradiſtinction to that part of the movement of a clock or watch which is deſigned to meaſure and exhibit the time on a dial-plate, and which is termed *Watch-work*.

Pl. CXLI. fig. 13.

I. Of the *Clock*-part. The wheels compoſing this part are: The great or firſt wheel H; which is moved by the weight or ſpring at the barrel G: in ſixteen or thirty-hour clocks, this has uſually pins, and is called the *pin-wheel*; in eight-day pieces, the ſecond wheel I is commonly the pin-wheel, or ſtriking-wheel, which is moved by the former. Next the ſtriking-wheel is the detent-wheel, or hoop-wheel K, having a hoop almoſt round it, wherein is a vacancy at which the clock locks. The next is the third or fourth wheel, according to its diſtance from the firſt, called the *warning-wheel* L. The laſt is the flying pinion Q, with a fly or fan, to gather air, and ſo bridle the rapidity of the clock's motion. To theſe muſt be added the pinion of report; which drives round the locking-wheel, called alſo the *count-wheel*; ordinarily with eleven notches in it, unequally diſtant, to make the clock ſtrike the hours.

Beſides the wheels, to the clock part belongs the raſh or ratch; a kind of wheel with twelve large fangs, running concentrical to the dial-wheel, and ſerving to lift up the detents every hour, and make the clock ſtrike: the detents or ſtops, which being lifted up and let fall, lock and unlock the clock in ſtriking; the hammer, as S, which ſtrikes the bell R; the hammer tails, as T, by which the ſtriking pins draw back the hammers; latches, whereby the work is lifted up and unlocked; and lifting-pieces, as P, which lift up and unlock the detents.

The method of calculating the numbers of a piece of clock-work having ſomething in it very entertaining, and at the ſame time very eaſy and uſeful, we ſhall give the readers the rules relating thereto: 1. Regard here needs only be had to the counting-wheel, ſtriking-

Fig. 6.

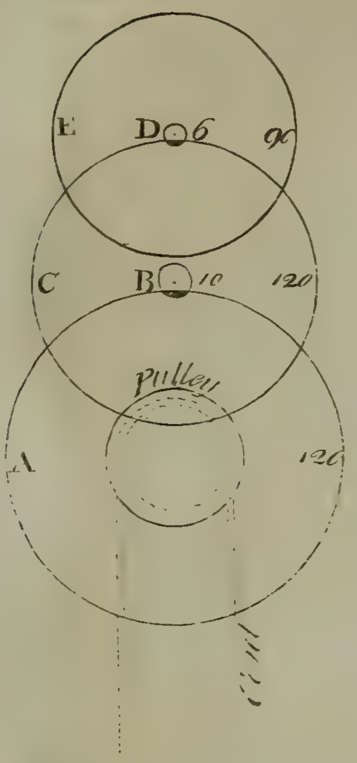


Fig. 7.

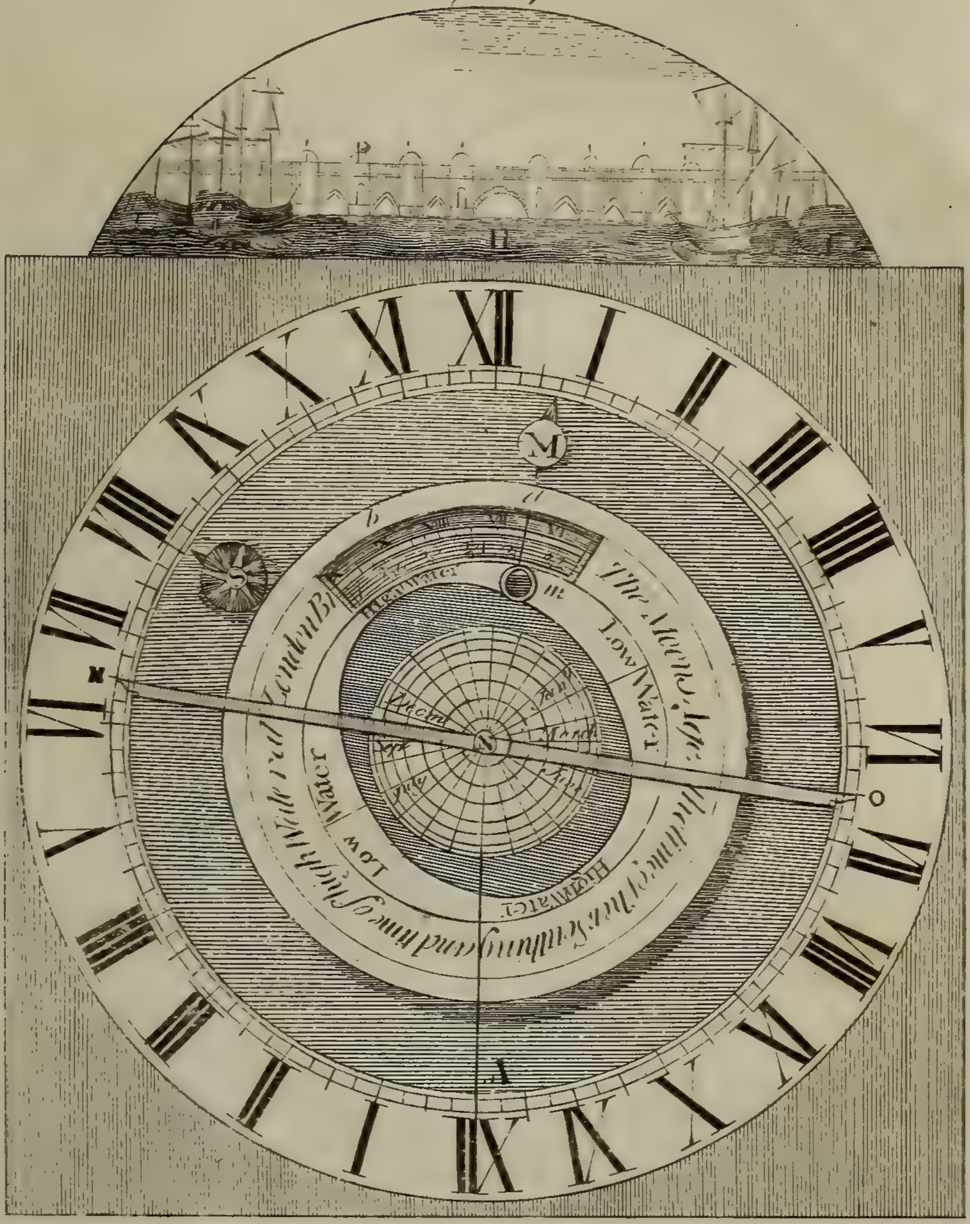

P
H
M
S
b
a
m
N
O
T
The Moon's Age, the time of her Southing and time of High Water at London Br.
High Water
Low Water
Low Water
High Water
Decem
Jan
March
Sept
July
June

Fig. 9.

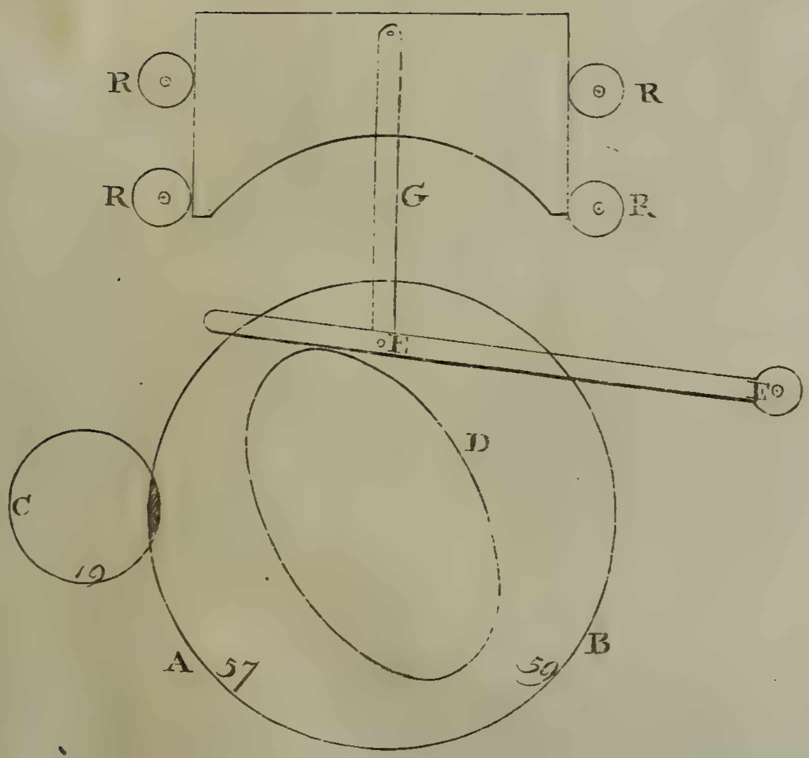
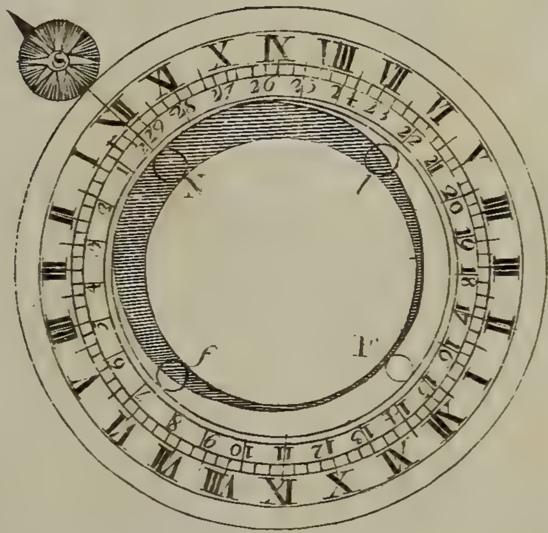


Fig. 8.



ſtriking-wheel, and detent-wheel, which move round in this proportion: the count-wheel commonly goes round once in 12 or 24 hours; the detent-wheel moves round every ſtroke the clock ſtrikes, or ſometimes but once in two ſtrokes: wherefore it follows, that, 2. As many pins as are in the pin-wheel, ſo many turns hath the detent-wheel in one turn of the pin-wheel; or, which is the ſame, the pins of the pin-wheel are the quotients of that wheel divided by the pinion of the detent-wheel. But if the detent-wheel move but once round in two ſtrokes of the clock, then the ſaid quotient is but half the number of pins. 3. As many turns of the pin-wheel as are required to perform the ſtrokes of 12 hours (which are 78), ſo many turns muſt the pinion of report have to turn round the count-wheel once: or thus, the quotient of 78, divided by the number of ſtriking-pins, ſhall be the quotient for the pinion of report and the count-wheel; and this is in caſe the pinion of report be fixed to the arbour of the pin-wheel, which is commonly done.

An example will make all plain: The locking-wheel being 48, the pinion of report 8, the pin-wheel 78, the ſtriking pins are 13, and ſo of the reſt. Note alſo, that 78 divided by 13 gives 6, the quotient of the pinion of report. As for the warning-wheel and fly-wheel, it matters little what numbers they have; their uſe being only to bridle the rapidity of the motion of the other wheels.

8) 48 (6.

---

6) 78 (13.
6) 60 (10.
6) 48 (8.

The following rules will be of good ſervice in this calculation. 1. *To find how many ſtrokes a clock ſtrikes in one turn of the fuſee or barrel:* As the turns of the great wheel or fuſee are to the days of the clock's continuance; ſo is the number of ſtrokes in 24 hours, *viz.* 156, to the ſtrokes of one turn of the fuſee.

2. *To find how many days a clock will go:* As the ſtrokes in 24 hours are to thoſe in one turn of the fuſee; ſo are the turns of the fuſee to the days of the clock's going.

3. *To find the number of turns of the fuſee or barrel:* As the ſtrokes in one turn of the fuſee are to thoſe of 24 hours; ſo is the clock's continuance to the turns of the fuſee or great wheel.

4. *To find the number of leaves in the pinion of report on the axis of the great wheel:* As the number of ſtrokes in the clock's continuance is to the turns of the fuſee; ſo are the ſtrokes in 12 hours, *viz.* 78, to the quotient of the pinion of report fixed on the arbour of the great wheel.

5. *To find the ſtrokes in the clock's continuance:* As 12 is to 78; ſo are the hours of the clock's continuance to the number of ſtrokes in that time.

By means of the following table, clocks and watches may be ſo regulated as to meaſure true equal time.

The ſtars make 366 revolutions from any point of the compaſs to the ſame point again in 365 days and one minute; and therefore they gain a 365th of a revolution every 24 hours of mean ſolar time, near enough for regulating any clock or watch.

This acceleration is at the rate of 3 min. 55 ſec. 53 thirds, 59 fourths in 24 hours; or, in the neareſt round numbers, 3 minutes, 56 ſeconds; by which quantity of time every ſtar comes round ſooner than it did on the day before.

Days.	H.	M.	S.
1	0	3	56
2	0	7	52
3	0	11	48
4	0	15	44
5	0	19	39
6	0	23	35
7	0	27	31
8	0	31	27
9	0	35	23
10	0	39	19
11	0	43	15
12	0	47	11
13	0	51	7
14	0	55	3
15	0	58	58
16	1	2	54
17	1	6	50
18	1	10	46
19	1	14	42
20	1	18	38
21	1	22	34
22	1	26	30
23	1	30	26
24	1	34	22
25	1	38	17
26	1	43	13
27	1	46	9
28	1	50	5
29	1	54	1
30	1	57	57

Therefore if you mark the preciſe moment ſhown by a clock or watch when any ſtar vaniſhes behind a chimney, or any other object, as ſeen thro' a ſmall hole in a thin plate of metal, fixed in a window-ſhutter; and do this for ſeveral nights ſucceſſively (as ſuppoſe twenty); if, at the end of that time, the ſtar vaniſhes as much ſooner than it did the firſt night, by the clock, as anſwers to the time denoted in the table for ſo many days, the clock goes true: otherwiſe not. If the difference between the clock and ſtar be leſs than the table ſhows, the clock goes too faſt; if greater, it goes too ſlow; and muſt be regulated accordingly, by letting down or raiſing up the ball of the pendulum, by little and little, by turning the ſcrew-nut under the ball, till you find it keeps true equal time.

Thus, ſuppoſing the ſtar ſhould diſappear behind a chimney, any night when it is XII. by the clock; and that, on the 20th night afterward, the ſame ſtar ſhould diſappear when the time is 41 minutes 22 ſeconds paſt X. by the clock; which being ſubtracted from 12 hours 0 min. 0 ſec. leaves remaining 1 hour 18 minutes 38 ſeconds for the time the ſtar is then faſter than the clock: look in the table, and againſt 20, in the left hand column, you will find the acceleration of the ſtar to be 1 hour 18 min. 38. ſec. agreeing exactly with what the difference ought to be between the clock and ſtar: which ſhows that the clock meaſures true equal time, and agrees with the mean ſolar time, as it ought to do.

II. Of the *Watch*-part of a clock or watch. This is that part of the movement which is deſigned to meaſure and exhibit the time on a dial-plate; in contradiſtinction to that part which contributes to the ſtriking of the hour, *&c.*

The ſeveral members of the watch-part are, 1. The balance, conſiſting of the rim, which is its circular part; and the verge, which is its ſpindle; to which belong two palettes or leaves, that play in the teeth of the crown-wheel. 2. The potence, or pottance, which is the ſtrong ſtud in pocket-watches, whereon the lower pivot or the verge plays, and in the middle of which one pivot of the balance-wheel plays; the bottom of the pottance is called the foot, the middle part the noſe, and the upper part the ſhoulder. 3. The cock, which is the piece covering the balance. 4. The regulator, or pendulum ſpring, which is the ſmall ſpring, in the new pocket-watches, underneath the balance. 5. The pendulum (fig. 13); whoſe parts are, the verge *x*, palettes 5, 5, cocks *yyy*, the rod, the fork *z*, the flatt 2, the bob or great ball 3, and the corrector or regulator 4, being a contrivance of Dr Derham for bringing the pendulum to its nice vibrations. 6. The wheels, which are the crown-wheel F in pocket-pieces, and ſwing-wheel in pendulums; ſerving to drive the balance or pendulum. 7. The contrate-wheel E, which is that next the crown-wheel, *&c.* and whoſe teeth and hoop lie contrary to thoſe of other wheels; whence the name. 8. The great, or firſt wheel C; which is that the fuſee B, &c. immediately drives, by means of the chain or ſtring of the ſpring-box or barrel A; after which are the ſecond wheel D, third wheel, &c. Laſtly, between the frame and dial-plate, is the pinion of report, which is that fixed on the arbour of the great wheel; and ſerves to drive the dial-wheel, as that ſerves to carry the hand.

For the illuſtration of this part of the work which lies concealed, let ABC (fig. 14.) repreſent the uppermoſt ſide of the frame plate, as it appears when detached from the dial-plate: the middle of this plate is perforated with a hole, receiving that end of the arbour of the centre wheel which carries the minute-hand; near the plate is fixed the pinion of report *a b* of 10 teeth; this drives a wheel *c d* of 40 teeth; this wheel carries a pinion *e f* of 12 teeth; and this again drives a wheel *g h* with 36 teeth.

As in the body of the watch the wheels every where divide the pinions; here, on the contrary, the pinions divide the wheels, and by that means diminiſh the motion, which is here neceſſary; for the hour-hand, which is carried on a ſocket fixed on the wheel *g h*, is required to move but once round, while the pinion *a b* moves twelve times round. For this purpoſe the motion of the wheel *c d* is $\frac{1}{4}$ of the pinion *a b*. Again, while the wheel *c d*, or the pinion *e f*, goes once round, it turns the wheel *g h* but $\frac{1}{3}$ part round; conſequently the motion of *g h* is but $\frac{1}{3}$ of $\frac{1}{4}$ of the motion of *a b*; but $\frac{1}{3}$ of $\frac{1}{4}$ is $\frac{1}{12}$; *i. e.* the hour-wheel *g h* moves once round in the time that the pinion of report, on the arbour of the centre or minute-wheel, makes 12 revolutions, as required. Hence the ſtructure of that part of a clock or watch which ſhows the time may be eaſily underſtood.

The cylinder A (fig. 13.) put into motion by a weight or incloſed ſpring moves the fuſee B, and the great wheel C, to which it is fixed by the line or chord that goes round each, and anſwers to the chain of a watch.

The method of calculation is eaſily underſtood by the ſequel of this article: for, ſuppoſe the great wheel C goes round once in 12 hours, then if it be a royal pendulum clock, ſwinging ſeconds, we have $60 \times 60 \times 12 = 43200$ ſeconds or beats in one turn of the great wheel. But becauſe there are 60 ſwings or ſeconds in one minute, and the ſeconds are ſhown by an index on the end of the arbour of the ſwing-wheel, which in thoſe clocks is in an horizontal poſition; therefore, it is neceſſary that the ſwing-wheel F ſhould have 30 teeth; whence $\frac{43200}{60} = 720$, the number to be broken into quotients for finding the number of teeth for the other wheels and pinions.

In ſpring-clocks, the diſpoſition of the wheels in the watch part is ſuch as is here repreſented in the figure, where the crown-wheel F is in an horizontal poſition; the ſeconds not being ſhown there by an index, as is done is the large pendulum clocks. Whence in theſe clocks the wheels are diſpoſed in a different manner, as repreſented in fig. 14. where C is the great wheel, and D the centre or minute-wheel, as before: but the contrate wheel E is placed on one ſide, and F the ſwing-wheel is placed with its centre in the ſame perpendicular line GH with the minute-wheel, and with its plane perpendicular to the horizon, as are all the others. Thus the minute and hour hands turn on the end of the arbour of the minute-wheel at *a*, and the ſecond hand on the arbour of the ſwing-wheel at *b*.

Theory and calculation of the Watch-part, as laid down by the Rev. Dr Derham.—1. The ſame motion, it is evident, may be performed either by one wheel and one pinion, or many wheels and many pinions; provided the number of turns of all the wheels bear the proportion to all the pinions which that one wheel bears to its pinion: or, which is the ſame thing, if the number produced by multiplying all the wheels together, be to the number produced by multiplying all the pinions together, as that one wheel to that one pinion. Thus, ſuppoſe you had occaſion for a wheel of 1440 teeth, with a pinion of 28 leaves; you make it into three wheels of 36, 8, and 5, and three pinions of 4, 7, and 1. For the three wheels, 36, 8, and 5, multiplied together, give 1440 for the wheels, and the three pinions 4, 7, and 1, multiplied together, give 28 for the pinions. Add, that it matters not in what order the wheels and pinions are ſet, or which pinion runs in which wheel; only, for convenience ſake, the biggeſt numbers are commonly put to drive the reſt.

2. Two wheels and pinions of different numbers may perform the ſame motion. Thus, a wheel of 36 drives a pinion of 4; the ſame as a wheel of 45 a pinion of 5; or a wheel of 90 a pinion of 10: the turns of each being 9.

3. If, in breaking the train into parcels, any of the quotients ſhould not be liked; or if any other two numbers, to be multiplied together, are deſired to be varied; it may be done by this rule. Divide the two numbers by any other two numbers which will meaſure them; multiply the quotients by the alternate diviſors; the product of theſe two laſt numbers found will be equal to the product of the two numbers firſt given. Thus, if you would vary 36 times 8, divide theſe by any two numbers which will evenly meaſure them: ſo, 36 by 4 gives 9; and 8 by 1 gives 8: now, by the rule, 9 times 1 is 9, and 8 times 4 is 32; ſo that for 36×8, you have 32×9; each equal to 288. If you divide 36 by 6 and 8 by 2, and multiply as before, you have $24 \times 12 = 36 \times 8 = 288$.

4. If a wheel and pinion fall out with croſs numbers, too big to be cut in wheels, and yet not to be altered by theſe rules; in ſeeking for the pinion of report, find two numbers of the ſame, or a near proportion, by this rule: as either of the two given numbers is to the other, ſo is 360 to a fourth. Divide that fourth number, as alſo 360, by 4, 5, 6, 8, 9 10, 12, 15 (each of which numbers exactly meaſures 360), or by any of thoſe numbers that bring a quotient neareſt to an integer. As ſuppoſe you had 147 for the wheel, and 170 for the pinion; which are too great to be cut into ſmall wheels, and yet cannot be reduced into leſs, as having no other common meaſure but unity; ſay, as 170 : 147 : : 360 : 311. Or, as 147 : 170 : : 360 : 416. Divide the fourth number and 360 by one of the foregoing numbers; as 311 and 360 by 6, it gives 52 and 60; divide them by 8, you have 39 and 45: and if you divide 360 and 416 by 8,

8, you have 45 and 52 exactly. Wherefore, inſtead of the two numbers 147 and 170, you may take 52 and 60, or 39 and 45, or 45 and 52, *&c.*

5. To come to practice in calculating a piece of watch-work: Firſt pitch on the train or beats of the balance in an hour; as, whether a ſwift one of about 20,000 beats (the uſual train of a common 30 hour pocket-watch), or a ſlower of about 16000 (the train of the new pendulum pocket-watches), or any other train. Next, reſolve on the number of turns the fuſee is intended to have, and the number of hours the piece is to go: ſuppoſe, *e. g.* 12 turns, and to go 30 hours, or 192 hours (*i. e.* 8 days), *&c.* Proceed now to find the beats of the balance or pendulum in one turn of the fuſee; thus in numbers; 12 : 16 : : 20000 : 26666. Wherefore, 26666 are the beats in one turn of the fuſee or great wheel, and are equal to the quotients of all the wheels unto the balance multiplied together. Now this number is to be broken into a convenient parcel of quotients; which is to be done thus: firſt, halve the number of beats, *viz.* 26666, and you have 13333; then pitch on the number of the crown-wheel, ſuppoſe 17: divide 13333 by 17, and you have 784 for the quotient (or turns) of the reſt of the wheels and pinions; which, being too big for one or two quotients, may be beſt broken into three. Chooſe therefore three numbers; which, when multiplied all together continually, will come neareſt 784: as ſuppoſe 10, 9, and 9, multiplied continually, give 810, which is ſomewhat too much; therefore try again other numbers, 11, 9, 8: theſe, drawn one into another continually, produce 792; which is as near as can be, and is a convenient quotient. Having thus contrived the piece from the great wheel to the balance, but the numbers not falling out exactly, as you firſt propoſed, correct the work thus: firſt, multiply 792, the product of all the quotients pitched upon, by 17 (the notches of the crown-wheel); the product is 13464, which is half the number of beats in one turn of the fuſee: Then find the true number of beats in an hour. Thus, 16 : 12 : : 13464 : 10098, which is half the beats in an hour. Then find what quotient is to be laid upon the pinion of report (by the rule given under that word). Thus, 16 : 12 : : 12 : 9, the quotient of the pinion of report. Having thus found your quotients, it is eaſy to determine what numbers the wheels ſhall have, for chooſing what numbers the pinions ſhall have, and multiplying the pinions by their quotients, the product is the number for the wheels. Thus, the number of the pinion of report is 4, and its quotient is 9; therefore the number for the dial-wheel muſt be 4×9, or 36: ſo the next pinion being 5, its quotient 11, therefore the great wheel muſt be 5×11=55; and ſo of the reſt.

4) 36 (9

5) 55 (11
5) 45 (9
5) 40 (8

17

Such is the method of calculating the numbers of a 16 hour watch. Which watch may be made to go longer by leſſening the train, and altering the pinion of report. Suppoſe you could conveniently ſlacken the train to 16000; then ſay, As $\frac{1}{2}$ 16000, or 8000 : 13464 : : 12 : 20; ſo that this watch will go 20 hours. Then for the pinion of report, ſay (by the rule given under that word), as 20 : 12 : : 12 . 7. So that 7 is the quotient of the pinion of report. And as to the numbers, the operation is the ſame as before, only the dial-wheel is but 28; for its quotient is altered to 7. If you would give numbers to a watch of about 10000 beats in an hour, to have 12 turns of the fuſee, to go 170 hours, and 17 notches in the crown-wheel; the work is the ſame, in a manner, as in the laſt example: and conſequently thus: as 12 : 170 : : 10000; 141666, which fourth number is the beats in one turn of the fuſee; its half, 70833, being divided by 17, gives 4167 for the quotient: and becauſe this number is too big for three quotients, therefore chooſe four, as 10, 8, 8, 6$\frac{3}{5}$; whoſe product into 17 makes 71808, nearly equal to half the true beats in one turn of the fuſee. Then ſay, as 170 : 12 : 71808 : 5069, which is half the true train of your watch. And again, 170 : 12 : : 12 : $\frac{144}{170}$, the denominator of which expreſſes the pinion of report, and the numerator is the number of the dial-wheel. But theſe numbers being too big to be cut in ſmall wheels, they muſt be varied by the fourth rule above. Thus:

4) 28 (7

5) 55 (11
5) 45 (9
5) 40 (8

17

As 144 : 170 : : 360 : 425;
Or 170 : 144 : : 360 : 305.

Then dividing 360, and either of theſe two fourth proportionals (as directed by the rule), ſuppoſe by 15; you will have $\frac{24}{28}$ or $\frac{20}{24}$; then the numbers of the whole movement will ſtand as in the margin.

24) 20 ($\frac{20}{15}$

6) 60 (10
6) 48 (8
5) 40) 8
5) 33 (6$\frac{3}{5}$

17

Such is the calculation of ordinary watches, to ſhow the hour of the day: in ſuch as ſhow minutes, and ſeconds, the proceſs is thus:

1. Having reſolved on the beats in an hour; by dividing the deſigned train by 60, find the beats in a minute: and accordingly, find proper numbers for the crown-wheel and quotients, ſo as that the minute-wheel ſhall go round once in an hour, and the ſecond wheel once in a minute.

Suppoſe, *e. g.* you ſhall chooſe a pendulum of ſeven inches, which vibrates 142 ſtrokes in a minute, and 8520 in an hour. Half theſe ſums are 71, and 4260. Now, the firſt work is to break this 71 into a good proportion, which will fall into one quotient, and the crown-wheel. Let the crown-wheel have 15 notches; then 71, divided by 15, gives nearly 5; ſo a crown-wheel of 15, and a wheel and pinion whoſe quotient is 5, will go round in a minute to carry a hand to ſhow ſeconds. For a hand to go round in an hour to ſhow minutes, becauſe there are 60 minutes in an hour, it is but breaking 60 into good quotients (ſuppoſe 10 and 6, or 8 and 7$\frac{1}{2}$, *&c.*), and it is done. Thus, 4260 is broken as near as can be into proper numbers. But ſince it does not fall out exactly into the above-mentioned numbers, you muſt correct (as before directed), and find the true number of beats in an hour, by multiplying 15 by 5, which makes 75; and 75 by 60 makes 4500, which is half the true train. Then find the beats in one turn of the fuſee; thus, 16 : 192 : : 4500 : 54000; which laſt is half the beats in one turn of the fuſee. This

8) 40 (5

15

8) 64 (8
8) 60 (7$\frac{1}{2}$
8) 40 (5

15

54000 being divided by 4500 (the true numbers already pitched on), the quotient will be 12; which, not being too big for a ſingle quotient, needs not be divided into more; and the work will ſtand as in the margin. As to the hour-hand, the great wheel, which performs only one revolution in 12 turns of the minute-wheel, will ſhow the hour; or it may be done by the minute-wheel.

9)	108	(12
8)	64	(8
8)	60	($7\frac{1}{2}$
8)	40	(5
		15

It is requiſite for thoſe who make nice aſtronomical obſervations, to have watches that make ſome exact number of beats *per* ſecond, without any fraction; but we ſeldom find a watch that does. As four beats *per* ſecond would be a very convenient number, we ſhall here give the train for ſuch a watch, which would (like moſt others) go 30 hours, but is to be wound up once in 24 hours.

The fuſee and firſt wheel, to go round in four hours. This wheel has 48 teeth, and it turns a pinion of 12 leaves, on whoſe axis is the ſecond wheel, which goes round in one hour, and carries the minute hand. This wheel has 60 teeth, and turns a pinion of 10 leaves; on whoſe axis is the third wheel of 60 teeth, turning a pinion of 6 leaves; on whoſe axis is the fourth (or contrate) wheel, turning round in a minute, and carrying the ſmall hand that ſhows the ſeconds, on a ſmall circle on the dial-plate, divided into 60 parts: this contrate wheel has 48 teeth, and turns a pinion of 6 leaves; on whoſe axis is the crown or balance-wheel of 15 teeth, which makes 30 beats in each revolution.

The crown-wheel goes 480 times round in an hour, and 30 times 480 make 14400, the number of beats in an hour. But one hour contains 3600 ſeconds; and 14400 divided by 3600 quotes 4, the required number of beats in a ſecond.

The fuſee muſt have $7\frac{1}{2}$ turns, to let the chain go ſo many times round it. Then, as 1 turn is to 4 hours, ſo is $7\frac{1}{2}$ turns to 30 hours, the time the watch would go after it is wound up.

See further the articles MOVEMENT, TURN, *&c.* And for the hiſtory and particular conſtruction of *Watches* properly ſo called, ſee the article WATCH.

CLODIA LEX, *de Cypro*, was enacted by the tribune Clodius, in the year of Rome 607, to reduce Cyprus into a Roman province, and expoſe Ptolemy king of Egypt to ſale in his regal ornaments. It impowered Cato to go with the prætorian power and ſee the auction of the king's goods, and commiſſioned him to return the money to Rome. Another, *de Magiſtratibus*, 695, by Clodius the tribune. It forbad the cenſors to put a ſtigma or mark of infamy upon any perſon who had not been actually accuſed and condemned by both the cenſors. Another, *de Religione*, by the ſame, 696, to deprive the prieſt of Cybele, a native of Peſſinuns, of his office, and confer the prieſthood upon Brotigonus, a Gallogrecian. Another, *de Provinciis*, 695, which nominated the provinces of Syria, Babylon, and Perſia, to the conſul Gabinus, and Achaia, Theſſaly, Macedon, and Greece, to his colleague Piſo, with proconſular power. It impowered them to defray the expences of their march from the public treaſury. Another, 695, which required the ſame diſtribution of corn among the people gratis, as had been given them before at ſix aſſes and a triens the buſhel. Another, 695, by the ſame, *de Judiciis*. It called to an account ſuch as had executed a Roman citizen without a judgment of the people and all the formalities of a trial. Another, by the ſame, to pay no attention to the appearances of the heavens while any affair was before the people. Another, to make the power of the tribunes free in making and propoſing laws. Another, to re-eſtabliſh the companies of artiſts which had been inſtituted by Numa, but ſince his time aboliſhed.

CLODIUS, (Publius) a Roman deſcended of an illuſtrious family. He made himſelf famous for his licentiouſneſs, avarice, and ambition. He committed inceſt with his three ſiſters, and introduced himſelf in women's clothes into the houſe of Julius Cæſar whilſt Pompeia Cæſar's wife, of whom he was enamoured, was celebrating the myſteries of Ceres, where no man was permitted to appear. He was accuſed for this violation of human and divine laws; but he made himſelf tribune, and by that means ſcreened himſelf from juſtice. He deſcended from a patrician into a plebeian family to become a tribune. He was ſuch an enemy to Cato, that he made him go with prætorian power, in an expedition againſt Ptolemy king of Cyprus, that by the difficulty of the campaign he might ruin his reputation, and deſtroy his intereſt at Rome during his abſence. Cato, however, by his uncommon ſucceſs fruſtrated the views of Clodius. He was alſo an inveterate enemy to Cicero, and by his influence he baniſhed him from Rome, partly on pretence that he had puniſhed with death and without trial the adherents of Catiline. He wreaked his vengeance upon Cicero's houſe, which he burnt, and ſet all his goods to ſale; which, however, to his great mortification, no one offered to buy. In ſpite of Clodius, Cicero was recalled and all his goods reſtored to him. Clodius was ſometime after murdered by Milo, whoſe defence Cicero took upon himſelf.

CLOGHER, an epiſcopal town of Ireland, in the county of Tyrone, and province of Ulſter. It ſends two members to parliament. In a very early age an abbey of regular canons, dedicated to the Virgin Mary, was founded here. St Patrick is ſaid to have preſided over the church of Clogher; and having appointed St Kertenn to be his ſucceſſor, he reſigned this government, and went to Armagh, where he founded his celebrated abbey. On the 20th of April 1396, a dreadful fire burnt to the ground the church, the two chapels, the abbey, the court of the biſhops, and thirty-two other buildings, with all the ſacerdotal veſtments, utenſils, &c. belonging to the biſhop's chapter and church. In the year 1610, on the 24th of July, whilſt George Montgomery was biſhop of Clogher, king James annexed this abbey and its revenues to that ſee. The ſee (valued in the king's books at 350l *per annum* by extent returned 15th James I.) is reputed to be worth L.4000 annually. W. Long. 7. 50. N. Lat. 54. 16.

CLOISTER, *(Clauſtrum)* a habitation ſurrounded with walls, and inhabited by canons or religious, &c. In a more general ſenſe, cloiſter is uſed for a monaſtery of religious of either ſex. In a more reſtrained ſenſe, cloiſter is uſed for the principal part of a regular

Fig. 14

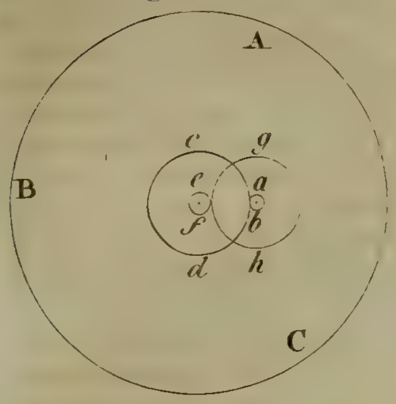


Fig. 10

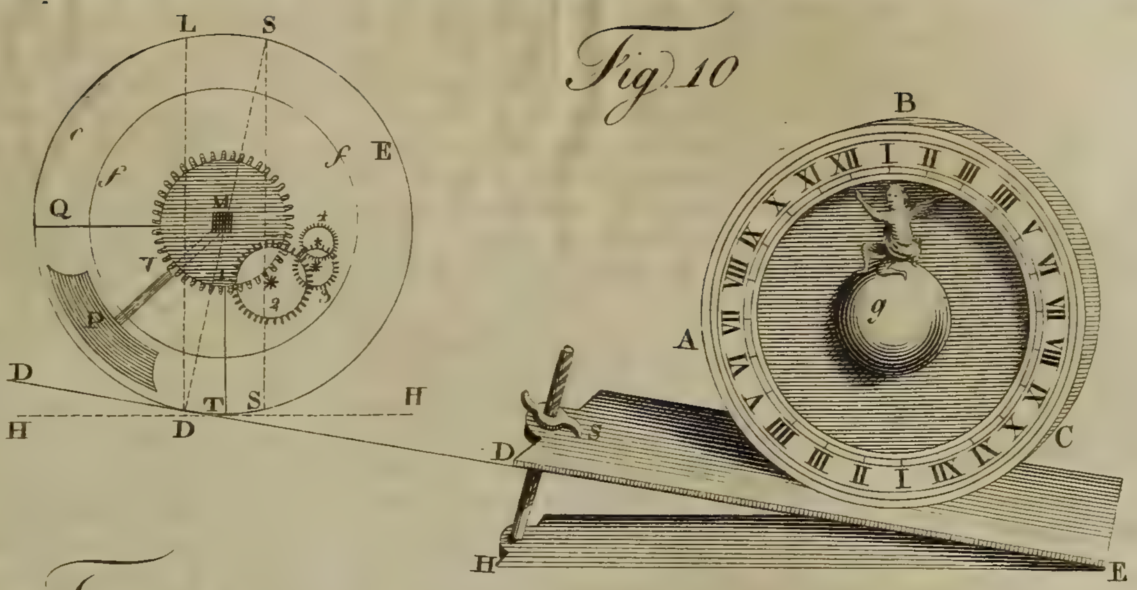


Fig. 13

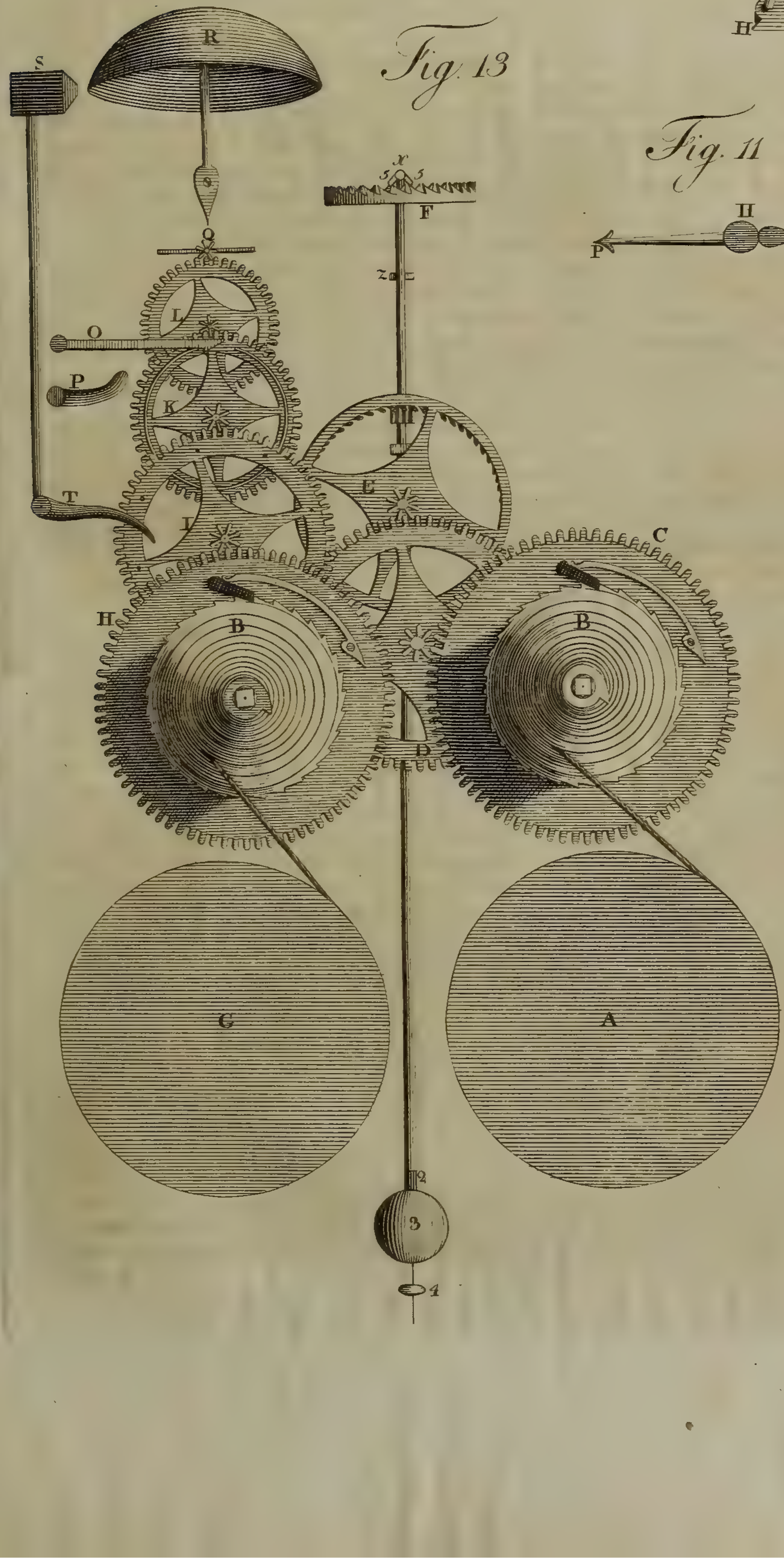


Fig. 11

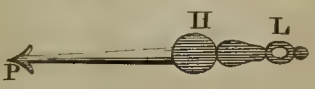


Fig. 12

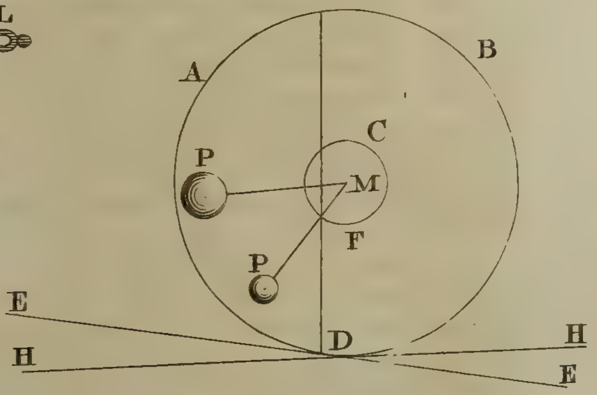
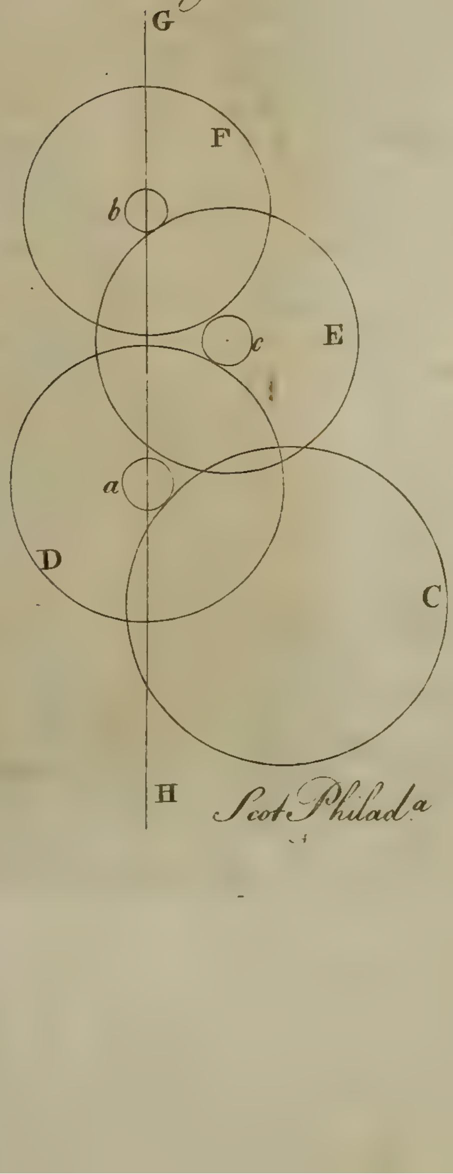


Fig. 15



Scot Philad a

gular monaſtery, conſiſting of a ſquare built around; ordinarily between the church, the chapter-houſe, and the refectory; and over which is the dormitory. The cloiſters ſerved for ſeveral purpoſes in the ancient monaſteries. Petrus Bleſenſis obſerves, that it was here the monks held their lectures: the lecture of morality at the north ſide, next the church; the ſchool on the weſt, and the chapter on the eaſt; ſpiritual meditation, &c. being reſerved for the church. Lanfranc obſerves, that the proper uſe of the cloiſter was for the monks to meet in, and converſe together, at certain hours of the day.

The form of the cloiſter was ſquare; and it had its name *clauſtrum*, from *clauda*, "I ſhut or cloſe;" as being incloſed on its four ſides with buildings. Hence, in architecture, a building is ſtill ſaid to be in form of a cloiſter, when there are buildings on each of the four ſides of the court.

CLONMELL, the aſſize town of the county of Tipperary in Ireland, is ſituated on the river Suir, hath a barrack for two troops of horſe, and is governed by a mayor, recorder, bailiffs, and town-clerk. The river is navigable from this town to Carrick and Waterford: and there is ſome trade carried on here in the woollen branch, particularly by the quakers, who are very numerous in this neighbourhood. There is a ſpring here of Spa water, that iſſues out of the ſide of a riſing ground, that is, notwithſtanding, overlooked by a pretty ſteep hill, on that ſide of the river Suir which is in the county of Waterford. The cures performed by drinking of this water in the ſcurvy, and other chronic diſtempers, drew thither, ſome years ago, a great reſort of people; but faſhion, which reigns with an abſolute authority, has brought other waters of late into higher credit. It was in this town that the celebrated and Rev. Laurance Sterne was born, on the 24th of November 1713. The town conſiſts of four-croſs ſtreets, and has a ſpacious bridge of 20 arches over the river Suir; the market houſe is ſtrong and well built; and there is a charter ſchool here for forty children, to which the late John Dawſon, Eſq; and Sir Charles Moore, Bart. were conſiderable benefactors. A Dominican friary was founded at Clonmell, in 1269, and dedicated to St Dominick. In the ſame year Otho de Grandiſon erected a Franciſcan friary, the church of which was eſteemed one of the moſt magnificent in Ireland: in it was kept an image of St Francis, reſpecting the miracles wrought by which many marvellous ſtories are circulated. This town is very ancient, being built before the invaſion of the Danes: it was formerly defended by a ſquare wall. Oliver Cromwell, who found more reſiſtance from this place than any other of his conqueſts in the kingdom, demoliſhed the caſtles and fortifications, of which now only the ruins remain: the chief Gothic church here is ſtill kept in good repair.

CLOSE, in heraldry. When any bird is drawn in a coat of arms with its wings cloſe down about it, (*i. e.* not diſplayed), and in a ſtanding poſture, they blazon it by this word *cloſe*; but if it be flying, they call it *volant*. See VOLANT.

CLOSE, in muſic. See CADENCE.

CLOSE-Hauled, in navigation, the general arrangement or trim of a ſhip's ſails when ſhe endeavours to make a progreſs in the neareſt direction poſſible towards that point of the compaſs from which the wind blows. In this manner of ſailing, the keel commonly makes an angle of ſix points with the line of the wind; but ſloops and ſome other ſmall veſſels are ſaid to ſail almoſt a point nearer. All veſſels, however, are ſuppoſed to make nearly a point of lee-way when cloſe-hauled, even when they have the advantage of a good ſailing breeze and ſmooth water. The angle of lee-way, however, increaſes in proportion to the increaſe of the wind and ſea. In this diſpoſition of the ſails, they are all extended ſideways on the ſhip, ſo that the wind, as it croſſes the ſhip obliquely toward the ſtern from forwards, may fill their cavities. But as the current of winds alſo enters the ſails in an oblique direction, the effort of it to make the ſhip advance is conſiderably diminiſhed: ſhe will therefore make the leaſt progreſs when ſailing in this manner. The ſhip is ſaid to be cloſe-hauled, becauſe at this time her *tacks*, or lower corners of the principal ſails, are drawn cloſe down to her ſide to windward, the ſheets hauled cloſe-aft, and all the bow-lines drawn to their greateſt extenſion to keep the ſails ſteady.

CLOSE-Quarters, certain ſtrong barriers of wood, ſtretching acroſs a merchant-ſhip in ſeveral places. They are uſed as places of retreat when a ſhip is boarded by her adverſary, and are therefore fitted with ſeveral ſmall loop-holes through which to fire the ſmall arms, and thereby annoy the enemy and defend themſelves. They are likewiſe furniſhed with ſeveral caiſons called *powder-cheſts*, which are fixed upon the deck, and filled with powder, old-nails, &c. and may be fired at any time from the cloſe-quarters upon the boarders.

Falconer's Dict. of the Marine.

We have known an Engliſh merchant-ſhip of 16 guns, and properly fitted with cloſe-quarters, defeat the united efforts of three French privateers who boarded her in the laſt war, after having engaged at ſome diſtance nearly a day and a half, with very few intervals of reſt. Two of the cruiſers were equipped with twelve guns each, and the other with eight. The French ſailors were, after boarding, ſo much expoſed to continued fire of muſquetry and coehorns charged with grenadoes, that a dreadful ſcene of carnage enſued, in which the decks were ſoon covered with the dead bodies of the enemy, ſeveral of which the boarders, in their hurry to eſcape, had left behind.

CLOT-BIRD: a ſpecies of FRINGILLA.

CLOTH, in commerce, a manufacture made of wool, wove in the loom.

Cloths are of divers qualities, fine or courſe. The goodneſs of cloth, according to ſome, conſiſts in the following particulars: 1. That the wool be of a good quality, and well dreſſed. 2. It muſt be equally ſpun, carefully obſerving that the thread of the warp be fineſt and better twiſted than that of the woof. 3. The cloth muſt be well wrought, and beaten on the loom, ſo as to be every where equally compact. 4. The wool muſt not be finer at one end of the piece than in the reſt. 5. The liſts muſt be ſufficiently ſtrong, of the ſame length with the ſtuff, and muſt conſiſt of good wool, hair, or oſtrich-feathers: or, what is ſtill better, of Daniſh dog's hair. 6. The cloth muſt be free from knots and other imperfections. 7. It muſt be well ſcoured with fuller's earth, well fulled with the beſt white ſoap, and afterwards waſhed in clear water. 8. The hair or nap muſt be well drawn out with the teazel, without being too much opened. 9. It muſt be ſhorn cloſe withou tmaking it thread-bare. 10. It muſt be well dried. 11. It muſt not be tenter-ſtretched, to force it to its juſt dimenſions. 12. It muſt be preſſed cold, not hot preſſed, the latter being very injurious to woollen cloth.

Manufacturing of white Cloths which are intended for dyeing. The beſt wool for the manufacturing of cloths are thoſe of England and Spain, eſpecially thoſe of Lincolnſhire and Segovia. To uſe thoſe wools to the beſt advantage, they muſt be ſcoured, by putting them into a liquor ſomewhat more than lukewarm, compoſed of three parts fair water and one urine. After the wool has continued long enough in the liquor to ſoak, and diſſolve the greaſe, it is drained and well waſhed in running water. When it feels dry, and has no ſmell but the natural one of the ſheep, it is ſaid to be duly ſcoured.

After this, it is hung to dry in the ſhade; the heat of the ſun making it harſh and inflexible: when dry, it is beat with rods upon hurdles of wood, or on cords, to cleanſe it from duſt and the groſſer filth; the more, it is thus beat and cleanſed, the ſofter it becomes, and the better for ſpinning. After beating, it muſt be well picked, to free it from the reſt of the filth that had eſcaped the rods.

It is now in a proper condition to be oiled, and carded on large iron cards placed ſlopewiſe. Olive oil is eſteemed the beſt for this purpoſe: one-fifth of which ſhould be uſed for the wool intended for the woof, and a ninth for that deſigned for the warp. After the wool has been well oiled, it is given to the ſpinners, who firſt card it on the knee with ſmall fine cards, and then ſpin it on the wheel, obſerving to make the thread of the warp ſmaller by one-third than that of the woof and much compacter twiſted.

The thread thus ſpun, is reeled, and, made into ſkeins. That deſigned for the woof is wound on little tubes, pieces of paper, or ruſhes, ſo diſpoſed as that they may be eaſily put in the eye of the ſhuttle. That for the warp is wound on a kind of large wooden bobbins, to diſpoſe it for warping. When warped, it is ſtiffened with ſize; the beſt of which is that made of ſhreds of parchment; and when dry, is given to the weavers, who mount it on the loom.

The warp thus mounted, the weavers, who are two to each loom, one on each ſide, tread alternately on the treddle, firſt on the right ſtep, and then on the left, which raiſes and lowers the threads of the warp equally; between which they throw tranverſely the ſhuttle from the one to the other: and every time that the ſhuttle is thus thrown, and a thread of the woof inſerted within the warp, they ſtrike it conjuctly with the ſame frame, wherein is faſtened the comb or reed, between whoſe teeth the threads of the warp are paſſed, repeating the ſtroke as often as is neceſſary

The weavers having continued their work till the whole warp is filled with the woof, the cloth is finiſhed; it is then taken off the loom by unrolling it from the beam whereon it had been rolled in proportion as it was wove; and now given to be cleanſed of the knots, ends of threads, ſtraws, and other filth, which is done with iron nippers.

In this condition it is carried to the fullery, to be ſcoured with urine, or a kind of potter's clay, well ſteeped in water, put along with the cloth in the trough wherein it is fulled. The cloth being again cleared from the earth or urine, is returned to the former hands to have the leſſer filth, ſmall ſtraws, &c. taken off as before: then it is returned to the fuller to be beat and fulled with hot water, wherein a ſuitable quantity of ſoap has been diſſolved; after fulling, it is taken out to be ſmoothed or pulled by the liſts lengthwiſe, to take out the wrinkles, crevices &c.

The ſmoothing is repeated every two hours, till the fulling be finiſhed, and the cloth brought to its proper breadth: after which it is waſhed in clear water, to purge it of the ſoap, and given wet to the carders to raiſe the hair or nap on the right ſide with the thiſtle or weed. After this preparation the cloth-worker takes the cloth, and gives it its firſt cut or ſhearing: then the carders reſume it, and after wetting, give it as many more courſes with the teazel, as the quality of the ſtuff requires, always obſerving to begin againſt the grain of the hair, and to end with it; as alſo to begin with a ſmoother thiſtle, proceeding ſtill with one ſharper and ſharper, as far as the ſixth degree.

After theſe operations, the cloth being dried, is returned to the cloth-worker, who ſheers it a ſecond time, and returns it to the carders, who repeat their operation as before, till the nap be well ranged on the ſurface of the cloth, from one end of the piece to the other

The cloth thus wove, ſcoured, napped, and ſhorn, is ſent to the dyer; when dyed, it is waſhed in fair water, and the worker takes it again wet as it is, lays the nap with a bruſh on the table, and hangs it on the tenters, where it is ſtretched both in length and breadth ſufficiently to ſmooth it, ſet it ſquare, and bring it to its proper dimenſions, without ſtraining it too much; obſerving to bruſh it afreſh, the way of the nap, while a little moiſt, on the tenters.

When quite dry, the cloth is taken off the tenters, and bruſhed again on the table, to finiſh the laying of the nap: after which it is folded, and laid cold under a preſs, to make it perfectly ſmooth and even, and give it a gloſs.

Laſtly, the cloth being taken out of the preſs, and the papers, &c. for gloſſing it removed, it is in a condition for ſale or uſe. With regard to the manufacture of mixt cloths, or thoſe wherein the wools are firſt dyed, and then mixt, ſpun, and wove of the colours intended, the proceſs, except what relates to the colour, is moſtly the ſame withthat juſt repreſented.

Cloth made from Vegetable Filaments. See Bark and Filaments.

Incombuſtible Cloth. See Asbestos.

CLOTHO, the youngeſt of the three Parcæ, daughters of Jupiter and Themis. She was ſuppoſed to preſide over the moment that we are born. She held the diſtaff in her hand and ſpun the thread of life, whence her name κλωθειν, *to ſpin*. She was repreſented wearing a crown with ſeven ſtars, and covered with a variegated robe.

CLOUD, a collection of vapours ſuſpended in the atmoſphere.

1
Cauſe of the formation of clouds uncertain.

That the clouds are formed from the aqueous vapours which before were ſo cloſely united with the atmoſphere as to be inviſible, is univerſally allowed: but it is no eaſy matter to account for the long continuance of ſome very opaque clouds without diſſolving; or to give a reaſon why the vapours, when they have once began to condenſe, do not continue to do ſo till they at laſt fall to the ground in the form of rain or ſnow, &c. Under the article BAROMETER, n° 23. we have hinted at the general cauſe of the formation of clouds; namely, a ſeparation of the latent heat from the water whereof the vapour is compoſed. The conſequence of this ſeparation, as is undeniably proved by Dr Black, muſt be the condenſation of that vapour, in ſome degree at leaſt: in ſuch caſe, it will firſt appear as a ſmoke, miſt, or fog: which if interpoſed betwixt the ſun and earth, will form a cloud: and the ſame cauſes continuing to act, the cloud will produce rain or ſnow. But though the ſeparation of this latent heat in a certain degree is the immediate cauſe of the formation of clouds, the remote cauſe or the changes produced in the atmoſphere, whereby ſuch a ſeparation may be induced, are much more difficult to be diſcovered. In common obſervation, we ſee that vapour is moſt powerfully condenſed by cold ſubſtances, ſuch as metals, water, &c. But cold alone cannot in all caſes cauſe the condenſation of the atmoſpherical vapours, otherwiſe the nights behoved to be always foggy or cloudy, owing to the vapours, raiſed throughout the day by the heat of the ſun, being condenſed by the ſuperior coldneſs of the night. Great rains will happen in very warm weather, when the union of the vapours with the atmoſphere, ought rather to be promoted than diſſolved, if cold was the only agent in their condenſation. The ſerenity of the atmoſphere, alſo, in the moſt ſevere froſts, abundantly ſhows that ſome other cauſe beſides mere heat or cold is concerned in the formation of clouds, and, condenſation of the atmoſpherical vapours.

2
Not always owing to cold.

3
Electricity probably concerned.

The electric fluid is now ſo generally admitted as an agent in all the great operations of nature, that it is no wonder to find the formation of clouds attributed to it. This hath accordingly been given by S. Beccaria as the cauſe of the formation of all clouds whatſoever, whether of thunder, rain, hail, or ſnow. The firſt, he thinks, are produced by a very great power of electricity, and the others by one more moderate. But, though it is certain that all clouds, or even fogs and rain, are electrified in ſome degree, it ſtill remains a queſtion, whether the clouds are formed in conſequence of the vapour whereof they are compoſed being firſt electrified, or whether they become electrified in conſequence of its being firſt ſeparated from the atmoſphere, and in ſome meaſure condenſed. This hath not yet, as far as we know, been aſcertained by the experiments of Beccaria, or any other perſon; and indeed, notwithſtanding the multitude of electrical diſcoveries that have lately been made, there ſeems to be little or no foundation for aſcertaining it. Electricity is known to be in many caſes a promoter of evaporation; but no experiments have yet been brought to prove, that electrified air parts with its moiſture more readily than ſuch as is not electrified; ſo that, till the properties of electrified air are farther inveſtigated, it is impoſſible to lay down any rational theory of the formation of clouds upon this principle.

4
Clouds often prodigiouſly electrified.

But whether the clouds are produced, *i. e.* the inviſible vapours floating in the atmoſphere condenſed ſo as to become viſible, by means of electricity or not, it is certain that they do contain the electric fluid in prodigious and inconceivable quantities, and many very terrible and deſtructive phenomena have been occaſioned by clouds very highly electrified. The moſt extraordinary inſtance of this kind perhaps on record happened in the iſland of Java in the Eaſt Indies in Auguſt 1772. On the 11th of that month, at midnight, a bright cloud was obſerved covering a mountain in the diſtrict called *Cheribon*, and at the ſamet ime ſeveral reports were heard like thoſe of a gun. The people who dwelt upon the upper parts of the mountain not being able to fly faſt enough, a great part of the cloud, almoſt three leagues in circumference, detached itſelf under them, and was ſeen at a diſtance riſing and falling like the waves of the ſea, and emitting globes of fire ſo luminous, that the night became as clear as day. The effects of it were aſtoniſhing; every thing was deſtroyed for ſeven leagues round; the houſes were demoliſhed; plantations were buried in the earth; and 2140 people loſt their lives, beſides 1500 head of cattle, and a vaſt number of horſes, goats, &c.

5
Terrible deſtruction by an electrified cloud in Java.

6
By another in the iſland of Malta.

Another inſtance of a very deſtructive cloud, the electric qualities of which will at preſent ſcarcely be doubted, is related by Mr Brydone, in his Tour through Malta. It appeared on the 29th of October 1757. About three quarters of an hour after midnight, there was ſeen to the ſouth-weſt of the city of Melita, a great black cloud, which, as it approached, changed its colour, till at laſt it became like a flame of fire mixed with black ſmoke. A dreadful noiſe was heard on its approach, which alarmed the whole city. It paſſed over the port, and came firſt on an Engliſh ſhip, which in an inſtant was torn in pieces, and nothing left but the hulk; part of the maſts, ſails, and cordage, were carried to a conſiderable diſtance along with the cloud. The ſmall boats and felloques that fell in its way were all broken to pieces and ſunk. The noiſe increaſed and became more frightful. A centinel terrified at its approach ran into his box; but both he and it were lifted up an carried into the ſea, where he periſhed. It then traverſed a conſiderable part of the city, and laid in ruins almoſt every thing that ſtood in its way. Several houſes were laid level with the ground, and it did not leave one ſteeple in its paſſage. The bells of ſome of them, together with the ſpires, were carried to a conſiderable diſtance; the roofs of the churches demoliſhed and beat down, &c. It went off at the north-eaſt point of the city, and demoliſhing the light houſe, is ſaid to have mounted up into the air with a frightful noiſe; and paſſed over the ſea to Sicily, where it tore up ſome trees, and did other damage; but nothing conſiderable, as its fury had been moſtly ſpent at Malta. The number of killed and wounded amounted to near 200; and the loſs of ſhipping, &c. was very conſiderable.

The effects of thunder-ſtorms, and the vaſt quantity of electricity collected in the clouds which produce theſe ſtorms, are ſo well known, that it is ſuperfluous to mention them. It appears, however, that even theſe clouds are not ſo highly electrified as to produce their fatal effects on thoſe who are immerſed in them. It is only the diſcharge of part of their electricity upon ſuch bodies as are either not electrified at all, or not ſo highly electrified as the cloud, that does all the miſchief. We have, however, only the following inſtance on record, of any perſon's being immerſed in the body of a thunder-cloud. Profeſſor Sauſſure, and young Mr Jalabert, when travelling over one of the high Alps, were caught among clouds of this kind; and to their aſtoniſhment found their bodies ſo full of electrical fire, that ſpontaneous flaſhes darted from their fingers with a crackling noiſe, and the ſame kind of ſenſation as when ſtrongly electrified by art.

7
Inſtance of two people involved in a thunder-cloud.

8
Height of the clouds.

The height of clouds in general is not great; the ſummits of very high mountains being commonly quite free from them, as Mr Brydon experienced in his journey up mount Ætna: but thoſe which are moſt highly electrified deſcend loweſt, their height being often not above ſeven or eight hundred yards above the ground; nay, ſometimes thunder-clouds appear actually to touch the ground with one of their edges*: but the generality of clouds are ſuſpended at the height of a mile, or little more, above the earth. Some, however, have imagined them to ariſe to a moſt incredible and extravagant height. Maignan of Thouloufe, in his Treatiſe of Perſpective, p. 93, gives an account of an exceeding bright little cloud that appeared at midnight in the month of Auguſt, which ſpread itſelf almoſt as far as the zenith. He ſays that the ſame thing was alſo obſerved at Rome; and from thence concludes, that the cloud was a collection of vapours raiſed beyond the projection of the earth's ſhadow, and of conſequence illuminated by the beams of the ſun. This, however, can by no means be credited; and it is much more probable that this cloud owed its ſplendor to electricity, than to the reflection of the ſolar beams.

9
Their various colours accounted for.

In the evenings after ſun-ſet, and mornings before ſun-riſe, we often, obſerve the clouds tinged with beautiful colours. They are moſtly red; ſometimes orange, yellow, or purple; more rarely bluiſh; and ſeldom or ever green. The reaſon of this variety of colours, according to Sir Iſaac Newton, is the different ſize of the globules into which the vapours are condenſed. This is controverted by Mr Melville, who thinks that the clouds reflect the ſun's light preciſely as it is tranſmitted to them through the atmoſphere. This reflects the moſt refrangible rays in the greateſt quantity; and therefore ought to tranſmit the leaſt refrangible ones, red, orange, and yellow, to the clouds, which accordingly appear moſt uſually of thoſe colours. In this opinion he was greatly confirmed by obſerving, when he was in Switzerland, that the ſnowy ſummits of the Alps turned more and more reddiſh after ſun-ſet, in the ſame manner as the clouds; and he imagines, that the ſemitranſparency of the clouds, and the obliquity of their ſituation, tend to make the colours in them much more rich and copious than thoſe on the tops of ſnowy mountains.

10
Of the motions of clouds.

The motions of the clouds, though ſometimes directed by the wind, are not always ſo, eſpecially when thunder is about to enſue. In this caſe they ſeem to move very ſlowly, and often to be abſolutely ſtationary for ſome time. The reaſon of this moſt probably is, that they are impelled by two oppoſite ſtreams of air nearly of equal ſtrength; by which means their velocity is greatly retarded. In ſuch caſes both the aerial currents ſeem to aſcend to a very conſiderable height; for Meſſ. Charles and Roberts, when endeavouring to avoid a thunder-cloud in one of their aerial voyages, could find no alteration in the courſe of the current, though they aſcended to the height of 4000 feet from the ſurface of the earth. In ſome caſes the motions of the clouds evidently depend on their electricity, independent of any current of air whatever. Thus, in a calm and warm day, we often ſee ſmall clouds meeting each other in oppoſite directions, and ſetting out from ſuch ſhort diſtances, that we cannot ſuppoſe any oppoſite winds to be the cauſe. Theſe clouds, when they meet, inſtead of forming a larger one, become much leſs, and ſometimes vaniſh altogether; a circumſtance undoubtedly owing to the diſcharge of oppoſite electricities into each other. This ſerves alſo to throw ſome light on the true cauſe of the formation of clouds; for if two clouds electrified, the one poſitively and the other negatively, deſtroy each other on contact; it follows, that any quantity of vapour ſuſpended in the atmoſphere, while it retains its natural quantity of electricity, remains inviſible, but becomes a cloud when electrified either *plus* or *minus*. A difficulty, however, ſtill occurs; *viz.* in what manner a ſmall quantity of vapour ſurrounded by an immenſe ocean of the ſame kind of matter, can acquire either more or leſs electricity than that which ſurrounds it: and this indeed we ſeem not as yet to have any data to ſolve in a ſatisfactory manner.

11
Their ſhapes.

The ſhapes of the clouds are likewiſe undoubtedly owing to their electricity; for in thoſe ſeaſons in which a great commotion has been excited in the atmoſpherical electricity, we ſhall perceive the clouds aſſuming ſtrange and whimſical ſhapes, which vary almoſt every moment. This, as well as the meeting of ſmall clouds in the air, and vaniſhing upon contact, is an almoſt infallible ſign of thunder.

12
Connection of the clouds with wind.

Beſides the phenomena of thunder, rain, &c. the clouds are intimately connected with thoſe of wind, and always aſſume a particular ſhape when a ſtrong continued wind is about to enſue; though it is remarkable, that in the ſtrongeſt winds we ſhall often obſerve them ſtationary. Sometimes alſo, on the approach of a cloud, we ſhall find a ſudden and violent guſt of wind ariſe; and at others, the wind, though violent before, ſhall ceaſe on the approach of a cloud, and recover its ſtrength as ſoon as the cloud is paſt. This connection of the clouds with wind is moſt remarkable in mountainous countries, when the peaks are ſufficiently high to have their tops involved in clouds. A very remarkable mountain of this kind is met with at the Cape of Good Hope, from the clouds on whoſe top, according to the relations of travellers, the winds iſſue forth as if they had been confined in a bag; and ſomething ſimilar has been obſerved of mountains in other parts of the world.

13
Their uſes.

The uſes of the clouds are evident; as from them proceeds the rain which refreſhes the earth; and without which, according to the preſent ſyſtem of nature, the whole ſurface of the earth muſt be a mere deſart.

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* See *Thunder*.

They are likewiſe of great uſe as a ſcreen interpoſed between the earth and the ſcorching rays of the ſun, which are often ſo powerful as to deſtroy the graſs and other tender vegetables. In the more ſecret operations of nature alſo, where the electrical fluid is concerned, the clouds bear a principal ſhare; and ſerve eſpecially as a medium for conveying that fluid from the atmoſphere into the earth, and from the earth into the atmoſphere; in doing which, when electrified to a great degree, they ſometimes produce very terrible effects; of which inſtances have been already given.

CLOVE-TREE, in botany. See CARYOPHYLLUS.

CLOVE, a term uſed in weights of wool. Seven pounds make a clove. In Eſſex in England, eight pounds of cheeſe and butter go to the clove.

CLOVE July-flower. See DIANTHUS.

CLOVER-GRASS, in botany. See TRIFOLIUM; and AGRICULTURE, nº 177, 179.

CLOUGH, or DRAUGHT, in commerce, an allowance of two pounds in every hundred weight for the turn of the ſcale, that the commodity may hold out weight when ſold out by retail.

CLOVIO, (Giorgio Giulio) hiſtory and portrait painter, was born in Sclavonia in 1498. Having in the early part of his youth applied himſelf to literature, his genius prompted him to purſue the art of painting for a profeſſion; and at 18 years of age he went to Rome, where he ſpent three years to perfect his hand in drawing, and devoted himſelf entirely to painting in miniature. His knowledge of colouring was eſtabliſhed by the inſtructions of Julio Romano, and his taſte of compoſition and deſign was founded on the obſervations he made on the works of Michael Angelo Buonaroti. By thoſe aſſiſtances he proceeded to ſuch a degree of excellence in portrait as well as in hiſtory, that in the former he was accounted equal to Titian, and in the latter not inferior to Buonaroti. He died in 1578. His works are exceedingly valuable, and are at this day numbered among the curioſities of Rome. Vaſari, who had ſeen the wonderful performances of Clovio with inexpreſſible aſtoniſhment, enumerates many of his portraits and hiſtorical compoſitions, and ſeems to be almoſt at a loſs for language ſufficiently expreſſive of their merit. He mentions two or three pictures on which the artiſt had beſtowed the labour of nine years: but the principal picture repreſented Nimrod building the Tower of Babel; which was ſo exquiſitely finiſhed, and ſo perfect in all its parts, that it ſeemed quite inconceivable how the eye or the pencil could execute it. He ſays it is impoſſible to imagine any thing ſo admirably curious; whether one conſiders the elegance of the attitudes, the richneſs of the compoſition, the delicacy of the naked figures, the perſpective proportion of the objects, the tender diſtances, the ſcenery, the buildings, or other ornaments; for every part is beautiful and inimitable. He alſo takes notice of a ſingle ant introduced in one of the pictures of this maſter; which, though exceedingly and incredibly ſmall, is yet ſo perfect, that even the moſt minute member was as diſtinct as if it had been painted of the natural ſize.

CLOVIS I. was the real founder of the French monarchy; for he was the firſt conqueror of the ſeveral provinces of Gaul, poſſeſſed before his time by the Romans, Germans, and Goths. Theſe he united to the then ſcanty dominions of France, removed the ſeat of government from Sciſſons to Paris, and made this the capital of his new kingdom. He died in 511, in the 46th year of his age and 31ſt of his reign. See (*Hiſt. of*) FRANCE.

CLOUTS, in gunnery, are thin plates of iron nailed on that part of the axle-tree of a gun-carriage which comes through the nave, and through which the linſpin goes.

CLOYNE, a town of Ireland, in the county of Cork, and province of Munſter. W. Long. 8. 0. N. Lat. 51. 40. It is but a ſmall place, though an epiſcopal reſidence. A church was built, and a biſhopric erected here, by St Colman, who died on the 4th of November 604; and in 707 an abbey was alſo founded here. In 1430, the biſhopric was united to that of Cork; and the union continued till the 11th of November 1638, when Dr George Synge was conſecrated biſhop of Cloyne; ſince which time this ſee has been governed by its own prelates, one of whom was the celebrated BERKELEY.—This ſee is not taxed in the king's books; but is now reputed to be worth L.2500 a-year.—The chapter of Cloyne is compoſed of a dean, chanter, chancellor, treaſurer, an archdeacon, and fourteen prebendaries. The dioceſe is divided into four rural deaneries, and the collegiate church of St Mary of Youghal is united to the biſhopric. The cathedral is a decent Gothic building. The nave is about 120 feet long; having lateral aiſles, beſides the croſs aiſles, divided by Gothic arches, five on each ſide. In the choir there is an excellent organ. The biſhop's palace, which was rebuilt at the beginning of the preſent century, is large and convenient. To the north-weſt of Cloyne is a reputed holy well, dedicated to St Colman, which is much frequented on the 24th of November, being the patron-day.

CLUE OF A SAIL, the lower corner; and hence

CLUE-Garnets, are a ſort of tackles faſtened to the clues, or lower corners of the main-ſail or fore-ſail, to truſs them up to the yard as occaſion requires, which is uſually termed *clueing up the ſails.*

CLUE-Lines are for the ſame purpoſe as clue-garnets; only that the latter are confined to the courſes, whereas the former are common to all the ſquare ſails. See theſe ropes as repreſented in the article SHIP.

CLUNIA, (anc. geog.) a principal town of the Hither Spain, a Roman colony, with a conventus juridicus, on the Durius, to the weſt of Numantia. Now *Corunna del Conde.*

CLUNIUM, (anc. geog.) a town of Corſica, near Baſtia. Now *St Catharine.*

CLUNY, or CLUGNY, a celebrated abbey of Benedictine monks, in a city of that name; being the head or chief of a congregration denominated from them.

It is ſituated in the Maſonnois, a little province of France, on the river Grône; and was founded by William Duke of Berry and Aquitain; or, as others ſay, by the Abbot Bernon, ſupported by that Duke, in the year 910.

This abbey was anciently ſo very ſpacious and magnificent, that in 1245, after the holding of the firſt council of Lyons, Pope Innocent IV. went to Cluny, accompanied with the 2 patriarchs of Antioch and Conſtantinople, 12 Cardinals, 3 archbiſhops, 15 biſhops, and a great number of abbots; who were all entertained,

tained, without one of the monks being put out of their place: tho' S. Louis, Q. Blanche his mother, the Duke of Artois his brother, and his ſiſter, the Emperor of Conſtantinople, the ſons of the kings of Arragon and Caſtile, the Duke of Burgundy, 6 counts, and a great number of lords, with all their retinues, were there at the ſame time.

Cluny, at its firſt erection, was put under the immediate protection of the apoſtolic ſee; with expreſs prohibition to all ſecular and eccleſiaſtic powers, to diſturb the monks in the poſſeſſion of their effects, or the election of their abbot. By this they pretended to be exempted from the juriſdiction of biſhops; which at length gave the hint to other abbeys to inſiſt on the ſame.

Cluny is the head of a very numerous and extenſive congregation: in effect, it was the firſt congregation of divers monaſteries united under one chief, ſo as only to conſtitute one body, or, as they call it, one order, that ever aroſe.

This order of monks was brought into England by William Earl of Warren, ſon-in-law to William the Conqueror, who built a houſe for them at Lewes in Suſſex about the year 1077. There were 27 priories and cells of this order in England, which were governed by foreigners, afterwards made denizens.

CLUPEA, or **Herring**, in ichthyology, a genus belonging to the order of abdominales. The upper jaw is furniſhed with a ſerrated myſtache; the branchioſtege membrane has eight rays; a ſcaly ſerrated line runs along the belly from the head to the tail; and the belly-fins have frequently nine rays. There are 11 ſpecies, *viz.*

1. The harengus, or common herring, has no ſpots, and the under jaw is longer than the upper one. A herring dies immediately after it is taken out of the water: whence the proverb ariſes, *As dead as a herring.* The meat is every where in great eſteem, being fat, ſoft, and delicate; eſpecially if it is dreſſed as ſoon as caught, for then it is incomparably better than on the next day.

The herring was unknown to the ancients. Notwithſtanding the words χαλκις and μαινις are by tranſlators rendered *halec*, the charactersgiven to thoſe fiſh are common to ſuch numbers of different ſpecies as render it impoſſible to ſay which they intended.

1 Herrings, where found.

Herrings are found from the higheſt northern latitudes, yet known as low as the northern coaſts of France; and except one inſtance, brought by Dod, of a few being once taken in the bay of Tangier, none are ever found more ſoutherly. They are met with in vaſt ſhoals on the coaſt of America, as low as Carolina. In Cheſapeak-bay is an annual inundation of thoſe fiſh, which cover the ſhore in ſuch quantities as to become a nuiſance. We find them again in the ſeas of Kamtſchatka, and probably they reach Japan; for Kempfer mentions, in his account of the fiſh of that country, ſome that are congenerous. The great winter rendezvous of the herring is within the arctic circle: there they continue for many months in order to recruit themſelves after the fatigue of ſpawning; the ſeas within that ſpace ſwarming with inſect food in a far greater degree than thoſe of our warmer latitudes.

2 Immenſe ſhoal of them.

This mighty army begins to put itſelf in motion in the ſpring: we diſtinguiſh this vaſt body by that name; for the word *herring* comes from the German *heer*, "an army," to expreſs their numbers. They begin to appear off the Shetland iſles in April and May; theſe are only the forerunners of the grand ſhoal which comes in June: and their appearance is marked by certain ſigns, by the numbers of birds, ſuch as gannets and others, which follow to prey on them; but when the main body approaches, its breadth and depth is ſuch as to alter the appearance of the very ocean. It is divided into diſtinct columns of five or ſix miles in length, and three or four in breadth, and they drive the water before them with a kind of rippling: ſometimes they ſink for the ſpace of ten or fifteen minutes, and then riſe again to the ſurface; and in fine weather reflect a variety of ſplendid colours like a field of the moſt precious gems; in which, or rather in a much more valuable light, ſhould this ſtupendous gift of Providence be conſidered by the inhabitants of the Britiſh iſles.

The firſt check this army meets in its march ſouthward is from the Shetland iſles, which divide it into two parts; one wing takes to the eaſt, the other to the weſtern ſhores of Great Britain, and fill every bay and creek with their numbers; others paſs on towards Yarmouth, the great and ancient mart of herrings: they then paſs through the Britiſh Channel, and after that, in a manner diſappear. Thoſe which take towards the weſt, after offering themſelves to the Hebrides, where the great ſtationary fiſhery is, proceed to the north of Ireland, where they meet with a ſecond interruption, and are obliged to make a ſecond diviſion: the one takes to the weſtern ſide, and is ſcarce preceived, being ſoon loſt in the immenſity of the Atlantic; but the other, that paſſes into the Iriſh ſea, rejoices and feeds the inhabitants of moſt of the coaſts that border on it. Theſe brigades, as we may call them, which are thus ſeparated from the greater columns, are often capricious in their motions, and do not ſhow an invariable attachment to their haunts.

3 Wonderful inſtinct of theſe creatures.

Were we inclined to conſider this partial migration in a moral light, we might reflect with veneration and awe on the mighty power which originally impreſſed on this moſt uſeful body of his creatures the inſtinct that directs and points out the courſe, that bleſſes and enriches the Britiſh iſlands, which cauſes them, at certain and invariable times, to quit the vaſt polar deeps, and offer themſelves to the expecting fleets. That benevolent Being has never been known, from the earlieſt account of time, once to withdraw this bleſſing from the whole; though he often thinks proper to deny it to particulars, yet this partial failure (for which we ſee no natural reaſon) ſhould fill us with the moſt exalted and grateful ſenſe of his Providence for impreſſing ſuch an invariable and general inſtinct on theſe fiſh towards a ſouthward migration when the whole is to be benefited, and to withdraw it when only a minute part is to ſuffer.

This inſtinct was given them, that they might remove for the ſake of depoſiting their ſpawn in warmer ſeas, that would mature and vivify it more aſſuredly than thoſe of the frozen zone. It is not from defect of food that they ſet themſelves in motion; for they come full of fat, and on their return are almoſt univerſally obſerved to be lean and miſerable. What their food is near the Pole we are not yet informed;

but in the Britiſh ſeas they feed much on the *oniſcus marinus*, a cruſtaceous inſect, and ſometimes on their own fry.

4 Young ones probably retire with their parents.

They are full of roe in the end of June, and continue in perfection till the beginning of winter, when they depoſit their ſpawn. The young herrings begin to approach the ſhores in July and Auguſt, and are then from half an inch to two inches long: thoſe in Yorkſhire are called *herring ſile*. Though we have no particular authority for it, yet as very few young herrings are found in the Britiſh ſeas during winter, it ſeems moſt certain that they muſt return to their parental haunts beneath the ice, to repair the vaſt deſtruction of their race during ſummer by men, fowl, and fiſh. Some of the old herrings continue on the Britiſh coaſt the whole year: the Scarborough fiſhermen never put down their nets but they catch a few: but the numbers that remain are not worth compariſon with thoſe that return. See *Herring*-FISHERY.

5 Pickling of herrings, when invented.

The Dutch are moſt extravagantly fond of this fiſh when it is pickled. A premium is given to the firſt buſs that arrives in Holland with a lading of this their ambroſia, and a vaſt price given for each keg. There is as much joy among the inhabitants on its arrival, as the Egyptians ſhow on the firſt overflowing of the Nile. Flanders had the honour of inventing the art of pickling herrings. One William Bauklen of Biverlet, near Sluys, hit on this uſeful expedient: from him was derived the name *pickle*, which we borrow from the Dutch and German. Bauklen died in 1397. The emperor Charles V. held his memory in ſuch veneration for the ſervice he did to mankind, as to do his tomb the honour of a viſit. It is very ſingular that moſt nations give the name of their favourite diſh to the facetious attendant on every mountebank. Thus the Dutch call him *pickle herring*; the Italians, *macaroni*; the French, *jean pottage*; the Germans, *hans wurſt*, that is, *jack ſauſage*; and the Engliſh dignify him with the name of *jack pudding*.

6 Sprattus, where found.

2. The *ſprattus* has 13 rays in the back fin. It is a native of the European ſeas, and has a great reſemblance to the herring, only it is of a leſs ſize. They come into the river Thames below bridge in the beginning of November, and leave it in March; and are, during that ſeaſon, a great relief to the poor of the capital. At Graveſend and at Yarmouth, they are cured like red-herrings: they are ſometimes pickled, and are little inferior in flavour to the anchovy, but the bones will not diſſolve like thoſe of the latter.

7 Aloſa, or ſhad, where found.

8 The fineſt inhabit the Severn.

3. The *aloſa*, or *ſhad*, has a forked ſnout, and black ſpots on the ſides. According to Belonius and Haſſelquiſt, this is a fiſh of paſſage in the Nile. The laſt ſays, it is found in the Mediterranean near Smyrna, and on the coaſt of Egypt near Roſetto; and that in the months of December and January it aſcends the Nile as high as Cairo, where the people ſtuff it with pot marjoram; and when dreſſed in that manner, it will very nearly intoxicate the eater. In Great Britain the Severn affords this fiſh in higher perfection than any other river. It makes its firſt appearance there in May, but in very warm ſeaſons in April; for its arrival ſooner or later depends much on the temper of the air. It continues in the river about two months, and then is ſucceeded by a variety which we ſhall have occaſion to mention hereafter.

The Severn ſhad is eſteemed a very delicate fiſh about the time of its firſt appearance, eſpecially in that part of the river that flows by Glouceſter, where they are taken in nets, and uſually ſell dearer than ſalmon: ſome are ſent to London, where the fiſh-mongers diſtinguiſh them from thoſe of the Thames by the French name *aloſe*. In the months of July and Auguſt, multitudes of bleak frequent the river near Glouceſter; ſome of them are as big as a ſmall herring, and theſe the fiſhermen erroneouſly ſuppoſe to be the fry of the ſhad. In many of the American rivers the ſhad is a very plentiful and excellent fiſh; vaſt quantities are annually taken in the various rivers along the coaſt, and in theſe which fall into the Bay of Cheſapeake, which are either uſed freſh or cured, and are much eſteemed.

9 Twaite deſcribed.

The Thames ſhad does not frequent that river till the latter end of May or beginning of June and is eſteemed a very courſe and inſipid ſort of fiſh. The Severn ſhad is ſometimes caught in the Thames, though rarely, and called *allis* (no doubt *aloſe*, the French name) by the fiſhermen in that river. About the ſame time, and rather earlier, the variety called, near Glouceſter, the *twaite*, makes its appearance; and is taken in great numbers in the Severn, and is held in as great diſrepute as the ſhad of the Thames. The differences between each variety are as follows: the true ſhad weighs ſometimes eight pounds; but their general ſize is from four to five. The *twaite*, on the contrary, weighs from half a pound to two pounds, which it never exceeds. The *twaite* differs from a ſhad only in having one or more round black ſpots on the ſides: if only one, it is always near the gill; but commonly there are three or four, placed one under the other.

10 Anchovy deſcribed.

4. The *encraſicolus*, or *anchovy*, has its upper jaw longer than the under one, and is about three inches long. They are taken in vaſt quantities in the Mediterranean, and are exported pickled. The great fiſhery is at Georgia a ſmall iſle weſt of Leghorn. See *Anchovy*-FISHERY.

The other ſpecies are, 5. The atherinoides has a ſhining line on each ſide, and ſmall belly-fins. It is a native of Surinam. 6. The thriſſa has 28 rays in the fin at the anus. It is found in the Indian ocean. 7. The ſima has yellow fins, thoſe of the belly being very ſmall. The mouth is flat; the upper jaw is very ſhort; the body is of a ſhining ſilver colour; and the fins are yellow. It is a native of Aſia. 8. The ſternicla has no belly-fins, and the body is broad. It is a native of Surinam. 9. The myſtus is ſhaped like a ſword, and the fins at the anus are united. It is found in the Indian ocean. 10. The tropica has a wedge-like tail, and a white, broad, compreſſed body. It is found at Aſcenſion iſland. 11. The ſinenſis is very like the common herring, but broader. It has no teeth, and is a native of China.

CLUSIA, the BALSAM-TREE: A genus of the monogynia order, belonging to the polygamia claſs of plants; and in the natural method ranking under thoſe plants the order of which is doubtful. The calyx is tetraphyllous or hexaphyllous, with its leaflets oppoſite and imbricated; the corolla tetrapetalous, or hexapetalous; the ſtamina numerous. The calyx and corolla of the female as in the male; the nectarium of antheræ or glandules coalited, including the germen. The capſule is quinquelocular, quinquevalved, and full of pulp. There are four ſpecies, all natives of America. The moſt remarkable is the flava. This is pretty common in the Britiſh American iſlands, where the trees grow to the height of 20 feet, and ſhoot out many branches on every ſide, furniſhed with thick, round, ſucculent leaves placed oppoſite. The flowers are produced at the ends of the branches, each having a thick ſucculent cover. After the flowers are paſt, they are ſucceeded by oval fruit. From every part of theſe trees there exudes a kind of turpentine, which is called in the Weſt Indies *hog-gum*; becauſe they ſay, that when any of the wild hogs are wounded, they repair to theſe trees, and rub their wounded parts againſt the ſtem till they have anointed themſelves with this turpentine, which heals their wounds. Theſe plants are very tender, and in England muſt be kept conſtantly in a ſtove; and ſparingly watered, eſpecially in winter; for they naturally grow in thoſe parts of the iſlands where it ſeldom rains, and conſequently cannot bear much moiſture. They may be propagated from cuttings, which muſt be laid to dry for a fortnight or three weeks, that the wounded parts may be healed over, otherwiſe they will rot. The beſt time for planting theſe cuttings is in July, that they may be well rooted before the cold weather comes on in autumn.

CLUSINA PALUS, (anc. geog.) a lake of Tuſcany, extending north-weſt between Cluſium and Arretium, and communicating with the Arnus and Clanis. Now *Chiana Palude*.

CLUSINI, FONTES, (Horace) baths in Tuſcany, in the territory of Cluſium, between this laſt to the north, and Acula to the ſouth, at the diſtance of eight miles from each. Now *Bagni di S. Caſciana*.

CLUSIUM, anciently called *Camars*, (Virgil, Livy); a town of Tuſcany, at the ſouth end of the Palus Cluſini, where it forms the Clanis; the royal reſidence of Porſena, three days journey from Rome to the north, (Polybius). *Cluſinus* the epithet. *Cluſini Veteres* the people. Now *Chinſi*. E. Long. 13. Lat. 43.—*Cluſium Novum*, was a town of Tuſcany, near the ſprings of the Tiber, in the territory of Arretium; where lies the Ager Cluſinus; now called *Caſentino Cluſini Novi*, the people, (Pliny).

CLUTIA, in botany: A genus of the gynandria order, belonging to the diœcia claſs of plants; and in the natural method ranking under the 38th order, *Tricoccæ*. The male calyx is pentaphyllous, the corolla pentapetalous: the calyx and corolla of the female as in the male; the ſtyles are three, and the capſule is trilocular with a ſingle ſeed. There are three ſpecies, all of them natives of warm climates. They are evergreen ſhrubby plants, riſing ſix or eight feet high, garniſhed with ſimple leaves, and greeniſh-white quinquepetalous flowers. They are propagated by cuttings in ſpring or ſummer, planting them in pots of light earth, plunged in a hot-bed. In Britain the plants muſt always be kept in a ſtove.

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Dr Wright, in his account of the medicinal plants of Jamaica, ſays that the *cluſia elutheria* is the ſame as the caſcarilla and eleatheria of the ſhops. Other medical writers have ſuppoſed them to be diſtinct barks, and they are ſold in the ſhops as different productions. Linnæus's croton caſcarilla, Dr Wright obſerves, is the wild roſemary ſhrub of Jamaica, the bark of which has none of the ſenſible qualities of the caſcarilla.

CLUVIER, (Philip) in Latin *Cluverius*, a celebrated geographer, born at Dantzic in 1580. He travelled into Poland, Germany, and the Netherlands, in order to ſtudy law; but, being at Leyden, Joſeph Scaliger perſuaded him to give way to his genius for geography. Cluvier followed his advice, and for this purpoſe viſited the greateſt part of the European ſtates. He was well verſed in many languages; and wherever he went, obtained illuſtrious friends and protectors. At his return to Leyden, he taught there with great applauſe; and died in 1623, aged 43. He wrote, 1. *De tribus Rheni alveis*. 2. *Germania antiqua*. 3. *Sicilia antiqua*. 4. *Italia antiqua*. 5. *Introductio in univerſam Geographiam*. All juſtly eſteemed.

CLYDE, a river in Scotland, which, ariſing in Annandale, falls into the ſea over againſt the iſle of Bute. Next to the Tay, it is the largeſt river in Scotland; and is navigable for ſmall craft up to Glaſgow. The canal, which joins the Forth, falls into it a little below that city. The cataract called the *Frith of the Clyde*, oppoſite to Lanark, is a great natural curioſity, and the firſt ſcene of the kind in Great Britain. This tremendous ſheet of water for about a mile falls from rock to rock. At Stone-byres, the firſt fall is about 60 feet; the laſt, at Cory-Lynn, is over ſolid rock, not leſs than 100 feet high. At both theſe places this great body of water exhibits a grander and more intereſting ſpectacle than imagination can poſſibly conceive.

At Cory-Lynn, the falls are ſeen to moſt advantage from a ruinous pavilion in a garden, placed in a lofty ſituation. The cataract is full in view, ſeen over the tops of trees and buſhes, precipitating itſelf, for an amazing way, from rock to rock, with ſhort interruptions, forming a rude ſlope of furious foam. The ſides are bounded by vaſt rocks, clothed on their tops with trees: on the ſummit and very verge of one is a ruined tower, and in front a wood over-topt by a verdant hill. A path conducts the traveller down to the beginning of the fall, into which projects a high rock, in floods inſulated by the water; and from the top is a tremendous view of the furious ſtream. In the cliffs of this ſavage retreat the brave Wallace is ſaid to have concealed himſelf, meditating revenge for his injured country.

On regaining the top, the walk is formed near the verge of the rocks; which on both ſides are perfectly mural and equidiſtant, except where they overhang: the river is pent up between them at a diſtance far beneath; not running, but rather ſliding along a ſtoney bottom ſloping the whole way. The ſummits of the rock are wooded; the ſides ſmooth and naked; the ſtrata narrow and regular, forming a ſtupendous natural maſonry. After a walk of above half a mile on the edge of this great chaſm, on a ſudden appears the great and bold fall of Boniton, in a foaming ſheet, far projecting into a hollow, in which the water ſhows a violent agitation, and a wide extending miſt ariſes from the ſurface. Above that is a ſecond great fall; two leſſer ſucceed: beyond them the river winds, grows more tranquil, and is ſeen for a conſiderable way, bounded on one ſide by wooded banks, on the other by rich and ſwelling fields.

The great fall of Stone-byers, firſt mentioned, has more of the horrible in it than any of the others, and is ſeen with more difficulty: it conſiſts of two precipitous cataracts falling one above the other into a vaſt chaſm, bounded by lofty rocks, forming an amazing theatre to the view of thoſe who take the pains to deſcend to the bottom. Between this and Cory-Lynn there is another fall called *Dundofflin*.

CLYMENE, in fabulous hiſtory, the daughter of Oceanus: who, being beloved by Apollo, he had by her Phæton, Lampatia, Egle, and Phebe. See PHAETON.

CLYPEOLA, TREACLE-MUSTARD: A genus of the ſiliculoſa order, belonging to the tetradynamia claſs of plants; and in the natural method ranking under the 39th order, *Siliquoſæ*. The ſilicula is emarginated, orbiculated, compreſſed plane, and deciduous. There are two ſpecies, both natives of France, Italy, and the warm parts of Europe, but hardy enough to bear the winters in Britain. One of them is an annual, the the other a perennial plant; both are low and herbaceous, bearing ſpikes of white flowers. They are propagated by ſeeds, which ſhould be ſown in autumn where they are to remain.

CLYSSUS, an extract prepared, not from one, but ſeveral bodies mixed together: and, among the moderns, the term is applied to ſeveral extracts prepared from the ſame body, and then mixed together.

CLYSTER, is a liquid remedy, to be injected chiefly at the anus into the larger inteſtines. It is uſually adminiſtered by the bladder of a hog, ſheep, or ox, perforated at each end, and having at one of the apertures an ivory pipe faſtened with pack-thread. But the French, and ſometimes the Dutch, uſe a pewter ſyringe, by which the liquor may be drawn in with more eaſe and expedition than in the bladder, and likewiſe more forcibly expelled into the large inteſtines. This remedy ſhould never be adminiſtered either too hot or to cold, but tepid; for either of the former will be injurious to the bowels.

Clyſters are ſometimes uſed to nouriſh and ſupport a patient who can ſwallow little or no aliment, by reaſon of ſome impediment in the organs of deglutition; in which caſe they may be made of broth, milk, ale, and decoctions of barely and oats with wine. The Engliſh introduced a new kind of clyſter, made of the ſmoke of tobacco, which has been uſed by ſeveral other nations, and appears to be of conſiderable efficacy when other clyſters prove ineffectual, and particularly in the iliac paſſion, in the *hernia incarcerata*, and for the recovery of drowned perſons.

CLYTEMNESTRA, in fabulous hiſtory, the daughter of Jupiter and Leda. She married Agamemnon; but while that prince was at the ſiege of Troy, ſhe had an amorous intrigue with Ægiſthus, whom ſhe engaged to murder Agamemnon at his return to his dominions. Her ſon Oreſtes, however, revenged the death of his father by killing Ægiſthus, with his mother Clytemneſtra; but was afterwards haunted by the Furies as long as he lived.

CLYTIA, or CLYTIE, daughter of Oceanus and Tethys, beloved by Apollo. She was deſerted by her lover, who paid his addreſſes to Leucothoe; and this ſo irritated her, that ſhe diſcovered the whole intrigue to her rival's father. Apollo deſpiſed her the more for this; and ſhe pined away, and was changed into a flower, commonly called a *ſun-flower*, which ſtill turns its head towards the ſun in his courſe in token of her love.

CNEORUM, WIDOW-WAIL: A genus of the monogynia order, belonging to the triandria claſs of plants; and in the natural method ranking under the 38th order, *Tricoccæ*. The clayx is tridentated: there are three equal petals, and a tricoccous berry. There is but one ſpecies, a little evergreen and very ornamental ſhrub, adorned with ſimple leaves, and tripetalous flowers of a pale yellow colour. It is propagated from ſeeds, and requires no other care than to be kept free from weeds.

CNICUS, BLESSED-THISTLE: A genus of the polygamia æqualis order, belonging to the ſyngeneſia claſs of plants; and in the natural method ranking under the 49th order, *Compoſitæ*. The clayx is ovate, imbricated with ſpinous-branched ſcales, and incircled with bracteæ. The florets are equal. There are ſeven ſpecies, of which the only remarkable one is that uſed in medicine under the name ot *carduus benedictus*. This is an annual plant cultivated in gardens: it flowers in June and July, and perfects it ſeeds in autumn. For medical purpoſes the plants ſhould be gathered when in flower, dried in the ſhade, and kept in a very dry airy place, to prevent its rotting or growing mouldy, which it is very apt to do. The leaves have a penetrating bitter taſte, not very ſtrong or durable, accompanied with an ungrateful flavour, which they are in a great meaſure freed from by keeping. Water extracts in a little time, even without heat, the lighter and more grateful parts of this plant; if the digeſtion is continued for ſome hours, the diſagreeable parts are taken up; a ſtrong decoction is very nauſeous and offenſive to the ſtomach. Rectified ſpirit gains a very pleaſant bitter taſte, which remains uninjured in the extract. The virtues of this plant are little known in the preſent practice. The nauſeous decoction is ſometimes uſed to provoke vomiting; and a ſtrong infuſion to promote the operation of other emetics. But this elegant bitter, when freed from the offenſive parts of the herb, may be advantageouſly applied to other purpoſes. Dr Lewis informs us, that he has experienced excellent effects from a light infuſion of carduus in loſs of appetite, where the ſtomach was injured by irregularities. A ſtronger infuſion made in cold or warm water, if drunk freely, and the patient kept warm, occaſions a plentiful ſweat, and promotes all the ſecretions in general. The ſeeds of the plant are alſo conſideraby bitter, and have ſometimes been uſed with the ſame intention as the leaves.

CNIDUS, (anc. geog.) a Greek town of Caria; ſituated on a horn or promontory of a peninſula. It had in front a double port, and an iſland lying before it in form of a threatre, which being joined to the continent by moles or cauſeways, made *Cnidus* a Dipolis or double town, (Strabo), becauſe a great number of Cnidians inhabited the iſland. Pauſanias mentions a bridge which joined the iſland to the continent.—*Cnidii*, the people;—*Cnidius*, the epithet.—*Cnidia Venus*, a principal divinity of the Cnidians, (Horace).

Her ſtatue was executed by Praxiteles ; and ſo exquiſitely done, and ſo much admired, that people came from all parts to view it. (Pliny). Of this place was Eudoxus, the famous aſtronomer and geometrician who had here an obſervatory, (Srabo).

CNOSSUS, or Cnosus, anciently called *Cæratos*, from a cognominal river running by it ; a city of Crete, 23 miles to the eaſt of Gortinia, (Peutinger). Here ſtood the ſepulchre of Jupiter, the famous labyrinth, and the palace of Minos a very ancient king ; here happened the adventure of Ariadne his daughter with Theſeus, called *Gnoſis*, (Ovid). Its port-town was Heracleum, on the eaſt ſide of the iſland.

COACH, a vehicle for commodious travelling, ſuſpended on leathers, and moved on wheels. In Britain, and throughout Europe, the coaches are drawn by horſes, except in Spain, where they uſe mules. In a part of the eaſt, eſpecially the dominions of the great Mogul, their coaches are drawn by oxen. In Denmark they ſometimes yoak rein-dear in their coaches : though rather for curioſity than uſe. The coachman is ordinarily placed on a ſeat raiſed before the body of the coach. But the Spaniſh policy has diſplaced him in that country by a royal ordonnance; on occaſion of the duke d'Olivares, who found that a very important ſecret, whereon he had conferred in his coach, had been overheard and revealed by his coachman ; ſince that time the place of the Spaniſh coachman is the ſame with that of the French ſtage-coachman and Engliſh poſtilion, viz. on the firſt horſe on the left.

The invention of coaches is owing to the French : yet coaches are not of any great antiquity, even in France, ſcarce reaching beyond the reign of their Francis I. Their uſe, at their firſt riſe, was only for the country : and authors obſerve, as a thing very ſingular, that there were at firſt no more than two coaches in Paris ; the one that of the queen, and the other that of Diana natural daughter of Henry II. The firſt courtier who had one was Jean de Laval de Bois Dauphin ; whoſe enormous bulk diſabled him from travelling on horſeback. One may hence judge how much variety, luxury, and idleneſs, have grown upon our hands in later days ; there being now computed in that ſame city no leſs than 15,000 coaches.

Coaches have had the fate of all other inventions, to be brought by degrees to their perfection ; at preſent they ſeem to want nothing, either with regard to eaſe or magnificence. Louis XIV. of France made ſeveral ſumptuary laws for reſtraining the exceſſive richneſs of coaches, prohibiting the ue of gold, ſilver, &c. therein ; but they have had the fate to be neglected.

By the act 25 Geo. III. c. 47. former duties on coaches, &c. are repealed, and the following charged in lieu thereof, namely : For every coach, berlin, landau, chariot, calaſh, with four wheels, chaiſe marine, chaiſe with four wheels, and caravan, or by whatever name ſuch carriages may be called, kept by any perſon for his own uſe, or to be let out to hire (except hackney coaches), ſhall be paid the yearly ſum of L. 7. And for every calaſh, chaiſe, chair, gig, or whiſkey, or by whatever name they are known or called, having two or three wheels, to be drawn by one or more horſes, that ſhall be kept by any perſon for his own uſe, or to be let out to hire, the yearly ſum of L. 3, 10s.

Every maker of coaches, chaiſe, chariots, &c muſt, from and after the fifth day of July 1785, taken out at the exciſe-office in London, or of their agents in the country, a licence to be renewed annually at leaſt ten days before the expiration of the former, for which they muſt pay 20s. They muſt alſo pay 20s. duty for every four-wheeled carriage newly built for ſale, and 10s. for every two-wheel carriage. Theſe duties are alſo payable to the commiſſioners of the exciſe in town, or their agents in the country.

Coach-makers in Scotland are to take out their licences and pay the duties to the commiſſioners of exciſe in Edinburgh, or their agents in the country of that part of Great Britan.

Every coach-maker neglecting to take out a licence, and renewing the ſame annually, forfeits L. 10 ; and neglecting or refuſing to ſettle every ſix weeks, in the manner particularly directed by the act, is a forfeiture of L. 20.

Hackney-Coaches, thoſe expoſed to hire, in the ſtreets of London, and ſome other great cities, at rates fixed by authority.

One thouſand hackney-coaches are allowed in London and Weſtminſter ; which are to be licenſed by commiſſioners, and to pay a duty to the crown. They are all numbered, having their numbers engraved on tin plates fixed on the coach-doors. Their fares or rates are fixed by act of parliment ; and by a late act have been increaſed in conſequence of a new weekly tax.

Stage-Coaches, are thoſe appointed for the conveyance of travellers from one city or town to another. The maſters of ſtage-coaches are not liable to an action for things loſt by their coachman, who have money given them to carry the goods, unleſs where ſuch maſter takes a price for the ſame.

Perſons keeping any coach, berlin, landau, or other carriage with four wheels, or any calaſh, chaiſe, chair, or other carriage with two wheels, to be employed as public ſtage coaches or carriages, for the purpoſe of conveying paſſengers for hire to and from different places in Britain, ſhall pay annually 5s. for a licence : and no perſon ſo licenſed ſhall by virtue of one licence keep more than one carriage, under the penalty L. 10.

Mail-Coaches in Britain, are ſtage-coaches of a particular conſtruction to prevent overturns : and for a certain conſideration carry his Majeſty's mails, which are protected by a guard, and ſubject to the regulations of the poſt-office. They are pointed as to their time of arrival and departure, are reſtricted to four inſide paſſengers, and from experience have proved very beneficial to the commerce and correſpondence of Britain. John Palmer, Eſq; who has the merit of the invention, and been indefatigable in bringing the eſtabliſhment to a permanent footing, has been greatly patroniſed by government ; and got, as the reward of his ſervice, a handſome appointment in the general poſt-office London.

Coach, or *Couch*, is alſo a ſort of chamber or apartment in a large ſhip of war near the ſtern. The floor of it is formed by the aftmoſt part of the quarter-deck, and the roof of it by the poop : it is generally the habitation of the captain.

COADUNATE, in botany, an order of plants in the *fragmenta methodi naturalis* of Linnæus, in which he has theſe genera, viz. annona, liriodendrum, magnotia, uvaria, michelia, thea.

COAGULATION, in chemiſtry, is performed by ſix different agents; and by each of theſe in ſeveral different manners. 1. It is performed with water, by congealing, cryſtallizing, and precipitating, as in the mercurius vitæ and ſome other preparations. 2. With oil, which, by the force of fire, unites with ſulphur, ſalts, and metals. 3. With alcohol, upon the ſpirit of ſal ammoniac, the white of eggs, the ſerum of the blood, &c. 4. With acid and alkali growing ſolid together, as in the tartarum vitriolatum. 5. With fixed alkali, as in milk. And, 6. With acid ſalts; as in milk, ſerum, and the whites of eggs.

COAGULUM, is the ſame with what in Engliſh we call *runnet*, or rather the curd formed thereby.

COAKS. For the exciting of intenſe heats, as for the ſmelting of iron ore, and for operations where the acid and oily particles would be detrimental, as the drying of malt, foſſil-coals are previouſly charred, or reduced to *coaks*: that is, they are made to undergo an operation ſimilar to that by which charcoal is made. By this operation coals are deprived of their phlegm, their acid liquor, and part of their fluid oil. Coaks therefore, conſiſt of the two moſt fixed conſtituent parts, the heavy oil and the earth, together with the acid concrete ſalt, which, though volatile, is diſſolved by the oil and the earth.

COAL, among chemiſts, ſignifies any ſubſtance containing oil, which has been expoſed to the fire in cloſe veſſels, ſo that all its volatile principles are expelled, and that it can ſuſtain a red heat without further decompoſition. Coal is commonly ſolid, black, very dry, and conſiderably hard. The ſpecific character of perfect coal is its capacity of burning with acceſs of air, while it becomes red-hot and ſparkles, ſometimes with a ſenſible flame which gives little light, with no ſmoke or ſoot capable of blackening white bodies.

Coal is capable of communicating its inflammable principle, either to the vitriolic acid with which it forms ſulphur; or to the nitrous acid contained in nitre, which it inflames; or to metallic earths, which it reduces into metals. But the phlogiſton cannot paſs from coal to form theſe new combinations without the aſſiſtance of red-heat. Coal ſeems to be an unalterable compound in every inſtance but thoſe mentioned, of burning in the open air, and of communicating its phlogiſton to other bodies; for it may be expoſed in cloſe veſſels to the moſt violent and long continued fire without ſuffering the leaſt decompoſition. No diſpoſition to fuſe, nor any diminution of weight can be perceived. It is a ſubſtance exceedingly fixed, and perhaps the moſt refractory in nature. It reſiſts the action of the moſt powerful menſtrua, liver of ſulphur alone excepted. Coal is evidently a reſult of the decompoſition of the compound bodies from which it is obtained. It conſiſts of the greateſt part of the earthy principle of theſe compound bodies, with which a part of the ſaline principles, and ſome of the phlogiſton of the decompoſed oil, are fixed and combined very intimately. Coal can never be formed but by the phlogiſton of a body which has been in an oily ſtate: hence it cannot be formed by ſulphur, phoſphorus, metals, nor by any other ſubſtance the phlogiſton of which is not in an oily ſtate. Alſo every oily matter treated with fire in cloſe veſſels, furniſhes true coal; ſo that whenever a charry reſiduum is left, we may be certain that the ſubſtance employed in the operation contained oil. Laſtly, the inflammable principle of coal, altho' it proceeds from oil, certainly is not oil; but pure phlogiſton; ſince coal added to vitriolic acid can form ſulphur, to phoſphoric acid can form phoſphorus, &c. and ſince oil can produce none of theſe effects till it has been decompoſed and reduced to the ſtate of coal. Beſides, the phenomena accompanying the burning of coal are different from thoſe which happen when oily ſubſtances are burnt. The flame of charcoal is not ſo bright as that of oil, and produces no flame or ſoot.

All the phlogiſton of coal is not burnt in the open air, particularly when the combuſtion is ſlow. One part of it exhales without decompoſition, and forms a vapour, or an inviſible and inſenſible gas. This vapour (which is, or at leaſt contains a great deal of, fixed air) is found to be very pernicious, and to affect the animal ſyſtem in ſuch a manner as to occaſion death in a very ſhort time. For this reaſon it is dangerous to remain in a cloſe place, where charcoal or any other ſort of coal is burnt. Perſons ſtruck by this vapour are ſtunned, faint, ſuffer a violent headach, and fall down ſenſeleſs and motionleſs. The beſt method of recovering them is by expoſure to the open air, and by making them ſwallow vinegar, and breathe its ſteam.

Amongſt coals, ſome differences are obſervable, which proceed from the difference of the bodies from which they are made: ſome coals, particularly, are more combuſtible than others. This combuſtibility ſeems to depend on the greater or leſs quantity of ſaline principle they contain; that is, the more of the ſaline principle it contains, the more eaſily it decompoſes and burns. For example, coals made of plants and wood containing much ſaline matter capable of fixing it, the aſhes of which contain much alkaline ſalt, burn vigorouſly and produce much heat; whereas the coals of animal matters, the ſaline principles of which are volatile, and cannot be fixed but in ſmall quantity, and the aſhes of which contain little or no ſalt, are ſcarcely at all combuſtible. For they not only do not kindle ſo eaſily as charcoal does, nor ever burn alone, but they cannot be reduced to aſhes, without very great trouble, even when the moſt effectual methods are uſed to facilitate the combuſtion. The coal of bullocks blood has been kept for ſix hours very red in a ſhallow crucible, ſurrounded with burning charcoal, and conſtantly ſtirred all the time, that it might be totally expoſed to the air; yet could it not be reduced to white, or even grey, aſhes: It ſtill remained very black, and full of phlogiſton. The coals of pure oils, or of concrete oily ſubſtances and ſoot, which is a kind of coal raiſed during inflammation, are as difficultly reduced to aſhes as animal coals. Theſe coals contain very little ſaline matter; and their aſhes yield no alkali. The coals which are ſo difficultly burnt, are alſo leſs capable of inflaming with nitre than others more combuſtible; and ſome of them even in a great meaſure reſiſt the action of nitre.

COAL, in mineralogy, a kind of ſolid inflammable ſubſtance, ſuppoſed to be of a bituminous nature, and commonly uſed for fuel. Of this ſubſtance there are various ſpecies.

1. *Pit-coal* (*Lithanthrax*), is a black, ſolid, com-

pact, brittle maſs, of moderate hardneſs, lamellated ſtructure, more or leſs ſhining, but ſeldom capable of a good poliſh; and does not melt when heated. According to Kirwan, it conſiſts of petrol or aſphaltum, intimately mixed with a ſmall portion of earth chiefly argillaceous; ſeldom calcareous; and frequently mixed with pyrites. A red tincture is extracted from it by ſpirit of wine, but cauſtic alkali attacks the bituminous part. From ſome ſorts of it a varniſh may be made by means of fat oils. Fixed alkali has never been found in any kind of it, nor ſulphur, unleſs when it happens to be mixed with pyrites.—None of the various kinds are found to be electrics *per ſe* (A).

The varieties of lithanthrax, enumerated by Cronſtedt are, 1. With a ſmall quantity of argillaceous earth and vitriolic acid. It is of a black colour, and ſhining texture: it burns, and is moſtly conſumed in the fire, but leaves, however, a ſmall quantity of aſhes. 2. Slaty coal.

2. *Culm coal*, called *kolm*, by the Swedes, has a greater portion of argillaceous earth and vitriolic acid, with a moderate proportion of petrol. It has the ſame appearance with the foregoing, though its texture is more dull: it burns with a flame, without being conſumed, but leaves behind it a ſlag of the ſame bulk with the original volume of the coal. The following is Mr Kirwan's deſcription of it from the memoirs of the Stockholm academy. "Its fracture has a rougher ſection than the cannel coal; its ſpecific gravity from 1300 to 1370. The beſt kind affords by diſtillation, at firſt fixed air, then an acid liquor, afterwards inflammable air, and a light oil of the nature of petrol; then a volatile alkali; and laſtly pitch-oil. The reſiduum is nearly three quarters of the whole; and being ſlowly burnt, affords 13 per cent. of aſhes, which conſiſt moſtly of argillaceous earth, and about three hundredth parts of them are magnetic. It is found in England, and among ſome aluminous ores in Sweden."

3. *Slate-coal* contains ſuch a quantity of argillaceous earth, that it looks like common ſlate; however, it burns by itſelf with a flame. M. Magellan is of opinion that this is the bituminous ſubſtance already deſcribed (ſee CLAY, p. 51.) This ſchiſtus is of a dark bluiſh ruſty colour; when thrown on the fire it burns with a lively flame, and almoſt as readily as the oily wood of dry olive tree, or lignum vitæ; emitting the very diſagreeable ſmell of petrol. Such large quarries of it are found near Purbeck in Dorſetſhire, that the poorer part of the inhabitants are thence ſupplied with fuel. From the appearance of this ſlaty coal, Cronſtedt has been induced to ſuppoſe that the earth of all kinds of coal is argillaceous, though it is not ſo eaſy to diſtinguiſh it after being burnt. The pit-coals, he ſays, contain more or leſs of the vitriolic acid; for which reaſon the ſmoke ariſing from them attacks ſilver in the ſame manner as ſulphur does, let the coals be ever ſo free from marcaſite, which, however, is often imbedded or mixed with them.

4. *Cannel coal*, (*Ampelites*) is of a dull black colour; breaks eaſily in all directions; and, if broken tranſverſely, preſents a ſmooth conchoidal ſurface. It burns with a bright lively flame, but is very apt to fly in pieces in the fire; however it is ſaid to be entirely deprived of this property by immerſion in water for ſome hours previous to its being uſed. It contains a conſiderable quantity of petrol in a leſs condenſed ſtate than other coals. Its ſpecific gravity is about 1.270. This kind of coal, being of an uniform hard texture, is eaſily turned on a lath, and takes a good poliſh. Hence it is uſed for making various toys, which appear almoſt as well as if made of the fineſt jet.

5. *Kilkenny coal* is the lighteſt of any; its ſpecific gravity being only about 1400. It contains the largeſt quantity of aſphaltum; burns with leſs ſmoke and flame, and more intenſely, though more ſlowly, than the cannel-coal. The quantity of earth it contains does not exceed one-twentieth part of its weight; but this kind of coal is frequently mixed with pyrites. It is found in the county of Kilkenny, belonging to the province of Leinſter in Ireland. The quality of it as burning without ſmoke, is proverbially uſed as an encomium on the county.

6. *Sulphureous coal* conſiſts of the former kinds mixed with a very conſiderable portion of pyrites; whence it is apt to moulder and break when expoſed to the air, after which water will act upon it. It contains yellow ſpots that look like metal; burns with a ſulphureous ſmell, leaving behind it either ſlag or ſulphureous aſhes, or both. Its ſpecific gravity is 1500 or more.

7. *Bovey coal*, (*Xylanthrax*) is of a brown or browniſh black colour, and of a yellow laminar texture. Its laminæ are frequently flexible when firſt dug, though they generally harden when expoſed to
the

(A) "The varieties of this coal (ſays Mr Magellan) are very numerous according to the different ſubſtances with which it is mixed; but in regard to their œconomical uſes, only two kinds are taken notice of by the Britiſh legiſlature, *viz.* culm and caking coals. The caking coals, in burning, ſhow an incipient fuſion, ſo that their ſmalleſt pieces unite in the fire into one maſs; by which means the ſmalleſt pieces, and even the mere duſt of this kind, are almoſt equally valuable with the largeſt pieces. The other ſort called *culm*, does not fuſe or unite in the fierceſt fire; ſo that the ſmall coal, being unfit for domeſtic purpoſes, can only be uſed in burning limeſtone.

"It ſhould be an eaſy matter for any perſon to diſtinguiſh culm from ſmall caking coal, either by trying to make fire with it in a common grate, without interpoſing any other fuel between it; when if it kindles, it is a caking coal; if not, it is culm; Or by putting ſome of theſe ſmall fragments of coal on an ignited iron ſhovel; if they melt and run together, they belong to the caking kinds; if not, they are culm. But it ſeems that coal merchants are now in the cuſtom of calling *culm* the powdery parts of pit-coal, of whatſoever kind they may happen to be. The reaſon of this is, that there is a difference in the duty payable by culm and by caking coals. There never was any difficulty, however, on the ſubject; nor would there be any difficulty in collecting the tax, were it not for the inſufferable ignorance and love of deſpotic oppreſſion which generally pervades the underling officers of the revenue."

the air. It conſiſts of wood penetrated with petrol or bitumen, and frequently contains pyrites, alum, and vitriol. According to the German chemiſts its aſhes contain a little fixed alkali; but Mr Mills differs from them on this ſubject. By diſtillation it yields a fetid liquor mixed with a volatile alkali and oil; part of which is ſoluble in ſpirit of wine, and part of a mineral nature, and inſoluble. It is found in almoſt all the countries of Europe.

Theſe are the moſt conſiderable varieties of coals commonly known; but we muſt not imagine that each of them is to be met homogeneous in thoſe places where they are found. On the contrary, the different qualities and proportions of their ingredients make a vaſt number of other varieties, fit for different purpoſes, according to the quality and quantity of thoſe they contain. Thus, various kinds of coals are often found mixed with one another under ground; and ſome of the finer ſorts ſometimes run like veins between thoſe of a coarſer kind. Thus, M. Magellan obſerved in the fine coals employed in a curious manufactory at Birmingham, that they produced a much clearer flame than he had ever obſerved from common coal; yet, on inquiry, he found that theſe were picked out from the common coals of the country, through which they ran in veins, and were eaſily diſtinguiſhed by the manufacturers, though they did not afford ſufficient indications of a ſpecific difference. The purpoſe to which they were applied was the moulding rods of tranſparent and coloured glaſs into the ſhapes proper for common buttons: which they performed with aſtoniſhing expedition.

Fourcroy remarks, that this foſſil bitumen, when heated in contact with a body in combuſtion, and having a free acceſs of air, kindles the more ſlowly and with the greater difficulty in proportion as it is more weighty and compact. When once kindled, it emits a ſtrong and durable heat, and burns for a long time before it is conſumed. The matter that is burned, and produces the flame, appears very denſe, and ſeems united to ſome other ſubſtance which retards its deſtruction. On burning, it emits a particular ſtrong ſmell, which is not at all ſulphureous when the coal contains no pyrites. When the combuſtible, oily, and other volatile parts of the coal are diſſipated, if the combuſtion be then ſtopped, the remainder is found to be reduced to a true charred ſtate, and is called *coak*. This ſubſtance is capable of exciting the moſt intenſe heat, for which purpoſe it is uſed in metallurgic works all over Britain.

“ It is well known (ſays M. Magellan), that the Engliſh method of burning pit coal into *coak* has been a moſt profitable and happy acquiſition for the ſmelting our ores, and, for many other metallurgical and chemical proceſſes in this iſland. But the ingenious and advantageous undertaking of Lord Dundonald, by which he turns to a very conſiderable profit the mines of coals in his and other eſtates, building ovens of a proper conſtruction for burning pit-coal into coak, and at the ſame time for collecting, in ſeparate receptacles, the volatile alkali, oil, tar, and pitch, which were generally loſt by the uſual method, deſerves to be noticed, as it affords a very remarkable inſtance of the great loſſes to mankind, for want of carefully attending to every reſult from great proceſſes of art when made on a large ſcale. Theſe ovens are ſo contrived, as to admit an under ſupply of air; and the coals, after being kindled, decompoſe themſelves by a ſlow but incomplete combuſtion, which does not deſtroy the ingredients. The reſiduum left in the oven proves to be moſt excellent cinders or coaks; whilſt the volatile parts, which otherwiſe would be diſſipated in the air, are ſeparated and condenſed in reſervoirs, or receptacles of capacious ſize, placed at proper diſtances beyond the reach of fire. Monſ. Faujas de St Fond, who viſited theſe works in a trip he made to Scotland, undertook to erect a ſimilar kind of oven in France: and it is rather ſingular, that he endeavours to eſtabliſh a claim of having diſcovered the ſame proceſſes before he ſaw them in Scotland; as if it did not reflect a greater honour on his induſtry, to carry back to his country ſome uſeful knowledge, than to return as ignorant as our Engliſh travellers,” &c.

On ſubjecting pit-coal of any kind to diſtillation in cloſe veſſels, it firſt yields a phlegm or watery liquor; then an ethereal or volatile oil; afterwards a volatile alkali; and laſtly, a thick and greaſy oil; but it is remarkable, that, by rectifying this laſt oil, a tranſparent thin and light oil of a ſtraw colour is produced, which being expoſed to the air becomes black like animal oils. From this and other obſervations, the general opinion is, that all coals, bitumens, and other oily ſubſtances found in the mineral kingdom, derive their origin from vegetables buried in the earth; ſince it is well known that only organiſed bodies have the power of producing oily and fat ſubſtances. “ The amazing irregularities, gaps, and breaks (ſays M. Magellan) of the ſtrata of coals, and of other foſſile ſubſtances, evince that this globe has undergone the moſt violent convulſions by which its parts have been broken, detached and overturned in different ways, burying large tracts of their upper ſurfaces, with all the animal and vegetable productions there exiſting, at the time of thoſe horrible cataſtrophes, whoſe epoch far precedes all human records. And it is eaſy to be conceived, that the various heaps and congeries of theſe vegetable and animal ſubſtances, remaining for ages and ages in the bowels of the earth, have obtained various conſiſtencies, and ſtill produce thoſe oily and bitumious juices, which find way to guſh out, leaving behind their thickeſt parts on the ſame places where they are found, and in many others where the induſtry of mankind never will be able to penetrate.”

Coal-Mine. See Coalery.—Maliciouſly ſetting fire to coal-mines is felony, by ſtat. 10. Geo. II. *c.* 32. § 6.

Small Coal, a ſort of charcoal prepared from the ſpray and bruſhwood ſtripped off from the branches of coppice wood, ſometimes bound in bairns for that purpoſe, and ſometimes charred without binding, in which caſe it is called “ coming it together.”

COALERY, Coaliery, or Colliery; a coal-work, or place where Coals are dug.

1 Hiſtory of coals.

It is generally agreed, that cannel-coal * is the lapis ampelites of the Romans; though it ſeems to have been uſed by them only for making toys, bracelets, &c. But of that common fuel which we denominate *coals*, the native Romans were intirely ignorant. It is certain that they are not, as ſome have imagined, the lapis obſidianus of Pliny, about which there have

* See *Ampelites*.

been great diſputes †: nor the GAGATES, or JET, which others, again, have taken for the *lapis obſidianus*; though the lightneſs and texture ſhow plainly that it is not either ſtone or coal. In fact, there are no beds of it in the compaſs of Italy. The great line of that fuel ſeems to ſweep away round the globe, from north-eaſt, to ſouth-weſt; not ranging at a diſtance even from the ſouth-eaſterly parts of Britain, as is generally imagined, but actually viſiting Brabant and France, and yet avoiding Italy.

Auguſtus placed the ſtatues of four elephants made of it in the temple of Concord.

But the primæval Britons appear to have uſed it. And in the precincts of Mancheſter particularly, which are furniſhed with an inexhauſtible abundance of it, they could not have remained unappriſed of the agreeable combuſtible around them. The currents there frequently bring down fragments of coal from the mountains; and in the long and winding courſe of them through the pariſh, the Britons would ſoon mark the ſhining ſtones in the channels; and by the aid of accident, or the force of reflection, find out the utility of them. But we can advance ſtill nearer to a certainty. Several pieces of coal were diſcovered ſome years ago in the ſand under the Roman way to Ribcheſter, when both were dug up at the conſtruction of a houſe in Quay-ſtreet. The number of pieces, ſeveral of them as large as eggs, was not leſs than 40; and a quantity of ſlack was dug up with them. Theſe circumſtances ſhow the coals to have been lodged upon the ſpot, before the road of the Romans covered it. That ground being in the neighbourhood of *Mancenion* ‡, the Britons had there repoſited a quantity of coals, probably for the uſe of the garriſon; and many of the ſmaller fragments, and ſome of the ſlack, were buried in the ſand upon which they were laid. And that the Britons in general were acqainted with this fuel, is evident from its appellation amongſt us at preſent, which is not Saxon, but Britiſh; and ſubſiſts among the Iriſh in their *O gual*, and among the Corniſh in their *kolan*, to this day.

Whitaker's Hiſtory of Mancheſter.

The extenſive beds of fuel, therefore, with which the kingdom of England and the precincts of Mancheſter are ſo happily ſtored, were firſt noticed by the ſkill, and firſt opened by the labour of the Britons; and ſome time before the arrival of the Romans among them. And the nearer quarries in the confines of Bradford, Newton, and Mancheſter, would naturally attract the notice, and invite the inquiries, of the Britons before any others. The current of the Medlock, which waſhes the ſides of them, would bring down ſpecimens of the riches within, lodge many of them about the Caſtlefield, and allure the Britons ſucceſſively to a collection of the one, and a ſearch after the other.

But, even for ages after the diſcovery, wood continued to compoſe the general firing of the nation. In 852, a grant was made of ſome lands by the abbey of Peterborough, under the reſervation of certain boons and payments in kind to the monaſtery; as, one night's entertainment; 10 veſſels of Welſh and two of common ale: 60 cart-loads of wood; and 12 of pit-coal; where we ſee the quantity of coal was only one cart-load to five of wood. The latter naturally continued the principal article of fuel as long as the foreſts and thickets preſented themſelves ſo ready to the hand: and ſuch it continued till a very late period. The firſt public notice of the former is mentioned by Mr Hume to have been in the time of Henry III. who in the year 1272, granted a charter to the town of Newcaſtle, giving the inhabitants a licence to dig coals: and the firſt ſtatute relating to this article was the 9 Henry V. c. 10. ordaining all keels in the port of Newcaſtle to be meaſured by commiſſioners, before carriage of coals, on pain of forfeiture. They were not brought into common uſe till the reign of Charles I.; and were then ſold for about 17 s. a chaldron. In ſome years after the reſtoration, there were about 200,000 chaldrons burnt in London; in 1607, about 270,000 chaldrons; and at the revolution, upwards of 300,000 chaldrons; at preſent, full 600,000 are annually conſumed there. There is, beſides, an immenſe conſumption in other parts of Britain, and in Ireland. In Scotland, they ſupply their own conſumption, and alſo export. In Ireland, though they have coal, yet they take annually to the value of 30,000 l. from England, and 12,000 l. from Scotland.

Campbell's Political Survey.

The moſt remarkable coalery, or coal-work, that was ever diſcovered in Britain, was that wrought at Burrowſtonneſs, under the ſea. The veins of coal were found to continue under the bed of the ſea in this place, and the colliers had the courage to work the vein near half way over; there being a mote half a mile from the ſhore, where there was an entry that went down into the coal-pit, under the ſea. This was made into a kind of round key or mote, as they call it, built ſo as to keep out the ſea, which flowed there twelve feet. Here the coals were laid, and a ſhip of that draught of water, could lay her ſide to the mote, and take in the coal.—This famous colliery belonged to the earl of Kincardine's family. The freſh water which ſprung from the bottom and ſides of the coal pit, was always drawn out upon the ſhore by an engine moved by water, that drew it forty fathom. This coal-pit continued to be wrought many years to the great profit of the owners, and the wonder of all that ſaw it; but, at laſt, an unexpected high tide drowned the whole at once: the labourers had not time to eſcape, but periſhed in it.

There are ſeveral other countries in Europe which poſſeſs conſiderable coal-mines; as France, Liege, Germany, and Sweden. Alſo on this ſide of the Atlantic ocean, there has been coal diſcovered, and wrought; in Newfoundland, Cape-Breton, Canada, alſo in Virginia and other parts of the United States. And although in America, wood, from its great plenty, is uſed in moſt of the manufactures, yet the coal is excellent, and will in time become an article of very great importance.

3
Importance of the coal-trade.

The inland coal-trade in Britain, that is, carrying coals from Newcaſtle, Sunderland, Blith, and other adjacent places in the north of England, as alſo from the frith of Edinburgh in Scotland, and other places thereabouts, to the city of London, and to the port-towns on the coaſt all the way, both north of Newcaſtle, and up the channel as high as Portſmouth weſt, is a prodigious article, and employs abundance of ſhipping and ſeamen; in ſo much that, in a time of urgent neceſſity, the coalery navigation alone has been able to ſupply the government with a body of ſeamen for the royal navy, able to man a conſiderable fleet at a

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† L. xxxvi. cap. 26.

‡ *i. e.* "the place of tents." An ancient Britiſh town, the ſite of which was the preſent Caſtlefield at Mancheſter

very ſhort warning, and that without difficulty, when no other branch of trade would do the like. Likewiſe the Whitehaven coaleries in Cumberland, belonging to Sir James Lowther, furniſh ſeveral counties in Ireland with coals, and conſtantly employ upwards of 2000 ſeamen; which alſo is a noble nurſery for the navy of Britain. And not only do the pit-coals ſufficiently ſupply all the ports, but, by means of thoſe ports and the navigable rivers, all the adjacent counties very far inland.

In ſhort, coals, though not an excluſive, yet may, with propriety, be ſtyled a peculiar bleſſing to Britain from their great plenty, their acknowledged excellence, and their being found in ſuch places as are conveniently ſituated for exportation. Nor is there any danger of the export-trade being leſſened even by the ſeveral duties that have been laid upon them; for the foreign conſumpt being founded in neceſſity with regard to manufactures, and in œconomy where they are uſed for convenience (wood and turf being dearer than coals with the duty), there need be no fear of the markets declining. There is as little room to be alarmed from an apprehenſion of their being exhauſted, as the preſent works are capable of ſupplying them for a long ſeries of years, and there are many other mines ready to be opened when theſe ſhall fail. Beſides, there are known to be coals in many parts of the three kingdoms, which hitherto they have had no encouragement to work.

Beſides the value of this commodity as a conveniency of life, as an article of commerce, and as giving riſe to a nurſery of ſeamen for the increaſe of the marine; other important advantages deſerve to be noticed. Coals are in many reſpects, and in a very high degree, uſeful to the landed intereſt; not only by raiſing exceedingly the real value, and of courſe the purchaſe, of thoſe lands in which they are found, and thoſe through which it is neceſſary to paſs * from the works to the places where they are embarked, but from the general improvements they have occaſioned; ſo that very few counties are now better cultivated than Northumberland, and the ſame effects they have had in a greater or leſs degree in other places. Thouſands of laborious people are employed in and about the mines; thouſands more in conveying them to the ports, and on board the ſhips; to ſay nothing of thoſe that draw their ſubſiſtence from the carriage of them by land to ſupply families, &c. There are alſo great numbers that live in a ſuperior ſtation; as ſtewards, directors, factors, agents, book-keepers, &c. To theſe we may add the extraordinary encouragement given to ingenious artiſts who have invented, and the numerous workmen continually employed about thoſe ſeveral curious and coſtly machines which, for a variety of purpoſes in this buſineſs, are in continual uſe, and of courſe in continual wear: we may join to theſe the multitudes that obtain their living from the many manufactures in which they are employed, and which could not be carried on but by the help and cheapneſs of coals. Laſtly, the produce of coals exported, which amounts to a very conſiderable ſum, beſides being profitable to the owners, merchants, and mariners, is ſo much clear gain to the nation.

It might be expected, that a trade ſo beneficial to individuals, and to the nation in general, and which has been gradually increaſing for ſeveral centuries paſt, would have been advanced by this time to very great perfection, and reduced to a regular ſyſtem. But, in one very eſſential reſpect, it is found to be quite otherwiſe. The art of working coal-mines in the moſt profitable manner is highly improved; but the fundamental of the art, that of ſearching for and diſcovering coal in any diſtrict of country where it has not yet been found, has never, that we know of, been treated in a ſyſtematic manner. The reader, therefore, will not be diſpleaſed to find this defect ſupplied in the courſe of the preſent article, together with a detail of all the other operations in the buſineſs of coaleries.

4
Situation of the ſtrata.

The terreſtrial matters which compoſe the ſolid parts of the earth are diſpoſed in ſtrata, beds, or layers, the under ſurface of one bearing againſt or lying upon the upper ſurface of that below it, which laſt bears or lies on the next below in the ſame manner.

Theſe ſtrata conſiſt of very different kinds of matter, ſuch as free-ſtone, lime-ſtone, metal-ſtone or whinſtone, coal, &c. as will be particularly ſpecified in the ſequel.

Some of theſe ſtrata are of a conſiderable thickneſs, being often found from 100 to 200 feet or upwards, nearly of the ſame kind of matter from the ſuperior to the inferior ſurface; and others are found of the leaſt thickneſs imaginable, one inch or leſs.

All theſe ſtrata are divided or parted from each other laterally, either by their even, ſmooth, poliſhed ſurfaces, with very thin lamina of ſoft or duſty matter betwixt them, called *the parting*, which renders them eaſy to ſeparate; or elſe only by the ſurfaces cloſely conjoined to each other, without any viſible matter interpoſed betwixt them; yet the different ſubſtance of each ſtratum is not in the leaſt intermixed, though ſometimes they adhere ſo ſtrongly together, that it is very difficult to part or disjoin them: in this laſt caſe they are ſaid to have *a bad parting*.

Beſides this principal diviſion or parting laterally, there are, in ſome ſtrata, ſecondary diviſions or partings alſo laterally, ſeparating or approaching towards a ſeparation, of the ſame ſtratum, into parts of different thickneſſes, nearly parallel to each other, in the ſame manner as the principal partings divide the different ſtrata from each other: but theſe ſecondary ones are not ſo ſtrong or viſible, nor make ſo effectual a parting, as the principal ones do; and are only met with in ſuch ſtrata, as are not of an uniform hardneſs, texture, or colour, from the upper to the under ſurface.

There are other diviſions or partings, called *backs*, in almoſt every ſtratum, which croſs the former lateral ones longitudinally, and cut the whole ſtratum through its two ſurfaces into long rhomboidal figures. Theſe again are croſſed by others called *cutters*, running either in an oblique or perpendicular direction to the laſt mentioned backs, and alſo cut the ſtratum through its two ſurfaces. Both theſe backs, and cutters generally extend from the upper or ſuperior ſtratum down through ſeveral of the lower ones; ſo that theſe backs and cutters, together with the lateral partings before mentioned, divide every ſtratum into innumerable cubic, priſmatic, and rhomboidal figures, according to the thickneſs of the ſtratum, and the poſition and number of the backs and cutters. They

* Theſe are emphatically ſtyled *way-leaves*, and are let at as high rents as any landed property in Britain.

ſometimes have a kind of thin partition of duſty or ſoft matter in them, and ſometimes none, like the firſt mentioned partings; but the ſofter kind of ſtrata generally have more backs and cutters than the harder kind, and they do not extend or penetrate through the others.

Plate CXLII. To explain this a little further, let A, B, C, D, E, F, G, (fig. 1.) repreſent the principal partings before mentioned, or the upper and under ſurfaces of any ſtratum; then *a, b, c, d, e, f,* will repreſent the ſecondary lateral partings nearly parallel to the principal ones: *g, h, i, k, l, m,* the longitudinal partings called *backs; n, o, p, q, r, s,* the croſs partings called *cutters,* croſſing the laſt mentioned ones either obliquely or perpendicular.

In all places where the ſtrata lie regular, they are divided and ſubdivided in the manner abovementioned; and ſometimes in this manner extend through a pretty large diſtrict of country: though it is often otherwiſe; for their regularity is frequently interrupted, and the ſtrata broken and diſordered, by ſundry chaſms, breaches, or fiſſures, which are differently denominated according to their various dimenſions, and the matters with which they are filled, *viz.* dikes, hitches, and troubles, which ſhall be explained in order.

5 Dikes. *Dikes* are the largeſt kind of fiſſures. They ſeem to be nothing but a crack or breach of the ſolid ſtrata, occaſioned by one part of them being broken away and fallen from the other. They generally run in a ſtraight line for a conſiderable length, and penetrate from the ſurface to the greateſt depth ever yet tried, in a direction ſometimes perpendicular to the horizon, and ſometimes obliquely: the ſame kind of ſtrata are found lying upon each other in the ſame order, but the whole of them greatly elevated or depreſſed, on the one ſide of the dike as on the other. Theſe fiſſures are ſometimes two or three feet wide, and ſometimes many fathoms. If the fiſſure or dike be of any conſiderable width, it is generally filled with heterogeneous matter, different from that of the ſolid ſtrata on each ſide of it. It is ſometimes found filled with clay, gravel, or ſand; ſometimes with a confuſed maſs of different kinds of ſtone lying edgeways; and at other times with a ſolid body of free-ſtone, or even whin-ſtone. When the fiſſure is of no great width, as ſuppoſe two or three feet only, it is then uſually found filled with a confuſed mixture of the different matters which compoſe the adjoining ſtrata, conſolidated into one maſs. If the dike runs or ſtretches north and ſouth, and the ſame kind of ſtrata are found on the eaſt ſide of the dike, in a ſituation with reſpect to the horizon 10 or 20 fathoms lower than on the other ſide, it is then ſaid to be a *dip-dike* or *downcaſt-dike* of 10 or 20 fathoms to the eaſtward;—or counting from the eaſt ſide, it is then ſaid to be a *riſe-dike* or *upcaſt* of ſo many fathoms weſtward. If the ſtrata on one ſide are not much higher or lower with reſpect to the horizontal line, than thoſe on the other, but only broken off and removed to a certain diſtance, it is then ſaid to be a dike of ſo many fathoms thick; and from the matter contained between the two ſides of the fiſſure or dike, it is denominated a *clay-dike, ſtone-dike,* &c.

6 Hitches. A *hitch* is only a dike or fiſſure of a ſmaller degree, by which the ſtrata on one ſide are not elevated or ſeparated from thoſe on the other ſide above one fathom. Theſe hitches are denominated in the ſame manner as dikes, according to the number of feet they elevate or depreſs the ſtrata.

There are dikes (though they are not often met with in the coal-countries) whoſe cavities are filled with ſparr, the ores of iron, lead, vitriol, or other metallic or mineral matters; and it is pretty well known, that all metallic veins are nothing elſe than what in the coal-countries are called *dikes.*

The ſtrata are generally found lying upon each other in the ſame order on one ſide of the dike as on the other, as mentioned above, and nearly of the ſame thickneſſes, appearing to have been originally a continuation of the ſame regular ſtrata, and the dike only a breach by ſome later accident, prependicularly or obliquely down through them, by which one part is removed to a ſmall diſtance, and depreſſed to a lower ſituation than the other. But this is not the only alteration made in the ſtrata by dikes; for generally to a conſiderable diſtance on each ſide of the dike, all the ſtrata are in a kind of ſhattered condition, very tender, eaſily pervious to water, and debaſed greatly in their quality, and their inclination to the horizon often altered.

7 Troubles. *Troubles* may be denominated dikes of the ſmalleſt degree; for they are not a real breach, but only an approach towards it which has not taken a full effect. The ſtrata are generally altered by a trouble from their regular ſite to a different poſition. When the regular courſe of the ſtrata is nearly level, a trouble will cauſe a ſudden and conſiderable aſcent or deſcent: where they have, in their regular ſituation, a certain degree of aſcent or deſcent, a trouble either increaſeth it or alters it to a contrary poſition: and a trouble has theſe effects upon the ſtrata in common with dikes, that it greatly debaſeth them from their original quality; the partings are ſeparated; the backs and cutters disjoined, and their regularity diſordered; the original cubic and priſmatic figures, of which the ſtrata were compoſed, are broken, and the diſlocation filled with heterogeneous matter; and the whole ſtrata are reduced to a ſofter and more friable ſtate.

8 Dip and riſe of the ſtrata. The ſtrata are ſeldom or never found to lie in a true horizontal ſituation; but generally have an inclination or deſcent, called the *dip,* to ſome particular part of the horizon. If this inclination be to the eaſtward, it is called an *eaſt dip,* and a *weſt riſe;* and according to the point of the compaſs to which the dip inclines, it is denominated, and the aſcent or riſe is to the contrary point. This inclination or dip of the ſtrata is found to hold every where. In ſome places, it varies very little from the level; in others, very conſiderably; and in ſome ſo much, as to be nearly in a perpendicular direction: but whatever degree of inclination the ſtrata have to the horizon, if not interrupted by dikes, hitches, or troubles, they are always found to lie in the firſt regular manner mentioned. They generally continue upon one uniform dip until they are broken or diſordered by a dike, hitch, or trouble, by which the dip is often altered, ſometimes to a different part of the horizon, and often to an oppoſite point; ſo that on one ſide of a dike, hitch, or trouble, if the ſtrata have an eaſt dip, on the other ſide they may have an eaſt riſe, which is a weſt dip; and in general, any conſiderable alteration in the dip is never

met with, but what is occaſioned by the circumſtances laſt mentioned.

Plate CXLII. To illuſtrate what has been ſaid, ſee fig. 2. where *a b c d, &c.* repreſents a courſe of ſtrata lying upon each other, having a certain inclination to the horizon. A B, is a downcaſt-dike, which depreſſeth the ſtrata obliquely to *e f g h, &c.* lying upon each other in the ſame order, but altered in their inclination to the horizon. C D repreſents a clay or free-ſtone dike, where the ſtrata are neither elevated nor depreſſed, but only broken off and removed to a certain diſtance. E F, repreſents a hitch, which breaks off and depreſſeth the ſtrata only a little, but alters their inclination to the horizon. G H, repreſents a trouble, where the ſtrata on one ſide are not entirely broken off from thoſe on the other, but only in a cruſhed and irregular ſituation.

As ſome particular ſtrata are found at ſome times to increaſe, and at other times to diminiſh, in their thickneſſes, whilſt others remain the ſame, conſequently they cannot be all parallel; yet this increaſe and diminution in their thickneſſes comes on very gradually.

The ſtrata are not found diſpoſed in the earth according to their ſpecific gravities: for we often find ſtrata of very denſe matter near the ſurface; and perhaps at 50 or even 100 fathoms beneath, we meet with ſtrata of not half the ſpecific gravity of the firſt. A ſtratum of iron ore is very often found above one of coal, though the former has twice the gravity of the latter; and, in ſhort, there is ſuch an abſolute uncertainty in forming any judgment of the diſpoſition of the ſtrata from their ſpecific gravities, that it cannot in the leaſt be relied upon.

It has been imagined by many, that hills and vallies are occaſioned by thoſe breaches in the ſtrata before mentioned called *dikes*: but this is contradicted by experience. If it was ſo, we ſhould meet with dikes at the ſkirts of the hills, and by the ſides of valleys, and the ſea-ſhore; but inſtead of that, we generally find the ſtrata lying as uniformly regular under hills and valleys, and beneath the bottom of the ſea (as far as has been yet tried), as in the moſt champaign countries. It may happen, indeed, that a dike is met with in ſome of theſe places; but that being only a caſual circumſtance, can never be admitted as a general cauſe. Whatever irregularities are occaſioned in the ſolid ſtrata by dikes, or other breaches, are commonly covered over and evened by thoſe beds of gravel, clay, ſand, or ſoil, which lie uppermoſt, and form the outward ſurface of the earth. Whereever theſe ſofter matters have been carried off, or removed by accident, as on the tops of hills and the ſides of valleys, there the ſolid ſtrata are expoſed, and the dip and riſe and other circumſtances of them may be examined; but no certain concluſions can be drawn, merely from the unevenneſs and inequalities of the outward ſurface.

The preceding obſervations, upon the general diſpoſition of the ſolid ſtrata, are equally applicable to the ſtrata of coal, as to thoſe of ſtone or other matter.

9 Deſcription of the ſtrata connected with coal. We ſhall next give an account of the ſeveral ſtrata of coal, and of ſtone and other matters, which are uſually connected with coal, and are found to have a particular affinity with it: and, for the ſake of diſtinction, ſhall arrange them into ſix principal claſſes, which will include all the varieties of ſtrata that have been found to occur in all thoſe diſtricts of country both in Scotland and England where coal abounds.

1. *Of Whin-ſtone*] The ſtrata of what is denominated whin-ſtone are the hardeſt of all others; the angular pieces of it will cut glaſs; it is of a very coarſe texture, and when broke acroſs the grain exhibits the appearance of large grains of ſand half vitrified; it can ſcarcely be wrought, or broke in pieces, by common tools without the aſſiſtance of gun-powder; each ſtratum is commonly homogeneous in ſubſtance and colour, and cracked in the rock to a great depth. The moſt common colours of theſe ſtrata are black or dark blue, yet there are others of it aſh-coloured and light brown. Their thickneſs in all the coal countries is but inconſiderable, from ſix or five feet down to a few inches; and it is only in a few places they are met with of theſe thickneſſes. In the air it decays a little, leaving a brown powder; and in the fire it cracks, and turns reddiſh brown. Limeſtone, and what is called *baſtard limeſtone*, is ſometimes, though rarely, met with in coaleries. It is a well known ſtone; but from its reſemblance in hardneſs and colour is often miſtaken for a kind of whin. Sometimes, particularly in hilly countries, the ſolid matter next the ſurface is found to be a kind of ſoft or rotten whin;—but it may be noted, that this is only a maſs of heterogeneous matter diſpoſed upon the regular ſtrata; and that beneath this, all the ſtrata are generally found in as regular an order as where this heterogeneous matter does not occur.

2. *Of Poſt-ſtone.*] This is a free ſtone of the hardeſt kind, and next to the limeſtone with reſpect to hardneſs and ſolidity. It is of a very fine texture; and when broken appears as if compoſed of the fineſt ſand. It is commonly found in a homogeneous maſs, though variegated in colour; and, from its hardneſs, is not liable to injury from being expoſed to the weather. Of this kind of ſtone there are four varieties, which may be diſtinguiſhed by their colour: the moſt common is white poſt, which in appearance is like Portland ſtone, but conſiderably harder; it is ſometimes variegated with ſtreaks or ſpots of brown, red, or black.

Grey poſt is alſo very common; it appears like a mixture of fine black and white ſand: it is often variegated with brown and black ſtreaks; the laſt mentioned appear like ſmall clouds compoſed of particles of coal.

Brown or yellow poſt is often met with of different degrees of colour; moſt commonly of the colour of light ochre or yellow ſand: it is as hard as the reſt, and ſometimes variegated with white and black ſtreaks.

Red poſt is generally of a dull red colour: this is but rarely met with; it is often ſtreaked with white or black.

All theſe lie in ſtrata of different thickneſſes; but commonly thicker than any other ſtrata whatever: they are ſeparated from each other, and from other kinds of ſtrata, by partings of coal, ſand, or ſoft matter of different colours which are very diſtinguiſhable.

3. *Of Sand-ſtone.*] This is a free ſtone of a coarſer texture than poſt, and not ſo hard; is ſo lax as to be eaſily pervious to water; when broke, is apparently of a coarſe ſandy ſubſtance; is friable and moulders to

ſand when expoſed to the wind and rain; has frequently white ſhining ſpangles in it, and pebbles or other ſmall ſtones incloſed in its maſs. Of this, there are two kinds commonly met with, diſtinguiſhed by their colours, grey and brown, which are of different ſhades, lighter or darker in proportion to the mixture of white in them. It is moſt generally found in ſtrata of conſiderable thickneſs, without many ſecondary partings; and ſometimes, though rarely, it is ſubdivided into layers as thin as the common grey ſlate. It has generally ſandy or ſoft partings.

4. *Of Metal-ſtone.*] This is a tolerable hard ſtratum, being in point of hardneſs next to ſand-ſtone; generally ſolid, compact, of conſiderable weight, and of an argillaceous ſubſtance, containing many nodules or balls of iron ore, and yellow or white pyrites; its partings, or the ſurfaces of its ſtrata, are hard, poliſhed, and ſmooth as glaſs. When broke, it has a dull duſky appearance (though of a fine texture), like hard dried clay mixed with particles of coal. Though hard in the mine or quarry, when expoſed to the freſh air it falls into very ſmall pieces. The moſt uſual colour of this ſtone is black; but there are ſeveral other lighter colours, down to a light brown or grey. It is eaſily diſtinguiſhed from free-ſtone by its texture and colour, as well as by its other characteriſtics. It lies in ſtrata of various thickneſſes, though ſeldom ſo thick as the two laſt mentioned kinds of ſtone.

5. *Of Shiver.*] This ſtratum is more frequently met with in coaleries than any other. There are many varieties of it, both in hardneſs and colour; but they all agree in one general characteriſtic. The black colour is moſt common; it is called by the miners *black ſhiver, black mettle,* or *bleas.* It is ſofter than metal-ſtone, and in the mine is rather a tough than a hard ſubſtance, is not of a ſolid or compact matter, being eaſily ſeparable, by the multitude of its partings, &c. into very ſmall parts, and readily abſorbing water. The ſubſtance of this ſtratum is an indurated bole, commonly divided into thin lamina of unequal thickneſſes, which break into long ſmall pieces when ſtruck with force; and, on examination, they appear to be ſmall irregular rhomboides: each of theſe ſmall pieces has a poliſhed glaſſy ſurface; and, when broke croſs the grain, appears of a dry, leafy, or laminated texture, like exceeding fine clay: it is very friable; feels to the touch like an unctuous ſubſtance; and diſſolves in air or water to a fine pinguid black clay. There are almoſt conſtantly found incloſed in its ſtrata lumps or nodules of iron ore; often real beds of the ſame.

There are other colours of this ſtratum beſides black. The brown or dun ſhiver is very frequently met with; it agrees with the above deſcription in every thing but colour. Grey ſhiver is alſo very common: it ſeems to be only a mixture of the black and dun; and by the different degrees of mixture of theſe colours others are produced. It lies in ſtrata ſometimes of conſiderable thickneſs, at other times not exceeding a few feet: they are commonly parted from each other by lamina of ſpar, coal, or ſoft matter.

6. *Of Coal.*] Referring the reader, for the ſcientific diviſion of coals, to AMPELITES, LITHANTHRAX, and the preceding articles, we ſhall here conſider them as diſtinguiſhable into three kinds, according to their degrees of inflammability.

1. The leaſt inflammable kinds are thoſe known by the name of *Welſh coal,* which is found in Wales; Kilkenny coal, which is found near Kilkenny in Ireland; and *blind* or *deaf coal,* which is found in many parts of Scotland and England. This coal takes a conſiderable degree of heat to kindle it, but when once thoroughly ingnited will burn a long time; it remains in the fire in ſeparate pieces without ſticking together or caking; it produceth neither flame nor ſmoke, and makes no cinder, but burns to a white ſtony ſlagg; it makes a hot glowing fire like charcoal or cinders; and emits effluvia of a ſuffocating nature which renders it unfit for burning in dwelling-houſes, its chief uſe being amongſt maltſters, dyers, &c. for drying their commodities. 2. *Open burning coal,* ſoon kindles, making a hot pleaſant fire, but is ſoon conſumed: it produceth both ſmoke and flame in abundance; but lies open in the fire, and does not cake together ſo as to form cinders, its ſurface being burnt to aſhes before it is thoroughly calcined in the midſt; from this it has its name of an *open burning coal*; it burns to white or brown aſhes very light. Of this kind is cannel-coal, jett, parrot, ſplint, and moſt of the coals in Scotland. 3. *Cloſe burning coal,* kindles very quickly, makes a very hot fire, melts and runs together like bitumen, the very ſmalleſt culm making the fineſt cinders, which being thoroughly burnt are porous and light as a pumice ſtone, and when broke are of a ſhining lead colour; it makes a more durable fire than any other coal, and finally burns to brown or reddiſh coloured heavy aſhes. Of this kind are the Newcaſtle and ſeveral other of the Engliſh coals, and the ſmithy coals of Scotland. The open burning and the cloſe burning coal mixed together, make a more profitable fire for domeſtic uſes than either of them ſeparate.

In all thoſe diſtricts of country where coal is found, there are generally ſeveral ſtrata of it; perhaps all the different kinds abovementioned will be found in ſome, and only one of the kinds in others; yet this one kind may be divided into many different ſeams or ſtrata, by beds of ſhiver or other kinds of matter interpoſing, ſo as to give it the appearance of ſo many ſeparate ſtrata.

10
The order in which they lie.

All theſe ſtrata above deſcribed, with their ſeveral varieties, do not lie or bear upon each other in the order in which they are deſcribed, nor in any certain or invariable order. Though there be found the ſame kinds of ſtrata, in one coalery or diſtrict as in another, yet they may be of very different thickneſſes. In ſome places there are moſt of the hard kinds, in others moſt of the ſofter; and in any one diſtrict it rarely happens that all the various kinds are found; for ſome kinds, perhaps, occur only once or twice, whilſt others occur 10 or 20 times before we reach the principal ſtratum of coal.

Plate CXLII.

In order to explain this, ſuppoſe the ſtrata in the pit at A (fig. 3.) lie in the order *a, b, c, d, &c.* they may be ſo much altered in their thickneſſes, by reaſon of ſome of them increaſing and others diminiſhing, at the diſtance of B, that they may be found there of very different thickneſſes; or if they are examined in a pit at D, by reaſon of its lower ſituation, and the ſtrata there not being a continuation of thoſe in the other places, they may be very different both in their order and thickneſſes, and yet of the ſame kinds.

Though they be thus found very different in one coalery or diſtrict from what they are found to be in another, with reſpect to their thickneſſes, and the order in which they lie upon each other, yet we never meet with a ſtratum of any kind of matter but what belongs to ſome of thoſe above deſcribed.

To illuſtrate how the various ſtrata lie in ſome places, and how often the ſame ſtratum may occur betwixt the ſurface and the coal, we ſhall give the following example. The numbers in the left hand column refer to the claſſes of ſtrata before deſcribed, to which each belongs. The ſecond column contains the names of the ſtrata; and the four numeral columns to the right hand, expreſs the thickneſs of each ſtratum, in fathoms, yards, feet, and inches.

N°	Example.	Fas	Yds	Ft	Ins
	Soil and gravel - -	0	1	1	0
	Clay mixed with looſe ſtones -	1	1	0	0
3	Coarſe brown ſand-ſtone, with ſoft partings - - -	3	0	2	6
2	White poſt, with ſhivery partings	1	1	0	5
5	Black ſhiver or bleas, with iron-ſtone balls	2	0	2	0
6	Coarſe Splinty coal - -	0	0	2	6
5	Soft grey ſhiver	0	1	0	7
2	Brown and grey poſt, ſtreaked with black	1	0	2	0
5	Black ſhiver, with beds and balls of iron-ſtone - - -	0	1	2	6
4	Grey and black mettle-ſtone -	0	1	1	9
2	White and brown poſt -	1	1	0	0
5	Black and grey ſhiver, ſtreaked with white	0	1	0	6
3	Soft grey ſand-ſtone, with ſhivery partings	0	1	1	0
2	Yellow and white poſt, with ſandy partings	1	0	2	0
5	Black and dun ſhiver, with iron-ſtone balls	0	1	2	6
2	White poſt ſtreaked with black, and black partings - - -	1	0	0	6
5	Grey ſhiver, with iron-ſtone balls	0	1	0	9
4	Brown and black mettle ſtone -	1	1	2	6
5	Hard ſlaty black ſhiver - -	1	1	0	0
6	Coal, hard and fine ſplint -	0	0	3	6
5	Soft black ſhiver - -	0	0	0	3
6	Coal, fine and clear - -	0	0	3	3
5	Hard black ſhiver - -	0	0	1	0
	Total Fathoms	25	0	0	0

In this inſtance the ſpecies of ſand-ſtone only occurs twice, poſt five times, whilſt the ſhiver occurs no leſs than nine times.

To apply the foregoing obſervations to practice.

Suppoſe it was required to examine whether there was coal in a piece of ground adjoining to, or in the neighbourhood of, other coaleries.

II
Methods of ſearching for coal.

Rule 1ſt.

In the firſt place, it is proper to be informed, at ſome of the adjacent coaleries, of the number and kinds of ſtrata; the order in which they lie upon each other; to what point of the horizon, and in what quantity, they dip; if any dikes, hitches, or troubles, and the courſe they ſtretch. Having learnt theſe circumſtances, ſearch in the ground under examination where the ſtrata are expoſed to view, and compare theſe with the other. If they be of the ſame kinds, and nearly correſpond in order and thickneſs, and be lying in a regular manner, and agree by computation with the dip and riſe, it may ſafely be concluded the coal is there; and the depth of it may be judged from the depth of the coal in the other coalery, below any particular ſtratum which is viſible in this.

Rule 2d.

If the ſolid ſtrata are not expoſed to view, neither in the hills nor valleys of the ground under examination, then ſearch in the adjoining grounds; and if the ſame kind of ſtrata are found there as in the adjacent coalery, and there is reaſon, from the dip and other circumſtances, to believe that they ſtretch through the ground to be examined: it may then be concluded that the coal is there, as well as theſe other ſtrata.

Plate CXLII.

Suppoſe a coalery is on the ſide of a hill at A, fig. 3. and you would ſearch for a coal at B, on the other ſide of the hill, but in a much lower ſituation; by obſerving the ſeveral ſtrata, lying above the coal at A, and the point to which they dip, which is directly towards B (if clear of dikes), you may expect to find the ſame kind of ſtrata on the other ſide of the hill, but much lower down. Accordingly, if ſome of the ſtrata are viſible in the face of the precipice C, they may be compared with ſome of thoſe in the pit at A. Or, if they are not to be ſeen there, by ſearching in the oppoſite hill, they may perhaps be diſcovered at the place F; where, if they be found in the manner before mentioned, and there be reaſon to believe they extend regularly from the firſt place to this, it is more than probable the coal, as well as theſe ſtrata, will be found in the intermediate ground.

Rule 3d.

If the ground to be examined lie more to the riſe of the coal, as at E, which being ſuppoſed to be on a flat, perhaps the ſolid ſtrata there may be wholly covered by the gravel, clay, &c. of the outward ſurface lying upon them: In this caſe, by meaſuring the horizontal diſtance and the deſcent of ground from A to E, and computing the quantity of aſcent or riſe of the coal in that diſtance: by comparing theſe together, it may be judged at what depth the coal will be found there, allowing that it lie regular. Thus, ſuppoſe the coal at A 80 yards deep, the diſtance from A to E 500 yards, and that the coal riſes 1 yard in 10 yards of horizontal diſtance:

Then, from the depth of the pit 80
Deduct the deſcent of ground from A to E, ſuppoſe - - - 24
—
This remainder would be the depth, if the coal was level - - 56
But as the coal riſes 1 in 10 feet, then deduct what it riſes in 500 yards, which is 50
—
And the remainder is the depth of that coal at E - - - 6 Yards.

Rule 4th

Or ſuppoſe that the place at B is 500 yards the contrary way, or to the full dip of the coal at A; if a view of the ſolid ſtrata cannot be obtained, then by proceeding in the ſame manner as before, the depth of the coal at that place may be computed. Thus,

To the depth of the coal at the pit A 80
Add the deſcent or inclination of the coal in 500 yards, which, as before, is 50
—
This ſum would be the depth, if the ground was level - - 130
But as the ground deſcends towards B, deduct the quantity of that, which ſuppoſe - - - 80
—
Remains the depth of the coal at B 50 Yards.

If the place to be examined be neither to the full dip nor full riſe, but in ſome proportion towards either, the ſame method may be purſued, computing how much the coal riſes or dips in a certain diſtance in that direction.

If there is known to be a dike in the workings of the pit at A, which elevates or depreſſeth the ſtrata towards the place under examination, then the quantity of the elevation or depreſſion muſt be accordingly added to or deducted from the computed depth of the coal at that place. Suppoſe there is an upcaſt dike of 10 fathoms or 20 yards towards B, then deduct 20 from 50, the depth before computed, there will remain 30 yards or 15 fathoms for the depth of the coal at B.

But it often happens that coal is to be ſearched for, in a part of the country, at ſuch a conſiderable diſtance from all other coaleries, that by reaſon of the intervention of hills, valleys, unknown dikes, &c. the connection or relation of the ſtrata with thoſe of any other coalery cannot be traced by the methods laſt mentioned; in which caſe a more extenſive view muſt be taken of all circumſtances than was neceſſary in the former; and a few general rules founded on the foregoing obſervations, and on concluſions drawn from them, will greatly aſſiſt in determining ſometimes with a great degree of probability, and ſometimes with abſolute certainty, whether coal be in any particular diſtrict of country or not.

Rule 5th. The firſt proper ſtep to be taken in ſuch a caſe, is to take a general view of that diſtrict of country intended to be ſearched, in order to judge, from the outward appearance or face of the country, which particular part out of the whole is the moſt likely to contain thoſe kind of ſtrata favourable to the production of coal; and conſequently ſuch particular part being found, is the moſt adviſeable to be begun with in the examination.

Mountainous ſituations.

Though the appearance of the outward ſurface gives no certain or infallible rule to judge of the kinds of ſtrata lying beneath, yet it gives a probable one; for it is generally found, that a chain of mountains or hills riſing to a great height, and very ſteep on the ſides, are commonly compoſed of ſtrata much harder and of different kinds from thoſe before deſcribed wherein coal is found to lie, and therefore unfavourable to the production of coal; and theſe mountainous ſituations are alſo more ſubject to dikes and troubles than the lower grounds: ſo that if the ſolid ſtrata compoſing them gave even favourable ſymptoms of coal, yet the laſt circumſtance would render the quality bad, and the quantity precarious. And, on the whole, it may be obſerved, that mountainous ſituations are found more favourable to the production of metals than of coal. **Hills and valleys.** It is likewiſe generally found that thoſe diſtricts abounding with valleys, moderately riſing hills, and interſperſed with plains, ſometimes of conſiderable extent, do more commonly contain coal, and thoſe kinds of ſtrata favourable to its production, than either the mountainous or champaign countries; and a country ſo ſituated as this laſt deſcribed, eſpecially if at ſome conſiderable diſtance from the mountains, ought to be the firſt part appointed for particular examination. **Plains.** Plains, or level grounds of great extent, generally ſituated by the ſides of rivers, or betwixt ſuch moderate riſing grounds as laſt deſcribed, are alſo very favourable to the production of coal, if the ſolid ſtrata, and other circumſtances in the higher grounds adjoining, be conformable; for it will ſcarcely be found, in ſuch a ſituation, that the ſtrata are favourable in the riſing grounds, on both ſides of the plain, and not ſo in the ſpace betwixt them. Though plains be ſo favourable, in ſuch circumſtances, to the production of coal, yet it is often more difficult to be diſcovered in ſuch a ſituation, than in that before deſcribed; becauſe the clay, ſoil, and other lax matter, brought off the higher grounds by rains and other accidents, have generally covered the ſurfaces of ſuch plains to a conſiderable depth, which prevents the exploration of the ſolid ſtrata there, unleſs they be expoſed to view by digging, quarrying, or ſome ſuch operation.

That part of the diſtrict being fixed upon which abounds with moderate hills and valleys as propereſt to begin the examination at, the firſt ſtep to be taken is to examine all places where the ſolid ſtrata are expoſed to view (which are called the *crops* of the ſtrata), as in precipices, hollows, &c. tracing them as accurately and gradually as the circumſtances will allow, from the uppermoſt ſtratum or higheſt part of the ground to the very undermoſt: and if they appear to be of the kinds before deſcribed, it will be proper to note in a memorandum book their different thickneſſes; the order in which they lie upon each other; the point of the horizon to which they dip or incline, and the quantity of that inclination; and whether they lie in a regular ſtate. This ſhould be done in every part of the ground where they can be ſeen: obſerving at the ſame time, that if a ſtratum can be found in one place, which has a connection with ſome other in a ſecond place, and if this other has a connection with another in a third place, &c.; then, from theſe ſeparate connections, the joint correſpondence of the whole may be traced, and the ſtrata, which in ſome places are covered, may be known by their correſpondence with thoſe which are expoſed to view.

If by this means the crops of all the ſtrata cannot be ſeen (which is often the caſe), and if no coal be diſcovered by its crop appearing at the ſurface; yet if the ſtrata that have been viewed conſiſt of thoſe kinds before deſcribed, and are found lying in a regular order, it is ſufficiently probable that coal may be in that part of the diſtrict, although it be concealed from ſight by the ſurface of earth or other matter. **Rule 6th.** Therefore, at the ſame time that the crops of the ſtrata are under examination, it will be proper to take notice of all ſuch ſprings of water as ſeem to be of a mineral nature, particularly thoſe known by the name of iron water, which bear a mud or ſediment of the colour of ruſt of iron, having a ſtrong aſtringent taſte. Springs of this kind proceed originally from thoſe ſtrata which contain beds or balls of iron-ore; but by reaſon of the tenacity of the matter of thoſe ſtrata, the water only diſengages itſelf ſlowly from them, deſcending into ſome more porous or open ſtratum below, where, gathering in a body, it runs out to the ſurface in ſmall ſtreams or rills. The ſtratum of coal is the moſt general reſervoir of this water; for the iron-ſtone being lodged in different kinds of ſhiver, and the coal commonly

monly connected with ſome of them, it therefore deſcends into the coal, where it finds a ready paſſage through the open backs and cutters. Sometimes, indeed, it finds ſome other ſtratum than coal to collect and tranſmit it to the ſurface; but the difference is eaſily diſtinguiſhable; for the ochrey matter in the water, when it comes from a ſtratum of coal, is of a darker ruſty colour than when it proceeds from any other, and often brings with it particles and ſmall pieces of coal; therefore, wherever theſe two circumſtances concur in a number of theſe kind of ſprings, ſituated in a direction from each other anſwerable to the ſtretch or to the inclination of the ſtrata, it may be certain the water comes off coal, and that the coal lies in a ſomewhat higher ſituation than the apertures of the ſprings.

There are other ſprings alſo which come off coal, and are not diſtinguiſhable from common water, otherwiſe than by their aſtringency, and their having a blue ſcum of an oily or glutinous nature ſwimming upon the ſurface of the water. Theſe, in common with the others, bring out particles of coal, more eſpecially in rainy ſeaſons when the ſprings flow with rapidity. When a number of theſe kinds are ſituated from each other in the direction of the ſtrata, as above deſcribed; or if the water does not run forth as in ſprings, but only forms a ſwamp, or an extenſion of ſtagnant water beneath the turf; in either caſe, it may be depended upon that this water proceeds from a ſtratum of coal.

Rule 7th. If the ſtratum of coal is not expoſed to view, or cannot be diſcovered by the firſt method of ſearching for the crop, although the appearance of the other ſtrata be very favourable, and afford a ſtrong probability of coal being there; and if the laſt-mentioned method of judging of the particular place where the crop of the coal may lie, by the ſprings of water iſſuing from it, would, from the deficiency of thoſe ſprings or other circumſtances, be thought equivocal, and not give a ſatisfactory indication of the coal; then a further ſearch may be made in all places where the outward ſurface, or the ſtratum of clay or earth, is turned up by ploughing, ditching, or digging, particularly in the lower grounds, in hollows, and by the ſides of ſtreams. Theſe places ſhould be ſtrictly examined, to ſee if any pieces of coal be intermixed with the ſubſtance of the ſuperior lax ſtrata; if any ſuch be found, and if they be pretty numerous and in detached pieces, of a firm ſubſtance, the angles perfect or not much worn, and the texture of the coal diſtinguiſhable, it may be concluded, that the ſtratum of coal to which they originally did belong is at no great diſtance, but in a ſituation higher with reſpect to the horizon; and if there be alſo found along with the pieces of coal other mineral matter, ſuch as pieces of ſhiver or freeſtone, this is a concurrent proof, that it has come only from a ſmall diſtance. Though the two fore-mentioned methods ſhould only have produced a ſtrong probability, yet if this laſt mentioned place, where the pieces of coal, &c. are found in the clay, be in a ſituation lower than the ſprings; when this circumſtance is joined to the other two, it amounts to little leſs than a moral certainty of the ſtratum of coal being a very little above the level of the ſprings. But if, on the contrary, theſe pieces of coal are found more ſparingly interſperſed in the ſuperior ſtratum, and if the angles are much fretted or worn off, and very little of other kinds of mineral matter connected with them; it may then be concluded, that they have come from a ſtratum of coal ſituated at a greater diſtance than in the former caſe, and by a ſtrict ſearch and an accurate compariſon of other circumſtances, that particular place may be diſcovered with as much certainty as the other.

After the place is thus diſcovered, where the ſtratum of coal is expected to lie concealed, the next proper ſtep to be taken, is to begin digging a pit or hole there perpendicularly down to find the coal. If the coal has no ſolid ſtrata above and beneath it, but be found only embodied in the clay or other lax matter, it will not be there of its full thickneſs, nor ſo hard and pure as in its perfect ſtate when encloſed betwixt two ſolid ſtrata, the uppermoſt called the *roof*, and the undermoſt called the *pavement*, of the coal: in ſuch ſituation therefore it becomes neceſſary, either to dig a new pit, or to work a mine forward until the ſtratum of coal be found included betwixt a ſolid roof and pavement, after which it need not be expected to increaſe much in its thickneſs: yet as it goes deeper or farther to the dip, it moſt likely will improve in its quality; for that part of the ſtratum of coal which lies near the ſurface, or only at a ſmall depth, is often debaſed by a mixture of earth and ſundry other impurities, waſhed down from the ſurface, through the backs and cutters, by the rains; whilſt the other part of the ſtratum which lies at a greater depth is preſerved pure, by the other ſolid ſtrata above it intercepting all the mud waſhed from the ſurface.

The above methods of inveſtigation admit of many different caſes, according to the greater or leſs number of favourable circumſtances attending each of the modes of inquiry; and the reſult accordingly admits every degree of probability, from the moſt diſtant, even up to abſolute certainty. In ſome ſituations, the coal will be diſcovered by one method alone; in others, by a compariſon of certain circumſtances attending each method; whilſt in ſome others, all the circumſtances that can be collected only lead to a certain degree of probability.

In the laſt caſe, where the evidence is only probable, it will be more adviſable to proceed in the ſearch by boring a hole through the ſolid ſtrata (in the manner hereafter deſcribed), than by digging or ſinking a pit, it being both cheaper and more expeditious; and in every caſe, which does not amount to an abſolute certainty, this operation is neceſſary, to aſcertain the real exiſtence of the coal in that place.

We ſhall now ſuppoſe, that having examined a certain diſtrict, ſituated within a few miles of the ſea or ſome navigable river, that all the circumſtances which offer only amount to a probability of the coal being there, and that boring is neceſſary to aſcertain it; we ſhall therefore deſcribe the operation of boring to the coal; then the method of clearing it from water, commonly called *winning* it; and all the ſubſequent operations of working the coal and raiſing it to the ſurface, leading it to the river or harbour, and finally putting it on bord the ſhips.

12 Of boring for the coal.

Suppoſe that the ground, A, B, C, D, fig. 4. has been examined, and from the appearance of the ſtrata where

Plate CXLII.

where they are viſible (as at the precipice D, and ſeveral other places), they are found to be of thoſe kinds uſually connected with coal, and that the point to which they riſe is directly weſt towards A, but the ground being flat and covered to a conſiderable depth with earth, *&c.* the ſtrata cannot be viewed in the low grounds; therefore, in this and all ſimilar ſituations, the firſt hole that is bored for a trial for coal ſhould be on the weſt ſide of the ground, or to the full riſe of the ſtrata as at A, where, boring down through the ſtrata 1, 2, 3, ſuppoſe 10 fathoms, and not finding coal, it will be better to bore a new hole than to proceed to a great depth in that: therefore, proceeding ſo far to the eaſtward as B, where the ſtratum 1, of the firſt hole, is computed to be 10 or 12 fathoms deep, a ſecond hole may be bored, where boring down through the ſtrata 4, 5, 6, 7, 8, the ſtratum 1 is met with, but no coal; it would be of no uſe to bore farther in this hole, as the ſame ſtrata would be found which were in the hole A: therefore, proceeding again ſo far to the eaſtward, as it may be computed the ſtratum 4 of the ſecond hole will be met with at the depth of 10 or 12 fathoms, a new hole may be bored at C; where, boring through the ſtrata 9, 10, 11, 12, the coal is met with at 13, before the hole proceed ſo deep as the ſtratum 4 of the former. It is evident, that, by this method of procedure, neither the coal nor any other of the ſtrata can be paſſed over, as the laſt hole is always bored down to that ſtratum which was neareſt the ſurface in the former hole.

The purpoſes for which boring is uſed are numerous, and ſome of them of the utmoſt importance in coaleries. In coaleries of great extent, although the coal be known to extend through the whole grounds, yet accidental turns, and other alterations in the dip, to which the coal is liable, render the boring of three or more holes neceſſary, to determine exactly to what point of the horizon it dips or inclines, before any capital operation for the winning of it can be undertaken; becauſe a very ſmall error in this may occaſion the loſs of a great part of the coal, or at leaſt incur a double expence in recovering it.

Suppoſe A, B, C, D, fig. 5. to be part of an extenſive field of coal, intended to be won or laid dry by a fire-engine; according to the courſe of the dip in adjoining coaleries, the point C is the place at which the engine ſhould be erected, becauſe the coal dips in direction of the line AC, conſequently the level line would be in the direction CD; but this ought not to be truſted to. Admit two holes, 1, 2, be bored to the coal in the direction of the ſuppoſed dip, at 200 yards diſtance from each other, and a third hole 3 at 200 yards diſtance from each of them: ſuppoſe the coal is found, at the hole 1, to be 20 fathoms deep; at the hole 2, 10 fathoms deeper; but at the hole 3, only 8 fathoms deeper than at 1. Then to find the true level line and dip of the coal, ſay, As 10 fathoms the dip from 1 to 2, is to 200 yards the diſtance, ſo is 8 fathoms, the dip from 1 to 3, to 160 yards, the diſtance from one on the line 1 2, to *a* the point upon a level with the hole 3. Again ſay, As 8 fathoms, the dip from 1 to 3, is to 200 yards the diſtance; ſo is 10 fathoms, the dip from 1 to 2, to 250 yards, the diſtance from 1, in direction of the line 1, 3, to *b*, the point upon a level with the hole 2. Then let fall the perpendicular 1, *c*, which will be the true direction of the dip of the coal, inſtead of the ſuppoſed line A C; and by drawing E D, and D F, parallel to the other lines, the angle D, and no other place, is the deepeſt part of the coal, and the place where the engine ſhould be erected. If it had been erected at the angle C, the level line would have gone in the direction *c b*, by which means about one-third part of the field of coal would have been below the level of the engine, and perhaps loſt, without another engine was erected at D.

Boring not only ſhows the depth at which the coal lies, but its exact thickneſs; its hardneſs; its quality, whether cloſe burning or open burning, and whether any foul mixture in it or not; alſo the thickneſs, hardneſs, and other circumſtances of all the ſtrata bored through; and from the quantity of water met with in the boring, ſome judgment may be formed of the ſize of an engine capable of drawing it, where an engine is neceſſary. When holes are to be bored for theſe purpoſes, they may be fixed (as near as can be gueſſed) in ſuch a ſituation from each other, as to ſuit the places where pits are afterwards to be ſunk; by which means moſt of the expence may be ſaved, as theſe pits would otherwiſe require to be bored, when ſinking, to diſcharge their water into the mine below. There are many other uſes to which boring is applied, as will be explained hereafter.

For theſe reaſons, boring is greatly practiſed in England, and is brought to great perfection; and as the operation is generally entruſted to a man of integrity, who makes it his profeſſion, the accounts given by him of the thickneſs and other circumſtances of the ſtrata, are the moſt accurate imaginable, and are truſted to with the greateſt confidence; for as very few gentlemen chooſe to take a leaſe of a new coalery which has not been ſufficiently explored by boring, it is neceſſary the accounts ſhould be faithful, being the only rule to guide the landlord in letting his coal, and the tenant in taking it. In Scotland it is not ſo generally practiſed; nor are there any men of character who are profeſſed borers, that operation being commonly left to any common workman; whence it happens that it never has been in any eſteem, the accounts given by them being ſo imperfect and equivocal as not to merit any confidence.

The tools or inſtruments uſed in boring are very ſimple. The boring rods are made of iron from 3 to 4 feet long, and about one inch and a half ſquare, with a ſcrew at each end, by which they are ſcrewed together, and other rods added as the hole increaſes in depth. The chiſſel is about 18 inches long, and two and a half broad at the end, which being ſcrewed on at the lower end of the rods, and a piece timber put through an eye at the upper end, they are prepared for work. The operation is performed by lifting them up a little, and letting them fall again, at the ſame time turning them a little round; by a continuance of which motions, a round hole is fretted or worn through the hardeſt ſtrata. When the chiſſel is blunt, it is taken out, and a ſcooped inſtrument, called a *wimble*, put on in its ſtead; by which the duſt or pulveriſed matter which was worn off the ſtratum in the laſt operation is brought up. By this ſubſtance, the borers know exactly the nature of the ſtratum they are boring in; and by any alteration in the working of the rods (which they are ſenſible of by handling them), they perceive the leaſt variation of the ſtrata. The principal part of the art depends upon keeping the whole clean, and obſerving every variation of the ſtrata with care and attention.

The eſtabliſhed price of boring in England is 5 s. *per* fathom for the firſt five fathoms, 10. *per* fathom for the next five fathoms; and 15s *per* fathom for the next five fathoms; and ſo continually increaſing 5 s. *per* fathom at the end of every five fathoms; the borer finding all kinds of boring inſtruments, and taking his chance of the hardneſs of ſtrata, except above one foot in thickneſs of whin occur, when the former price ceaſes, and he is paid *per* day.

13 Of winning the coal.

It is exceedingly uncommon to meet with a ſtratum of coal which is naturally dry, or whoſe ſubterranean ſprings or feeders of water are ſo very ſmall as to require no other means than the labour of men to draw off or conduct them away: for it moſt commonly happens, that the ſtratum of coal, and the other ſtrata adjacent, abound ſo much in feeders of water, that, before acceſs can be had to the coal, ſome other methods muſt be purſued to drain or conduct away theſe feeders; therefore, after the deepeſt part of the coal is diſcovered, the next conſideration is of the beſt method of draining it, or, in the miner's language, *of winning the coal.*

If the coal lies in ſuch an elevated ſituation, that a part of it can be drained by a level brought up from the lower grounds, then that will be the moſt *natural* method; but whether it be the moſt *proper* or not, depends upon certain circumſtances. If the ſituation of the ground be ſuch, that the level would be of a great length, or have to come through very hard ſtrata, and the quantity of coal it would drain, or the profits expected to be produced by that coal, ſhould be inadequate to the expence of carrying it up; in ſuch caſe ſome other method of winning might be more proper. Or ſuppoſe, in another caſe, it be found, that a level can be had to a coalery, which will coſt L. 2000, and require five years to bring it up to the coal, and that it will drain 30 acres of coal when completed; yet if it be found that a fire engine, or ſome other machine, can be erected on that coalery, for the ſame ſum of money, in one year, which will drain 50 acres of the ſame coal, then this laſt would be a more proper method than the level; becauſe four years profit would be received by this method before any could come in by the other; and after the 30 acres drained by the level is all wrought, a machine of ſome kind would nevertheleſs be neceſſary to drain the remaining 20 acres: ſo that erecting a machine at firſt would be on all accounts the moſt adviſable.

Where a level can be drove, in a reaſonable time, and at an adequate expence, to drain a ſufficient tract of coal, it is then the moſt eligible method of winning; becauſe the charge of upholding it is generally leſs than that of upholding fire-engines or other machines.

If a level is judged propereſt after conſideration of every neceſſary circumſtance, it may be begun at the place appointed in the manner of an open ditch, about three feet wide, and carried forward until it be about ſix or ſeven feet deep from the ſurface, taking care to ſecure the bottom and ſides by timber-work or building; after which it may be continued in the manner of a mine about three feet wide, and three feet and a half high, through the ſolid ſtrata, taking care all along to keep the bottom upon a level, and to ſecure the roof, ſides, and bottom, by timber or building, in all places where the ſtrata are not ſtrong enough to ſupport the incumbent weight, or where they are liable to decay by their expoſure to the freſh air. If the mine has to go a very long way before it reach the coal, it may be neceſſary to ſink a ſmall pit, for the convenience of taking out the ſtones and rubbiſh produced in working the mine, as well as to ſupply freſh air to the workmen; and if the air ſhould afterwards turn damp, then ſquare wooden pipes made of deals cloſely jointed (commonly called *air-boxes*), may be fixed in the upper part of the mine, from the pit-bottom all the way to the end of the mine, which will cauſe a ſufficient circulation of freſh air for the workmen; perhaps in a great length it will be found proper to ſink another or more pits upon the mine, and by proceeding in this manner it may be carried forward until it arrive at the coal; and after driving a mine in the coal a few yards to one ſide, the firſt coal-pit may be ſunk.

If a level is found impracticable, or for particular reaſons unadviſable; then a fire-engine *, or ſome other machine, will be neceſſary, which ſhould be fixed upon the deepeſt part of the coal, or at leaſt ſo far towards the dip as will drain a ſufficient extent of coal, to continue for the time intended to work the coalery: and whether a fire-engine, or any other machine, is uſed, it will be of great advantage to have a partial level brought up to the engine-pit, if the ſituation of the ground will admit it at a ſmall charge, in order to receive and convey away the water without drawing it ſo high as to the ſurface: for if the pit was 30 fathoms deep to the coal, and if there was a partial level, which received the water five fathoms only below the ſurface, the engine by this means would be enabled to draw 1-6th part more water than without it; and if there were any feeders of water in the pit above this level, they might be conveyed into it, where they would be diſcharged without being drawn by the engine.

The engine-pit may be from ſeven to nine feet wide; and whether it be circular, oval, or of any other form, is not very material, provided it be ſufficiently ſtrong, though a circular form is moſt generally approved. If any feeders of water are met with a few fathoms from the ſurface, it will be proper to make a circular or ſpiral cutting about one foot deep, and a little hollowed in the bottom, round the circumference of the pit, in order to receive and conduct the water down without flying over the pit and incommoding the workmen. If the ſtrata are of ſo tender or friable a nature as not to bear this operation, or if the water leaks through them, then it will be neceſſary to inſert in the forementioned cutting a circular piece of timber called a *crib*, hollowed in the ſame manner to collect the water; and a ſecond may be inſerted two or three yards below the firſt, with a ſloping nitch down the wall or ſide of the pit, to convey the water from the former into it; proceeding by ſome of theſe methods until the pit is ſunk 15 or 20 fathoms; at which place it would be proper to fix a

* See article *Steam-engine.*

ciſtern or reſervoir, for the firſt or upper ſet of pumps to ſtand in; for if the pit be 30 fathoms as ſuppoſed, it would be too great a length for the pumps to be all in one ſet from bottom to top; therefore, if any extraordinary feeders are met with, betwixt 15 and 20 fathoms deep, it would be beſt to fix the ciſtern where it may receive them, and prevent their deſcending to the bottom; obſerving that the upper ſet of pumps be ſo much larger than the lower one, as the additional feeders may require; or if there are no additional feeders, it ought then to be a little ſmaller

After the upper ciſtern is fixed, the operation may be purſued by the other ſet of pumps in much the ſame manner as has been deſcribed, until the pit is ſunk to the coal; which being done, it would be proper to ſink it ſix or eight feet deeper, and to work ſome coal out from the dip ſide of the pit, to make room for a large quantity of water to collect, without incommoding the coal-pits when the engine is not working.

It would exceed the proper bounds of this article, to enumerate all the accidents to which engine-pits are liable in ſinking; we ſhall therefore only recite a few which ſeem important.

If a quickſand happen to lie above the ſolid ſtrata, next the ſurface, it may be got through by digging the pit of ſuch a wideneſs at the top (allowing for the natural ſlope or running of the ſand) as to have the proper ſize of the pit on the uppermoſt ſolid ſtratum; where fixing a wooden frame or tube as the timber-work of the pit, and covering it round on the outſide with wrought clay up to the top, the ſand may again be thrown into the excavation round the tube, and levelled with the ſurface.

If the quickſand ſhould happen to lie at a conſiderable depth betwixt the clay and ſolid ſtrata, then a ſtrong tube of timber cloſely jointed and ſhod with iron, of ſuch a diameter as the pit will admit, may be let down into it; and by fixing a great weight upon the top, and by working out the ſand, it may be made to ſink gradually, until it come to the rock or other ſolid ſtratum below; and when all the ſand is got out, if it be lightly calked and ſecured it will be ſufficient.

It ſometimes happens, that a ſtratum of ſoft matter, lying betwixt two hard ſolid ones, produces ſo large a quantity of water as greatly to incommode the operations. In ſuch a caſe, a frame-work of plank, ſtrengthened with cribs and cloſely calked, will ſtop back the whole or the greateſt part of it, provided the two ſtrata which include it are of a cloſe texture; or let an excavation of about two feet be made in the ſoft ſtratum, quite round the circumference of the pit; and let that be filled cloſe up betwixt the hard ſtrata, with pieces of dry fir-timber about ten inches ſquare inſerted endwiſe, and afterwards as many wooden wedges driven in to them as they can be made to receive; if this be well finiſhed, little or no water will find a paſſage through it.

It rarely happens that any ſuffocating damp or foul air is met with in an engine-pit; the falling of water, and the working of the pumps, generally cauſing a ſufficient circulation of freſh air. But that kind of combuſtible vapour, or inflammable air, which will catch fire at a candle is often met with. It proceeds from the partings, backs, and cutters, of the ſolid ſtrata, exhaling from ſome in an inſenſible manner, whilſt from others it blows with as great impetuoſity as a pair of bellows. When this inflammable air is permitted to accumulate, it becomes dangerous by taking fire, and burning or deſtroying the workmen, and ſometimes by its exploſion will blow the timber out of the pit, and do conſiderable damage. If a conſiderable ſupply of freſh air is forced down the pit by air-boxes and a ventilator, or by dividing the pit into two by a cloſe partition of deals from top to bottom, or by any other means, it will be driven out, or ſo weakened, that it will be of no dangerous conſequence: or when the inflammable air is very ſtrong, it may be ſafely carried off by making a cloſe ſheathing or lining of thin deals quite round the circumference of the pit, from the top of the ſolid ſtrata to the bottom, and lengthening it as the pit is ſunk, leaving a ſmall vacancy behind the ſheathing; when the combuſtible matter, which exhales from the ſtrata, being confined behind theſe deals, may be vented by one or two ſmall leaden pipes carried from the ſheathing to the ſurface; ſo that very little of it can tranſpire into the area of the pit. If a candle be applied to the orifice of the pipe at the ſurface, the inflammable air will inſtantly take fire, and continue burning like an oil-lamp until it be extinguiſhed by ſome external cauſe. Upon the whole, every method ſhould be uſed to make the pit as ſtrong in every part, and to keep it as dry as poſſible; and whenever any accident happens, it ſhould be as expeditiouſly and thoroughly repaired as poſſible, before any other operation be proceeded in, leſt an additional one follow, which would more than double the difficulty of repairing it.

14
Of working coal.

The firſt operations, after ſinking the engine-pit, are the working or driving a mine in the coal, and ſinking the firſt coal pit. The ſituation of the firſt coal-pit ſhould be a little to the riſe of the engine-pit, that the water which collects there may not obſtruct the working of the coals every time the engine ſtops: and it ſhould not exceed the diſtance of 20, 30, or 40 yards; becauſe when the firſt mine has to be driven a long way, it becomes both difficult and expenſive. If there be not a ſufficient circulation of freſh air to the mine, it may be ſupplied by the before deſcribed air-boxes and a ventilator, until it arrive below the intended coal pit, when the pit may be bored and ſunk to the coal, in the manner before mentioned.

After the pit is thus got down to the coal, the next conſideration ſhould be of the beſt method of working it. The moſt general practice in Scotland is to excavate and take away a part only of the ſtratum of coal in the firſt working of the pit, leaving the other part as pillars for ſupporting the roof; and after the coal is wrought in this manner to ſuch a diſtance from the pit as intended, then theſe pillars, or ſo many of them as can be got, are taken out by a ſecond working, and the roof and other ſolid ſtrata above permitted to fall down and fill up the excavation. The quantity of coal wrought away, and the ſize of the pillars left in the firſt working, is proportioned to the hardneſs and ſtrength of the coal and other ſtrata adjacent, compared with the incumbent weight of the ſuperior ſtrata.

The ſame mode of working is purſued in moſt parts of England, differing only as the circumſtances of the coalery may require: for the Engliſh coal, particularly in the northern counties, being of a fine tender texture, and of the cloſe-burning kind, and alſo the roof and pavement of the coal in general not ſo ſtrong as in Scotland, they are obliged to leave a larger proportion of coal in the pillars for ſupporting the roof, during the firſt time of working; and, in the ſecond woking, as many of theſe pillars are wrought away as can be got with ſafety.

The Scots coal in general being very hard, and of the open-burning kind, it is neceſſary to work it in ſuch a manner as to produce as many *great coals* as poſſible, which is beſt effected by taking away as high a proportion of the coal as circumſtances will allow in the firſt working; on the contrary, the Engliſh coal being very tender cannot poſſibly be wrought large, nor is it of much importance how ſmall they are, being of ſo rich a quality; ſo that a larger proportion may be left in pillars in this coal than could with propriety be done in the other; and, when all circumſtances are conſidered, each method ſeems well adapted to the different purpoſes intended.

The ancient method of working was, to work away as much of the coal as could be got with ſafety at one working only: by which means the pillars were left ſo ſmall as to be cruſhed by the weight of the ſuperior ſtrata, and entirely loſt. As great quantities of coals were loſt by this method, it is now generally exploded, and the former adopted in its place; by which a much larger quantity of coal is obtained from the ſame extent of ground, and at a much leſs expence in the end.

The exact proportion of coal proper to be wrought away, and to be left in pillars at the firſt working, may be judged of by a compariſon of the circumſtances before mentioned. If the roof and pavement are both ſtrong, as well as the coal, and the pit about 30 fathoms deep, then two-thirds, or probably three-fourths, may be taken away at the firſt working, and one-third or one-fourth left in pillars. If both roof and pavement be ſoft or tender, then a larger proportion muſt be left in pillars, probably one-third or near one-half; and in all caſes the hardneſs or ſtrength of the coal muſt be conſidered. If tender, it will require a larger pillar than hard coal; becauſe, by being expoſed to the air after the firſt working, a part of it will moulder and fall off, by which it will loſe much of its ſolidity and reſiſtance.

Plate CXLII.

The proportion to be wrought away and left in pillars being determined, the next proper ſtep is to fix upon ſuch dimenſions of the pillars to be left, and of the excavations from which the coal is to be taken away, as may produce that proportion. In order to form a juſt idea of which, ſee a plan of part of a pit's workings (fig. 6.), ſuppoſed to be at the depth of 30 fathoms, and the coal having a moderate riſe. A, repreſents the engine-pit; B, the coal-pit; A *a* B, the mine from the former to the latter; B C, the firſt working or excavation made from the coal-pit, commonly called the *winning mine*, or *winning headway*, nine feet wide; *b b b b*, &c. the workings called *rooms*, turned off at right angles from the others, of the width of 12 feet; *c c c c*, &c. the workings called *throughers* or *thirlings*, 9 feet wide, wrought through at right angles from one room to another; *d d d*, &c. the pillars of coal left at the firſt working for ſupporting the roof, 18 feet long and 12 feet broad; D D, two large pillars of coal near the pit-bottom, 15 or 20 yards long, and 10 or 15 broad, to ſupport the pit, and prevent its being damaged by the roof falling in; *e e*, the level mine wrought in the coal from the engine-pit bottom, 4 or five feet wide; *f f*, &c. large pillars of coal left next the level, to ſecure it from any damage by the roof falling in; *g g*, a dike which depreſſeth the coal, 1 fathom; *h h*, &c. large pillars and barriers of coal left unwrought, adjoining to the dike where the roof is tender, to prevent its falling down. The coal taken out by the firſt working in this pit is ſuppoſed to be one-third of the whole; and allowing the rooms 12 feet wide, and the thirlings 9 feet wide, then the pillars will require to be 12 feet wide and 18 feet long; for if one pillar be in a certain proportion to its adjoining room and thirling, the whole number of pillars will be in the ſame proportion to the whole number of rooms and thirlings in the pit. Suppoſe A B C D, (fig. 7.), to be a pillar of coal 18 feet long and 12 feet broad, its area will be 216 ſquare feet; A C H E, the adjoining thirling, 12 feet by 9 feet, and its area 108 ſquare feet; B A E F G, the adjoining room 27 feet long and 12 feet broad, and its area 324 ſquare feet; which added to 108 gives 432 ſquare feet, or two-thirds wrought, and 216 ſquare feet left, or one-third of the whole area F G H D.

It is proper to obſerve, that in the proſecution of the workings, the rooms to the right of the winning headway ſhould be oppoſite to the pillars on the left; and the firſt, third, and fifth pillar, or the ſecond, fourth, and ſixth, adjoining to the ſaid headway, ſhould be of ſuch a length as to overlay the adjoining thirlings; as, in the plan, the pillar 2 overlays the thirlings 1 and 3; and the pillar 4, overlays the thirlings 3 and 5; this will effectually ſupport the roof of the main road B C, and will bring the other pillars into their regular order, by which means each pillar will be oppoſite to two thirlings. Alſo a larger proportion of coal than common ſhould be left in all places which are intended to be kept open after the ſecond working; ſuch as the pit-bottoms, air-courſes, roads, and water-courſes, or where the roof is tender, as it generally is near dikes, hitches, and troubles; and if the roof ſhould continue tender for a conſiderable ſpace, it will perhaps be found proper to leave a few inches of coal adhering to the roof, which, together with a few props of timber fixed under it, may ſupport it effectually for a long time. The level mine *e e*, and the winning headway B C, ſhould be wrought forward a conſiderable length before the other rooms, in order to be drove through any dikes that might interpoſe; otherwiſe the progreſs of the workings might probably be ſtopped a conſiderable time, waiting until a courſe of new rooms were procured on the other ſide of the dike. Suppoſe the dike *g g*, fig. 6. to depreſs the coal ſix feet or one fathom, and that it riſes in the ſame manner on the under ſide of the dike as it does on the upper ſide; in ſuch a caſe, the only remedy would be to work or drive a level mine through the ſtrata of ſtone from the engine-level at *e*, over the dike, until it interſect the coal at *i*; and from thence to drive a new level mine in the coal at *i i*, and a new winning headway *i k*. In order to gain a new ſet of rooms, and to ſupply freſh air to this new operation, a ſmall mine might be drove from the room *h*, and a hole ſunk down upon the level room *i i*; therefore, if the level mine *e e* was not drove ſo far forward as to have all theſe operations completed before the rooms and other workings were intercepted by the dike, the working of the pit might ceaſe until theſe new places were ready.

If there be two or three ſtrata or ſeams of coal in the ſame pit (as there often are) having only a ſtratum of a few feet thick lying betwixt them, it is then material to obſerve, that every pillar in the ſecond ſeam be placed immediately below one in the firſt, and every pillar in the third ſeam below one in the ſecond; and in ſuch a ſituation the upper ſtratum of coal ought to be firſt wrought, or elſe all the three together: for it would be unſafe to work the lower one firſt, leſt the roof ſhould break, and damage thoſe lying above.

It ſometimes becomes neceſſary to work the coal lying to the dip of the engine of the level; which coal is conſequently drowned with water, and muſt therefore be drained by ſome means before it can be wrought. If the quantity of water proceeding from it be inconſiderable, it may then be drained by ſmall pumps laid upon the pavement of the coal, and wrought by men or horſes, to raiſe the water up to the level of the engine-pit bottom: or if the feeders of the water be more conſiderable, and the ſituation be ſuitable, the working rod of theſe pumps might be connected with thoſe in the engine-pit; by which means the water would be raiſed up to the level: but if the quantity of water be very great; or if, from other circumſtances, theſe methods may not be applicable; then the engine-pit may be ſunk as deep below the coal as may be neceſſary, and a level ſtone mine drove from its bottom to the dip of the ſtrata, until it interſect the ſtratum of coal, from whence a new level mine might be worked, which would effectually drain it. Suppoſe A B, fig. 8. to be a ſection of the engine-pit; B C, the coal drained by the engine; B D, the coal to the dip of the engine intended to be drained; then if the engine-pit be ſunk deeper to E, a ſtone mine may be wrought in the direction E D, until it interſect the coal at D, by which the water will have a free paſſage to the engine, and the coal will be drained.

If there be another ſtratum of coal lying at ſuch a depth below the firſt as the engine-pit is intended to be ſunk to, the upper ſeam may in ſome ſituations be conveniently drained, by driving a mine in the lower ſeam of coal from E to F, and another in the upper one from B to D; and by boring a hole from D to F, the water will deſcend to F, and, filling the mine EF, riſe up to the engine-pit bottom at E, which is upon a level with D.

Whenever it is judged neceſſary to work the pillars, regard muſt be had to the nature of the roof. If the roof is tender, a narrow room may be wrought through the pillar from one end to the other, leaving only a ſhell of coal on each ſide for ſupporting the roof the time of working. Suppoſe A B C D, fig. 7. to be a pillar of coal 18 feet long and 12 feet broad: if the roof is not ſtrong, the room 1, 2, 3, 4, of eight feet wide, may be wrought up through that pillar, leaving a ſhell of two feet thick on each ſide; and if it can be ſafely done, a part of theſe ſhells may alſo be wrought away, by working two places through them as at 5 and 6. By this means very little of the coal will be loſt; for two-thirds of the whole being obtained by the firſt working, and above two-thirds of the pillar by the ſecond working, the loſs upon the whole would not exceed one-tenth: but it may be obſerved, that ſome pillars will not produce ſo great a proportion, and perhaps others cannot be wrought at all; ſo that, upon the whole, there may be about one-eighth, one-ſeventh, or in ſome ſituations one-ſixth part of the coal loſt. If the roof be hard and ſtrong, then as much coal may be wrought off each ſide and each end of the pillar as can be done with ſafety, leaving only a ſmall piece ſtanding in the middle; and when the roof is very ſtrong, ſome times ſeveral pillars may be taken entirely out, without any loſs of coal: and in general this laſt method is attended with leſs loſs, and produces larger coals, than the former. In all caſes it is proper to begin working thoſe pillars firſt which lie fartheſt from the pit bottom, and to proceed working them regularly away towards the pit; but if there be a great number of pillars to the dip of the pit, it is the ſafeſt method to work theſe out before thoſe to the riſe of the pit are begun with.

There is no great difference in the weight of different kinds of coals, the lighteſt being about 74 pounds avoirdupois, and the heavieſt about 79 pounds the cubic foot; but the moſt uſual weight is 75 pounds the foot, which is 18 hundred weight and 9 pounds the cubic yard. The ſtatute chalder is 53 hundred weight; or when meaſured is as follows: 268.8 cubic inches to the Wincheſter gallon; $4\frac{1}{2}$ gallons to the coal peck, about 3 pounds weight; 8 coal pecks to the boll, about $247\frac{1}{3}$ pounds; and 24 bolls to the chalder, of 53 hundred weight. If one coal meaſuring exactly a cubic yard (nearly equal to 5 bolls) be broken into pieces of a moderate ſize, it will meaſure ſeven coal bolls and a half. If broken very ſmall, it will meaſure 9 bolls; which ſhows, that the proportion of the weight to the meaſure depends upon the ſize of the coals; therefore accounting by weight is the moſt rational method.

A TABLE of the weight and quantity of coal contained in one acre Scots meaſure, allowing one-ſixth part to be loſt below ground, in ſeams of the following thickneſſes.

Thickneſs of coal.		Weight in tuns.	Quantity in chalders.
Feet.	Inches.		
2	0	3068	1158
2	6	3835	1447
3	0	4602	1736
3	6	5369	2025
4	0	6136	2314
4	6	6903	2603
5	0	7670	2892
5	6	8437	3181
6	0	9204	3470

We ſhall next mention ſome of the various methods of bringing the coals from the rooms and other workings to the pit-bottom. Where the ſtratum of coal is of a ſufficient thickneſs, and has a moderate riſe and dip, the coals are moſt advantageouſly brought out by horſes, who draw out the coals in a tub or baſket placed upon a ſledge: a horſe by this means will bring out from four to eight hundred weight of coals at once, according to the quantity of the aſcent or deſcent. In ſome coaleries they have acceſs to the workings by a mine made for them, ſloping down from the ſurface of the earth to the coal; and where that convenience is wanting, they are bound into a net, and lowered down the pit. If the coal be not of ſuch a height as to admit horſes, and has a moderate riſe like the laſt, then men are employed to bring out the coals: they uſually draw a baſket of four or five hundred weight of coals, fixed upon a ſmall four-wheeled carriage. There are ſome ſituations in which neither horſes nor men can be properly uſed; particularly where the coal has a great degree of deſcent, or where many dikes occur: in ſuch a caſe the coals are beſt brought out by women called *bearers*, who carry them in a kind of baſket upon their backs, uſually a hundred, or a hundred weight and a half at once.

When the coals are brought to the pit-bottom, the baſkets are then hooked on to a chain, and drawn up the pit by a rope to the ſurface, which is beſt effected by a machine called a *gin*, wrought by horſes. There are other kinds of gins for drawing coals, ſome wrought by water, others by the vibrating lever of a fire-engine; but either of theſe laſt is only convenient in ſome particular ſituations, thoſe wrought by horſes being in moſt general uſe. After the coals are got to the ſurface, they are drawn a ſmall diſtance from the pit, and laid in ſeparate heaps: the largeſt coals in one heap, the ſmaller pieces called *chews* in another, and the *culm* or *pan-coal* in a ſeparate place.

15
Of cruſhes and ſitts.

There is an accident of a very dangerous nature to which all coaleries are liable, and which has been the ruin of ſeveral: it is called a *cruſh*, or a *ſitt*. When the pillars of coal are left ſo ſmall as to fail, or yield under the weight of the ſuperior ſtrata; or when the pavement of the coal is ſo ſoft as to permit the pillars to ſink into it, which ſometimes happens by the great weight that lies upon them; in either caſe the ſolid ſtratum above the coal breaks and falls in, cruſhes the pillar to pieces; and cloſeth up a great extent of the workings, or probably the whole coalery. As ſuch an accident ſeldom comes on ſuddenly, if it be perceived in the beginning, it may ſometimes be ſtopped by building large pillars of ſtone amongſt the coal pillars; but if it has already made ſome progreſs, then the beſt method is to work away as many of the coal pillars adjoining to the cruſh as may be ſufficient to let the roof fall freely down; and if it makes a breach of the ſolid ſtrata from the coal up to the ſurface, it will very probably prevent the cruſh from proceeding any farther in that part of the coalery. If the cruſh begins in the riſe part of the coalery, it is more difficult to ſtop it from proceeding to the dip, than it is to ſtop it from going to the riſe when it begins in a contrary part.

Foul air.

Another circumſtance proper to be taken notice of is the foul or adulterated air ſo often troubleſome in coaleries. Of this there are two kinds: the black damp or ſtyth, which is of a ſuffocating nature; and the inflammable or combuſtible damp. Without ſtaying to inquire, in this place, into the origin and effects of theſe damps, it may be ſufficient to obſerve, that, in whatever part of any coalery a conſtant ſupply or a circulation of freſh air is wanting, there ſome of theſe damps exiſt, accumulate in a body, and become noxious or fatal: and whenever there is a good circulation of freſh air, they cannot accumulate, being mixed with and carried away by the ſtream of air as faſt as they generate or exhale from the ſtrata. Upon theſe principles are founded the ſeveral methods of ventilating a coalery. Suppoſe the workings of the pits A and B (fig. 6.) to be obnoxious to the inflammable damps; if the communication was open betwixt the two pits, the air which went down the pit A would proceed immediately along the mine *a*, and aſcend out of the pit B; for it naturally takes the neareſt direction: ſo that the air in all the workings would be ſtagnant; and they would be utterly inacceſſible from the accumulation of the combuſtible damp. In order to expel this, the air muſt be made to circulate through all the different rooms by means of collateral air courſes made in this manner: The paſſage or mine *a* muſt be cloſed up or ſtopped by a partition of deals, or by a wall built with bricks or ſtones, to prevent the air paſſing that way. This building is called a *ſtopping*. There muſt alſo be ſtoppings made in the thirlings 1 1 1, &c. betwixt the pillars *f f*, &c. which will direct the air up the mine *e e*, until it arrive at the innermoſt thirling 2, which is to be left open for its paſſage. There muſt alſo be ſtoppings made at the ſide of the mine *a* at *m m*, and on both ſides of the main headway B C at *bb*, &c. then returning to the innermoſt thirling 2, proceed to the third row of pillars, and build up the thirlings 2 2, &c. leaving open the thirling 3 for a paſſage for the air; and proceeding on to the fifth row of pillars, build up in the ſame manner the ſtoppings 3 3, &c. leaving open 4 for an air-courſe: and by proceeding in this manner to ſtop up the thirlings or paſſages in every other row of pillars, the current of freſh air will circulate through and ventilate the whole workings, in the direction pointed to by the ſmall arrows in the plan, clearing away all the damps and noxious vapours that may generate. When it is arrived at C, it is conducted acroſs the main headway, and carried through the other part of the pit's workings in the ſame manner, until it return through *n n* to the pit B, where it aſcends; and as the rooms advance farther, other ſtoppings are regularly made.

Plate CXLII.

In ſome of thoſe ſtoppings, on the ſides of the main headway, there muſt be doors to admit a paſſage for the bringing out of the coals from the rooms to the pit, as at 5 5: theſe doors muſt be conſtantly ſhut, except at the time of paſſing through them.

There are other methods of diſpoſing the ſtoppings ſo as to ventilate the pit; but none which will ſo effectually diſperſe the damps as that deſcribed above. If the damps are not very abundant, then the courſe of ſtoppings 1 1 1, &c. in the level mine, and the others at *b b b*, &c. in the main headway, without any others, may perhaps be ſufficient to keep the pit clear. If at any time the circulation of the freſh air is not briſk enough, then a large lamp of fire may be placed at the bottom of the pit B, which, by rarefying the air there, will make a quicker circulation.

16
Of leading and ſhipping the coals.

Moſt of the larger coaleries in Britain ſend their coals to the ſhips for the coaſting trade or exportation; and, as the quantity is generally very large, it would take a greater number of carts than could conveniently be obtained at all times to carry them; beſides the conſiderable expence of that manner of carriage: they therefore generally uſe waggons, for carrying them along waggon-ways, laid with timber; by which means one horſe will draw from two to three tuns at a time, when in a cart not above half a tun could be drawn.

The firſt thing to be done in making a waggon-way is to level the ground in ſuch a manner as to take off all ſudden aſcents and deſcents: to effect which, it is ſometimes neceſſary to cut through hills, and to raiſe an embankment to carry the road through hollows. The road ſhould be formed about 12 feet wide; and no part ſhould have a greater deſcent than of one yard perpendicular in 10 of a horizontal line, nor a greater aſcent than one yard in 30. After the road is formed, pieces of timber, about ſix feet long and ſix inches diameter, called *ſleepers*, are laid acroſs it, being 18 or 24 inches diſtant from each other. Upon theſe ſleepers other pieces of timber, called *rails*, of four or five inches ſquare, are laid in a lateral direction, four feet diſtant from each other, for the waggon wheels to run upon; which being firmly pinned to the ſleepers, the road may then be filled with gravel and finiſhed.

The waggons have four wheels, either made of ſolid wood or of caſt iron. The body of the carriage is longer and wider at the top than at the bottom; and uſually has a kind of trap-door at the bottom, which, being looſed, permits the coals to run out without any trouble. The ſize of a waggon to carry 50 hundred weight of coals is as follows:

	Feet.	Inches.
Length of the top, -	7	9
Breadth of the top, -	5	0
Length of the bottom, -	5	0
Breadth of the bottom, -	2	6
Perpendicular height, -	4	3

Where the pits are ſituated at ſome conſiderable diſtance from the harbour, it becomes neceſſary to have a ſtore-houſe near the ſhipping place, where the coals may be lodged, until the lighters or ſhips are ready to take them in. The waggon-way ſhould be made into the ſtore-houſe, at ſuch a height from the ground, as to permit the coals to run from the waggons down a ſpout into the veſſels; or elſe to fall down into the ſtore-houſe, as occaſion may require.

This kind of ſtore-houſe is well adapted to diſpatch and ſaving expence: for a waggon-load of coals may be delivered either into the ſtore-houſe or veſſels inſtantly with very little trouble: and if the coals were expoſed to the effects of the ſun and rain, they would be greatly injured in their quality; but being lodged under cover of the ſtore-houſe, they are preſerved.

COALESCENCE, the union or growing together of two bodies before ſeparate. It is principally applied to ſome bones in the body, which are ſeparate during infancy, but afterwards grow together; or to ſome morbid union of parts, which ſhould naturally be diſtinct from each other. Thus there is a coaleſcence of the ſides of the vulva, anus, and nares; of the eye-lids, fingers, toes, and many other parts.

COALLIER, a veſſel employed to carry coals from one port to another; chiefly from the northern parts of England to the capital, and more ſoutherly parts, as well as to foreign markets. This trade is known to be an excellent nurſery for ſeamen; although they are often found, from the conſtitution of their climate, not to be ſo well calculated for ſouthern navigation.

COAMINGS, in ſhip-building, are thoſe planks, or that frame, forming a border round the hatches, which raiſe them up higher than the reſt of the deck. Loop-holes for muſkets to ſhoot out at, are often made in the coamings, in order to clear the deck of the enemy when the ſhip is boarded.

COANE, among the Greeks, a name given to a peculiar ſpecies of *tutia* or tutty, which was always found in a tubular form. It had its name from κωνη, a word uſed to expreſs a ſort of cylindric tube, into which the melted braſs was received from the furnace, and in which it was ſuffered to cool. In cooling, it always depoſited a ſort of recrement on the ſides of the veſſel or tube, and this was the tutty called coane.

COAST, a ſea-ſhore, or the country adjoining to the edge of the ſea. Dr Campbell, in his political ſurvey of Great Britain, conſiders an extenſive ſea-coaſt as of great advantage to any kingdom; and conſequently that that iſland hath many conveniences reſulting from the extent of its coaſts, ſuperior to other kingdoms which are much larger. The chief advantages ariſing from an extenſive ſea-coaſt are, that thus there is a convenient opportunity for exportation and importation to or from all parts of the kingdom. Thus, a number of cities are formed on the coaſts; by this means the internal parts are improved, &c. The extent of the ſea-coaſts of Arabia, he looks upon as the genuine ſource of wealth and ſplendour to the ancient inhabitants of that peninſula; the ſame was the inſtrument of the greatneſs of ancient Egypt, of Phœnicia, &c. In ſhort, according to him, no country or city can for any length of time be flouriſhing unleſs it hath a conſiderable connection with the ſea. "It is indeed true (ſays he) that the wiſdom and induſtry of man, taking hold of ſome peculiar circumſtances, may have rendered a few inland cities and countries very fair and flouriſhing. In ancient hiſtory we read of Palmyra, and the diſtrict round it, becoming a luxuriant paradiſe in the midſt of inhoſpitable deſerts. But this was no more than temporary grandeur; and it has now lain for ſome ages in ruins. The city and principality of Kandahar was in like manner rendered rich and famous, in conſequence of its being made the centre of the Indian commerce; but, long ago declining, its deſtruction has been completed, in our days, from that dreadful deſolation which Thamas Kouli Khan ſpread through Perſia and the Indies. In Europe, many of the large cities in Germany, which for a time made a great figure from the freedom and induſtry of the inhabitants, and diffuſed eaſe, plenty, and proſperity through the diſtricts dependent on them, which of courſe rendered them populous, are now ſo much ſunk, through inevitable accidents, as to be but ſhadows of what they were; and though they ſtill continue to ſubſiſt, ſubſiſt only as the melancholy monuments of their own miſfortunes. We may therefore, from hence, with great certainty, diſcern, that all the pains and labour that can be beſtowed in ſupplying the defect of ſituation in this reſpect, proves, upon the whole, but a tedious, difficult, and precarious expedient. But, however, we muſt at the ſame time admit, that it is not barely

Fig. 1

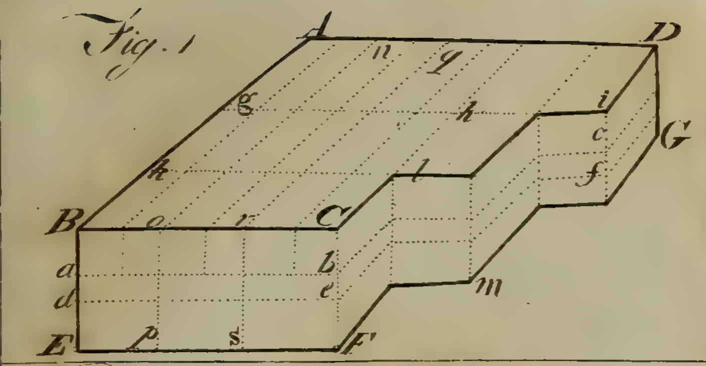


Fig. 2

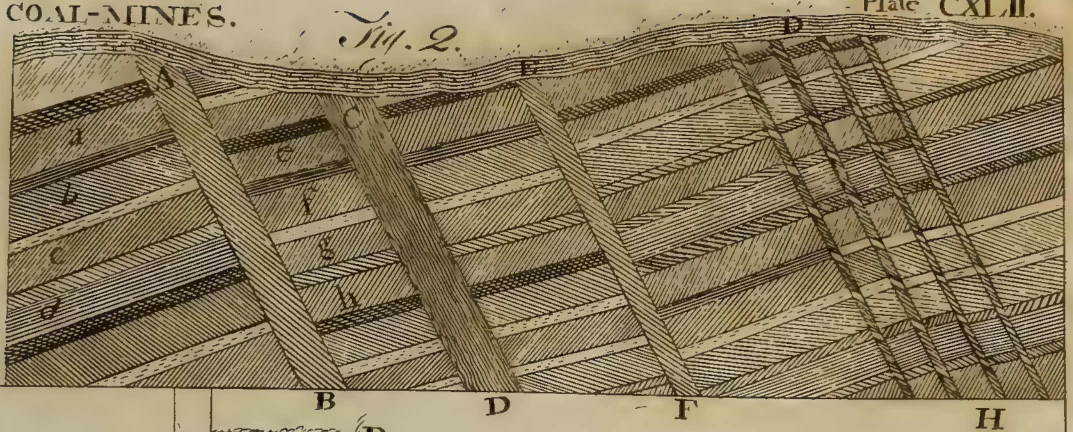


Fig. 3

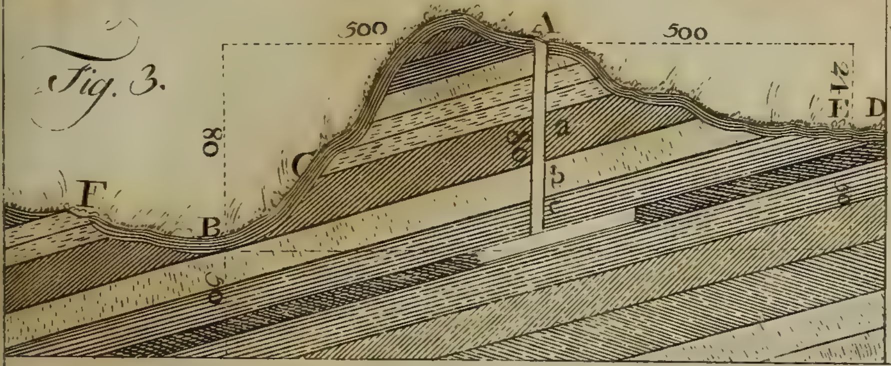


Fig. 4

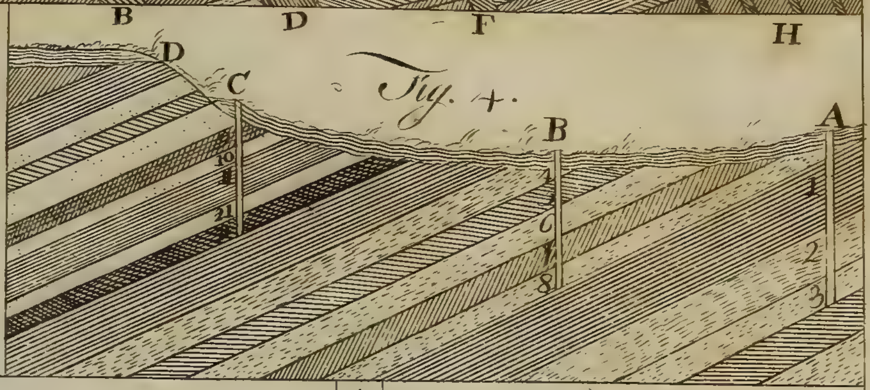


Fig. 5

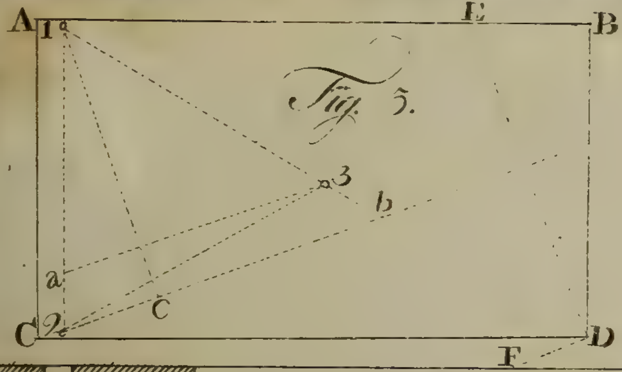


Fig. 7

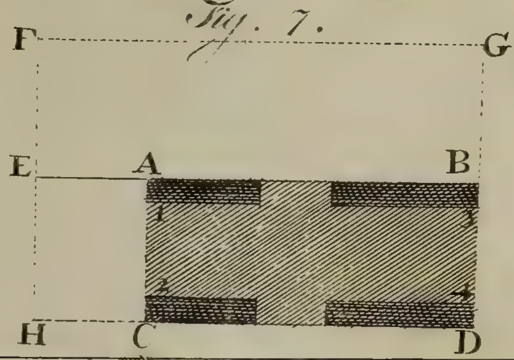
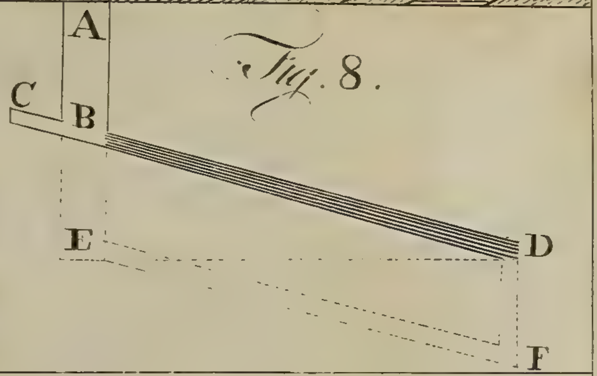
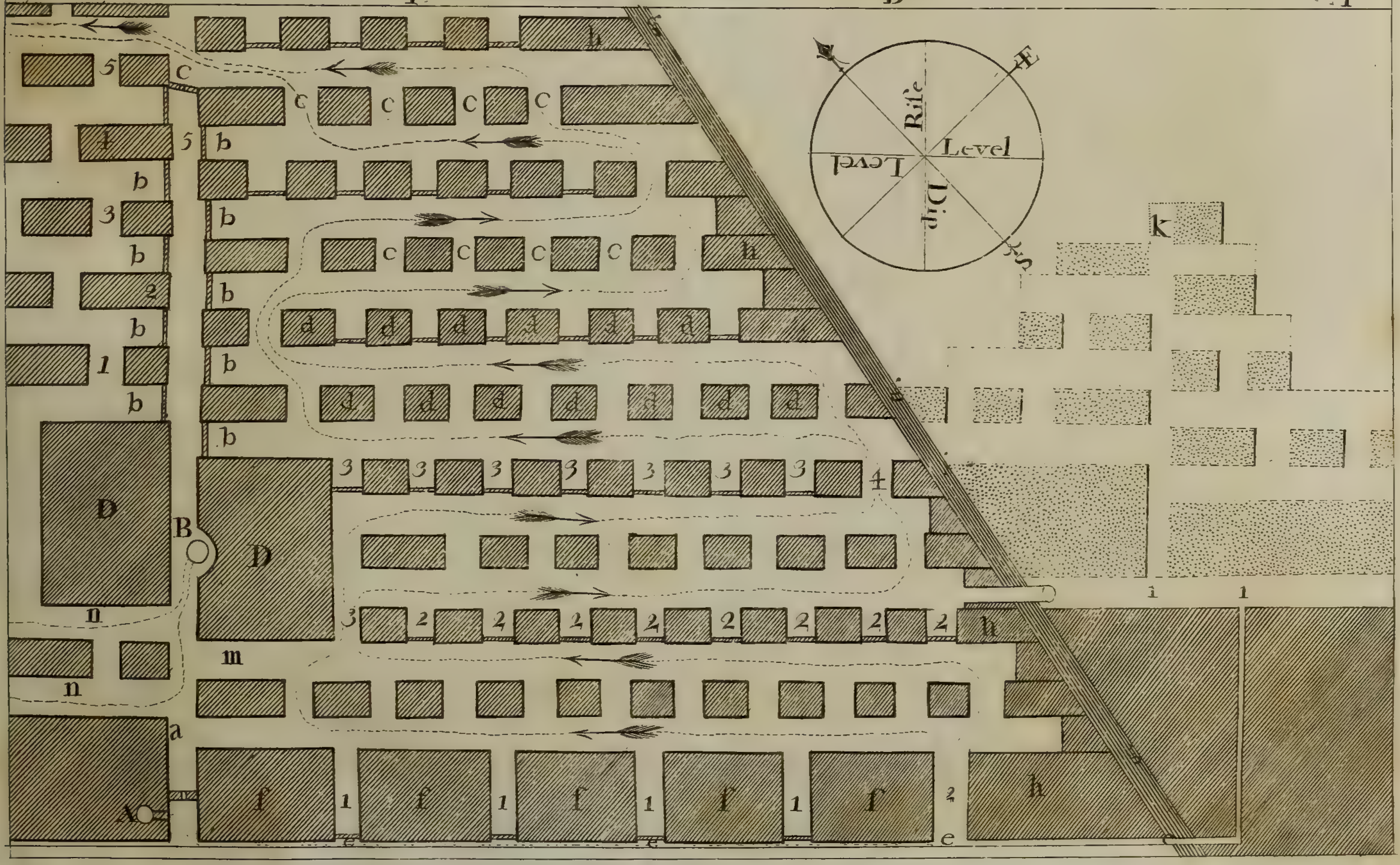


Fig. 8





the poſſeſſion even of an extended coaſt that can produce all theſe deſirable effects. That coaſt muſt likewiſe be diſtinguiſhed by other natural advantages; ſuch as capes and promontories, favourably diſpoſed to break the fury of the winds; deep bays, ſafe roads, and convenient harbours. For, without theſe, an extended coaſt is no more than a maritime barrier againſt the maritime force of other nations; as is the caſe in many parts of Europe: and is one of the principal reaſons why Africa derives ſo little benefit from a ſituation which has ſo promiſing an appearance; there being many conſiderable tracts upon its coaſts, equally void of havens and inhabitants, and which afford not the ſmalleſt encouragement to the attempting any thing that might alter their preſent deſolate condition. It is, however, a leſs inconvenience, and in ſome caſes no inconvenience at all, if, in the compaſs of a very extended coaſt, there ſhould be ſome parts difficult or dangerous of acceſs, provided they are not altogether inacceſſible.—The ſea coaſt of Britain, from the figure, in ſome meaſure, of the iſland, but chiefly from the inlets of the ſea, and the very irregular indented line which forms its ſhore, comprehends, allowing for thoſe ſinuoſities, at leaſt 800 marine leagues: we may, from hence, therefore, with ſafety affirm, that in this reſpect it is ſuperior to France, though that be a much larger country; and equal to Spain and Portugal in this circumſtance, though Britain is not half the ſize of that noble peninſula, which is alſo ſingularly happy in this very particular."

Cape-Coast, the name of the chief Britiſh ſettlement on the coaſt of Guinea in Africa. The name is thought to be a corruption of *Cabo Corſo*, the ancient Portugueſe appellation. This cape is formed by an angular point, waſhed on the ſouth and eaſt by the ſea, on which ſtands the Engliſh fort. Here the Portugueſe ſettled in 1610, and built the citadel of Cape Coaſt upon a large rock that projects into the ſea. A few years afterwards they were diſlodged by the Dutch, to whom this place is principally indebted for its ſtrength. In 1664 it was demoliſhed by Admiral Holmes, and in 1665 the famous Dutch Admiral De Ruyter was ordered by the States to revenge the inſults of the Engliſh. With a ſquadron of 13 men of war, he attacked all the Engliſh ſettlements along the coaſt; ruined the factories; and took, burnt, and ſunk all the ſhipping of the Engliſh Company: however, after all his efforts, he was baffled in his attempts on Cape Coaſt. By the treaty of Breda it was confirmed to the Engliſh, and the king granted a new charter in 1672; on which the Company applied all their attention to the fortifying and rendering it commodious.

COASTING, in navigation, the act of making a progreſs along the ſea-coaſt of any country. The principal articles relating to this part of navigation are, the obſerving the time and direction of the tide: knowledge of the reigning winds; of the roads and havens; of the different depths of the water, and qualities of the ground.

Coasting-Pilot, a pilot who by long experience has become ſufficiently acquainted with the nature of any particular coaſt, and of the requiſites mentioned in the preceding article, to conduct a ſhip or fleet from one part of it to another.

COAT, or coat of arms, in heraldry, a habit worn by the ancient knights over their arms both in war and tournaments, and ſtill borne by heralds at arms. It was a kind of ſur-coat, reaching as low as the navel, open at the ſides, with ſhort ſleeves, ſometimes furred with ermine and hair, upon which were applied the armories of the knights embroidered in gold and ſilver, and enamelled with beaten tin coloured black, green, red, and blue; whence the rule never to apply colour on colour, nor metal on metal. The coats of arms were frequently open, and diverſified with bands and fillets of ſeveral colours, alternately placed, as we ſtill ſee cloths ſcarleted, watered, &c. Hence they were called deviſes, as being divided and compoſed of ſeveral pieces ſewed together; whence the words *falſe, pale, chevron, bend, croſs, ſaltier, lozenge*, &c. which have ſince become honourable pieces, or ordinaries of the ſhield. See Cross, Bend, Chevron, &c.

Coats of arms and banners were never allowed to be worn by any but knights and ancient nobles.

Coat, in anatomy. See Tunic and Eye.

Coat of Mail, a kind of armour made in form of a ſhirt; conſiſting of iron rings wove together netwiſe. See Mail.

COATI, in zoology, a ſynonime of a ſpecies of Viverra, and Ursus.

COATIMUNDI, a variety of the above.

COATING, among Chemiſts. See Chemistry, n° 580.

Coating of Vials, Panes of Glaſs, &c. among electricians, is uſually performed by covering the outſide of the vial with tinfoil, braſs or gold-leaf, &c. and filling its inſide with looſe pieces of braſs-leaf, by which means it becomes capable of being *charged*. See Electricity.

COATZONTECOXOCHITL, or *Flower with the viper's head*, in botany, a Mexican flower of incomparable beauty. It is compoſed of five petals or leaves, purple in the innermoſt part, white in the middle, the reſt red, but elegantly ſtained with yellow and white ſpots. The plant which bears it has leaves reſembling thoſe of the iris, but longer and larger; its trunk is ſmall and ſlim; this flower was one of the moſt eſteemed amongſt the Mexicans. The Lincean academicians of Rome, who commented on and publiſhed the Hiſtory of Hernandez in 1651, and ſaw the paintings of this flower, with its colours, executed in Mexico, conceived ſuch an idea of its beauty, that they adopted it as the emblem of their very learned academy, denominating it *Fior di Lince*. See Plate CXLIII.

COBALT, one of the ſemimetals, according to Cronſtedt, of a whitiſh-grey colour, nearly reſembling fine hardened ſteel, and of the ſpecific gravity of 6.000; but according to others, of a bluiſh grey, or reddiſh white colour, and of the ſpecific gravity of 7.700. It is as difficult of fuſion as copper, or even gold; and when well purified, ſcarcely yields to iron itſelf in this reſpect. When ſlowly cooled, it cryſtallizes, forming on its ſurface ſmall bundles of needles, or needle-formed priſms, laid on one another, and united into bundles; greatly reſembling, according to Mongez, a maſs of ſhaken baſaltes. In order to ſucceed in this cryſtallization, it is ſufficient to melt the cobalt in a crucible till it ſuffers a kind of ebullition: and, after having taken it from the fire, to incline the veſſel while the ſurface of the ſemimetal is congealing. By this inclination the portion of metal ſtill fuſed is poured out, and that which adheres to this kind of geode formed by the cooling of the ſurfaces of the cobalt is found covered with the cryſtals ſought for. When melted with borax it affords a blue glaſs, which is the moſt obvious method of diſtinguiſhing its ores amongſt all others. It cannot be calcined without conſiderable difficulty; and the calx, though black in appearance, is in reality of a deep blue. This calx melted with borax, or potaſh and ſiliceous ſand, affords the blue glaſs called *ſmalt*, very much uſed in enamel painting and tinging of other glaſs, being the moſt fixed of all colours in the fire.

Cobalt, when calcined along with the calx of arſenic in a gentle heat, aſſumes a red colour. The ſame is naturally produced by way of effloreſcence, and is then called the *bloom* or *flowers* of cobalt. When cobalt and arſenic are melted in a ſtrong fire, they burn with a blue flame. It does not mix either with mercury by any means hitherto known, nor will it form any union with biſmuth without the addition of ſome medium. It is eaſily ſoluble in ſpirit of nitre, and the ſolution either in this or any other acid is of a red colour; and it is obſervable that the colour of the acid ſolutions of this ſemimetal, inſtead of fading by dilution with water, becomes more vivid. It is precipitated of a pale red colour from its ſolutions by acid of ſugar, which has the greateſt attraction for it; though acid of ſorrel likewiſe precipitates it.

Cronſtedt, in ſpeaking of this ſemimetal, makes mention of native cobalt; but other mineralogiſts aſſure us, that it has never been found perfectly pure in the bowels of the earth. What paſſes for ſuch, is ſaid by Kirwan to be mineralized by arſenic. That called the *grey* cobalt ore comes neareſt to the purity of the native ſemimetal, but always holds ſome quantity of arſenic and iron. It is found in Sweden, Saxony, Norway, and England, particularly at Mendip hills in Somerſetſhire, and in Cornwall, where Dr Lewis ſays it has lately been dug up in large quantities. Here it is ſometimes found in conjunction with biſmuth, and ſometimes without it, reſembling very much in appearance the Saxon ores from Schnuberg in Miſnia, and produces the fineſt blue colours by proper management. An arſenicated grey cobalt ore has alſo been found at Chatelaudren in France.

This kind of ore is ſolid, heavy, and compact, ſometimes dull and ſometimes of a bright appearance, cryſtallized frequently in a teſſular and ſometimes in a dendritical form; being generally hard enough to ſtrike fire with ſteel, when an arſenical ſmell is perceived. It grows black in the fire, is ſoluble with efferveſcence in the nitrous acid, from which it may be precipitated by the marine, and affords the *Sympathetic Ink* mentioned under the article CHEMISTRY, n° 822. This and the blue colour communicated by it to glaſs are indeed the two characteriſtics by which the ores of cobalt are diſtinguiſhed from other arſenical ores.

The moſt common ore of cobalt is that called the *black* or *vitreous ore*, and *Kobalt Mulm* or *Schlaken Kobalt* by the Germans. It is found in a looſe powdery form, ſometimes reſembling lamp-black, ſometimes of a grey colour, in which ſtate it is called *cobalt ochre*; but when in ſcoriform half vitrified maſſes, it obtains the name of *vitreous* or *glaſſy ore*. When this kind of ore contains any ſulphur or arſenic, they are only mechanically mixed with it. A ſmall portion of copper, however, is ſometimes found in it. It is frequently embodied in ſtones or ſands of a black colour; ſometimes it is contained in argillaceous earths of a blue or green colour. Talc, chalk, and gypſum, impregnated with it, are called by the ſame name; and by ſome *ſpiegel cobalt*.

3. Cobalt mineraliſed by the *arſenical acid*, is found either looſe and pure, or mixed with chalk or gypſum, or indurated and cryſtallized in tetrahedral cryſtals. It is alſo found in a ſtalactitical form. It melts eaſily, and then becomes blue. It frequently inveſts other cobaltic ores; and is found ſometimes in ſtone and ſand. From the experiments of Bergman it appears, that the arſenical acid, and not the calx of arſenic, enters into this combination; for cobalt is never red but when united to an acid. Flowers of cobalt, mineralized by arſenic without any ſilver, and intermixed with galena, have alſo been diſcovered in France.

The flowers or effloreſcence of cobalt are often found of a red colour, like other earths, ſpread very thin on the cobalt ores; and is, when of a pale colour, erroneouſly called flowers of biſmuth. A white cobalt earth or ochre is ſaid to have been found, and examined by a celebrated mineralogiſt, who found it to reſemble the cobalt flowers in every reſpect except the colour; and indeed it is poſſible that in theſe flowers the colour might by length of time, or ſome other accident, have loſt their colour. The indurated flowers of cobalt are commonly cryſtallized in form of deep red ſemitranſparent rays or radiations. It is found at Schnuberg in Saxony.

Cobalt, mineraliſed by *ſulphurated iron*, is of a colour nearly reſembling tin or ſilver. It is ſometimes found in large maſſes, ſometimes in grains cryſtallized of a dull white colour, and frequently has the appearance of *miſpickle*. It has no mixture of arſenic. By calcination it becomes black and not red, which diſtinguiſhes it from the pyrites; and it contains ſo little ſulphur, that none can be extracted from it. When diſſolved in aqua regia the ſolution is yellow, but becomes green when boiling hot; which alternation, ſays Kirwan, is peculiar to marine cobalt. A coarſe grained kind of this ore, found in Sweden, becomes ſlimy in the fire, and ſticks to the iron rods employed in ſtirring it while calcining. The ſlaggy kind contains a large quantity of iron, and affords a very beautiful colour as well as the former.

Cobalt mineralized by *ſulphur*, *arſenic*, and *iron*, has a great reſemblance to the harder kinds of grey cobalt ore, formerly mentioned; but it is never hard enough to ſtrike fire with ſteel, and ſometimes may even be ſcraped with a knife. The moſt ſhining kinds of this and the former ſpecies are called *cobalt glantz*.

The great conſumption of cobalt is for the permanent blue colour which it communicates to glaſſes and enamels, either upon metals, porcelains, or earthen wares of any kind. It is the ſame blue prepared in a very cheap way by the Dutch, chiefly from the coarſe glaſs or blue glaſs of cobalt, and called *azur de Hollande* by the French, and which is employed by laundreſſes.

dreſſes. But although cobalt is applied to few or no other purpoſes, the quantities conſumed in this way afford ſufficient profit to thoſe who have cobalt mines in their poſſeſſion.

Ores of cobalt, as has already been ſaid, are met with in many parts of Europe. The greateſt quantities are found near Schnuberg in the diſtrict of Miſnia in Saxony: alſo at St Andreaſberg in the Upper Hartz, where large quantities have been met with for upwards of 30 years paſt. Formerly an iron ore only was found in this place; but about the beginning of the 14th century, on ſinking deeper, it was ſucceeded by a very rich ore of ſilver; which alſo being in length of time exhauſted, gave place to cobalt ores. Some peices, however, are ſtill found in theſe mines, that contain ſilver and gold.

The general method of preparing cobalt ores in the large way ſeems confined to Saxony alone; from whence all other parts of the world, even the Eaſt Indies, are conſtantly ſupplied. It is ſuppoſed that the Chineſe, and more particularly the Japaneſe, had formerly mines of excellent cobalt, with which the fine blues of their ancient porcelains were painted; but it appears that theſe mines are now exhauſted, and that the inferior blues of their preſent wares are painted with the Saxon zaffre imported to them by the Dutch. For the management of the ore in ſuch a manner as to fit it for giving the deſired colour, ſee the article ZAFFRE.

When cobalt is united to biſmuth, by means of nickel, the compound is called *ſpeiſs*. This name is alſo given to a mixture of cobalt, nickel, biſmuth, ſulphur, and arſenic.

In Germany and Saxony, the word cobalt is applied to the damps, arſenical vapours, and their effects on the miners; which has induced the vulgar to apply it to an evil ſpirit whom they ſuppoſe to dwell in the mines.

Regulus of COBALT, a kind of ſemimetal prepared from cobalt, of a whitiſh colour inclining to red. See ZAFFRE, and CHEMISTRY, n° 1294, &c.

COBBING, a puniſhment ſometimes inflicted at ſea. It is performed by ſtriking the offender a certain number of times on the breech with a flat piece of wood called the *cobbing-board*. It is chiefly uſed as a puniſhment to thoſe who quit their ſtation during the period of the night-watch.

COBITIS, the LOACHE, in ichthyology, a genus of fiſhes belonging to the order of abdominales. The eyes are in the upper part of the head; the branchioſtege membrane has from four to five rays; and the body is nearly of an equal thickneſs throughout. The ſpecies are five; three of which are natives of Europe. The loache is found in ſeveral ſmall rivers in Britain, keeping at the bottom on the gravel; and is, on that account, in ſome places called the *groundling*: It is frequent in the ſtream near Ameſbury in Wiltſhire, where the ſportſmen, through frolic, ſwallow it down alive in a glaſs of white-wine.

COBLE, a boat uſed in the turbot fiſhery, twenty feet ſix inches long, and five feet broad. It is about one ton burthen, rowed with three pair of oars, and admirably conſtructed for encountering a mountainous ſea.

COBLENTZ, an ancient, handſome, and ſtrong town of Germany, in the electorate of Triers or Treves, ſeated at the confluence of the rivers Rhine and Moſelle, in a fertile country, with mountains covered with vineyards. It is the uſual reſidence of the elector of Treves, to whom it belongs. Over the Rhine is a bridge of twelve arches, built for the convenience of the inhabitants of Coblentz and the adjacent places. A ferry machine is conſtantly going from the city to the other ſide of the Rhine, where there is a little town and very ſtrong caſtle built on an eminence, named *the rock of honour*. This machine is erected on two boats, in the form of a large ſquare gallery, encompaſſed with balluſtrades; and carries a tall flagſtaff, on which are diſplayed the arms of the electorate of Treves. It is put in motion by the ferry-man's pulling a rope, which is fixed to a ſtandard on each ſide the river. The caſtle appears to be almoſt inacceſſible to an enemy, and entirely commands the city of Coblentz. The archbiſhop's palace ſtands at the foot of this rock, and the arſenal at a little diſtance. E. Long. 7. 18. N. Lat 50. 24.

COBOB, the name of a diſh among the Moors. It is made of ſeveral pieces of mutton wrapt up in the cawl, and afterwards roaſted in it; the poorer people, inſtead of the meat, uſe the heart, liver, and other parts of the entrails, and make a good diſh, though not equal to the former.

COBOOSE, in ſea language, is derived from the Dutch *kambuis*, aud denotes a ſort of box, reſembling a ſentry-box, uſed to cover the chimneys of ſome merchant ſhips. It generally ſtands againſt the barricade, on the fore-part of the quarter deck. It is called in the Weſt Indies *cobre vega*.

COBURG, a town of Germany in the circle of Franconia, and capital of a territory of the ſame name, with a famous college, a fort, and a caſtle. This town with its principality, belongs to the houſe of Saxony, and the inhabitants are Proteſtants. It is ſeated on the river Itch, E. Long. 11. 5. N. Lat. 50. 20.

COBWEB, in phyſiology, the fine net-work which ſpiders ſpin out of their own bowels, in order to catch their prey. See ARANEA.

COCCEIUS (John), profeſſor of theology at Bremen, was founder of a ſect called *Cocceians*: they held amongſt other ſingular opinions, that of a viſible reign of Chriſt in this world, after a general converſion of the Jews and all other people to the true Chriſtian faith, as laid down in the voluminous works of Cocceius. He died in 1699, aged 66.

Plate CXLIII.

COCCINELLA, in zoology, a genus of inſects of the order of coleoptera; the characters of which are theſe: The antennæ are ſubclavated: the palpi are longer than the antennæ, the laſt articulation heart-ſhaped; the body is hemiſpheric; the thorax and elytra are margined: the abdomen is flat. This genus is divided into ſections, from the colour of the elytra, and of the ſpots with which they are adorned. The females, impregnated by the males, depoſit their eggs, which turn to ſmall larvæ, ſlow in their progreſs, and are enemies to the plant-louſe. Thoſe larvæ are frequently found upon leaves of trees covered with plant-lice. On the point of being metamorphoſed, they ſettle on a leaf by the hinder part of their body, then bend and ſwell themſelves, forming a kind of hook. The ſkin extends, grows hard; and in a fortnight's time the chryſalis opens along the back. The inſect in its perfect ſtate receives the impreſſions of the air that gives its elytra a greater degree of conſiſtence. It ſeldom flies, and cannot keep long on the wing. Of all the different larvæ of the coccinella, the moſt curious is the white hedgehog, a name given it by M. de Reaumur on account of the ſingularity of its figure, and the tufts of hair which render it remarkable. It ſeeks its food on the leaves of trees. After a fortnight, it ſettles on one ſpot, and without parting with its fur, turns to a chryſalis; three weeks after which, it becomes a coccinella. The ſlough appears nowiſe impaired by its transformation. M. de Reaumur has obſerved it on a plum-tree. It is likewiſe found upon the roſe-tree.

When the coccinellæ firſt arrive at the ſtate of perfection, the colours of their elytra are very pale, nearly bordering upon white or cream colour; and the elytra are very ſoft and tender, but ſoon grow hard, and change to very lively brilliant colours. Their eggs are of an oblong form, and of the colour of amber.

COCCOLOBO, in botany: A genus of the trigynia order, belonging to the octandria claſs of plants; and in the natural method ranking under the 12th order, *Holoraceæ*. The calyx is quinquepartite and coloured; there is no corolla; the berry is formed of the calyx, and is monoſpermous. The ſpecies called *uvifera*, or *ſea-ſide grape*, grows upon the ſandy ſhores of moſt of the Weſt India iſlands, where it ſends up many woody ſtems, eight or ten feet high, covered with a brown ſmooth bark, and furniſhed with thick, veined, ſhining, orbicular leaves, five or ſix inches diameter, ſtanding upon ſhort foot-ſtalks. The flowers come out at the wings of the ſtalks, in racemi of five or ſix inches long; they are whitiſh, have no petals, but each is compoſed of a monophyllous calyx, cut at the brim, into five oblong obtuſe ſegments, which ſpread open, continue, and ſurround ſeven or eight awl-ſhaped ſtamina, and three ſhort ſtyles, crowned with ſimple ſtigmata. The germen is oval, and becomes a fleſhy fruit, wrapped round by the calyx, and includes an oval nut or ſtone. Theſe plumbs are about the ſize of gooſeberries, of a purple red colour, and a tolerable good flavour. There are ſome other ſpecies of this genus whoſe fruits are eaten by the inhabitants where they grow, but they are ſmaller and not ſo well taſted.

COCCOTHRAUSTES, in ornithology, the trival name of a ſpecies of Loxia.

COCCULUS Indicus, the name of a poiſonous berry, too frequently mixed with malt-liquors in order to make them intoxicating: but this practice is expreſsly forbidden in Britain by act of parliament. It is the fruit of the *Menispermum Cocculus*. Fiſhermen have a way of mixing it with paſte: this the fiſh ſwallow greedily, and are thereby rendered lifeleſs for a time and float on the water. The good women uſe it with ſtaveſacre, for deſtroying vermin in childrens heads.

Plate CXLIII.

COCCUS, in zoology, a genus of inſects belonging to the order of hemiptera. The roſtrum proceeds from the breaſt; the belly is briſtly behind; the wings of the male are erect; and the female has no wings. The ſpecies are 22, denominated principally from the plants they frequent. The moſt remarkable ſpecies are:

1. The coccus heſperidum, or green-houſe bug, which is oval, oblong, of a brown colour, covered with a kind of varniſh; it has ſix legs; with a notch and four briſtles at the tail. It infeſts orange trees and other ſimilar plants in green-houſes. When young, it runs upon the trees; but afterwards fixes on ſome leaf, where it hatches an infinity of eggs, and dies. The male is a very ſmall fly.

2. The coccus phalaridis. The male of this ſpecies is ſmall. Its antennæ are long for its ſize. The feet and body are of a reddiſh colour, nearly pink, and ſprinkled with a little white powder. Its two wings, and the four threads of its tail, are ſnow white, and of thoſe threads two are longer than the reſt. It is to be found upon the ſpecies of gramen which Linnæus calls *phalaris*. The female contrives, along the ſtalks of that dog-graſs, little neſts, of a white cottony ſubſtance, in which ſhe depoſits her eggs. The ſmall threads of her tail are ſcarce perceptible.

3. The coccus cacti, a native of the warmer parts of America, is the famous cochineal animal, ſo highly valued in every part of the world for the incomparable beauty of its red colour, which it readily communicates to wool and ſilk, but with much more difficulty to linen and cotton. This inſect, like all others, is of two ſexes, but exceedingly diſſimilar in their appearance. The female, which alone is valuable for its colour, is ill-ſhaped, tardy, and ſtupid: its eyes, mouth, and antennæ, are fixed ſo deep, and are ſo concealed in the folds of the ſkin, that it is impoſſible to diſtinguiſh them without a microſcope. The male is very ſcarce and is ſufficient for 300 females or more: it is active, ſmall, and ſlender, in compariſon with the female; its neck is narrower than the head, and ſtill narrower than the reſt of the body. Its thorax is of an elliptic form, a little longer than the neck and head put together, and flattened below; its antennæ are jointed, and out of each joint iſſue long ſlender hairs that are diſpoſed in pairs in each ſide. It has ſix feet, each formed of diſtinct parts. From the poſterior extremity of its body two large hairs or briſtles are extended, which are four or five times the length of the inſect. It bears two wings that are fixed to the upper part of the thorax, which falls like the wings of common flies when it walks or reſts. Theſe wings, which are of an oblong form, are ſuddenly diminiſhed in breadth where they are connected to the body. They are ſtrengthened by two oblong muſcles, one of which extends itſelf on the outſide all round the wing; and the other, which is internal and parallel to the former, ſeems interrupted towards the ſummit of the wings. The male is of a bright red; the female of a deeper colour. They are bred on a plant known in Oaxaca in New Spain, and all thoſe parts where it abounds, by the name of *nopal*, or *nopalleca*, the *Indian fig-tree*. See Cactus.

The cochineal was formerly imagined to be a fruit or ſeed of ſome particular plant; an error which probably aroſe from an ignorance of the manner in which it is propagated; but at preſent every one is convinced of its being an inſect, agreeably to its name, ſignifying a wood-louſe, which generally breeds in damp places, eſpecially in gardens. Theſe inſects, by rolling themſelves up, form a little ball ſomething leſs than a pea: and in ſome places are known by the name of *baquilas de San Anton*, i. e. St Anthony's little cows: and ſuch is the figure of the cochineal, except that it has not the faculty of rolling itſelf up; and its magnitude, when at its full growth, does not exceed that of a tick common in dogs and other animals.

The juice of the plant on which theſe inſects breed, is their ſole nouriſhment, and becomes converted into their ſubſtance; when, inſtead of being thin and wateriſh, and to all outward appearance of little or no uſe, it is rendered of a moſt beautiful crimſon colour. The plant is in May or June in its moſt vigorous ſtate, and at this moſt favourable ſeaſon the eggs are depoſited among the leaves. In the ſhort ſpace of two months, from an animalcule, the inſect grows up to the ſize abovementioned: but its infant ſtate is expoſed to a variety of dangers; the violent blaſts of the north wind ſweep away the eggs from the foliage of the plant; and, what is equally fatal to their tender conſtitutions, ſhowers, fogs, and froſts, often attack them, and deſtroy the leaves, leaving the careful cultivator this only reſource, namely, that of making fires at certain diſtances, and filling the air with ſmoke, which frequently preſerves them from the fatal effects of the inclemency of the weather.

The breeding of cochineal is alſo greatly obſtructed by birds of different kinds, which are very fond of theſe inſects; and the ſame danger is to be apprehended from the worms, &c. which are found among the plantations of nopals: ſo that unleſs conſtant care be taken to fright the birds away from the plantation, and to clear the ground of thoſe various kinds of vermin which multiply ſo faſt in it, the owner will be greatly diſappointed in his expectations.

When the inſects are at their full growth, they are gathered and put into pots of earthen ware; but much attention is requiſite to prevent them from getting out, as in that caſe great numbers of them would be loſt; though there is no danger of it, where they are at liberty on the nopal leaves, thoſe being their natural habitation, and where they enjoy a plenty of delicious food: for though they often remove from one leaf to another, they never quit the plant; nor is it uncommon to ſee the leaves entirely covered with them, eſpecially when they are arrived at maturity. When they have been confined ſome time in theſe pots, they are killed and put in bags. The Indians have three different methods of killing theſe inſects; one by hot water, another by fire, and a third by the rays of the ſun: and to theſe are owing the ſeveral gradations of the colour, which in ſome is dark, and in others bright; but all require a certain degree of heat. Thoſe therefore who uſe hot water are very careful to give it the requiſite heat, and that the quantity of water be proportioned to the number of inſects. The method of killing the creatures by fire is to put them on ſhovels into an oven moderately heated for that intention; the fine quality of the cochineal depending on its not being over dried at the time of killing the inſects: and it muſt be owned, that among the ſeveral ways made uſe of to deſtroy this valuable creature, that of the rays of the ſun ſeems to bid faireſt for performing it in the moſt perfect manner.

Beſides the precaution requiſite in killing the cochineal, in order to preſerve its quality, it is equally neceſſary to know when it is in a proper ſtate for being removed from the leaves of the nopal; but as experience only can teach the cultivator this neceſſary criterion, no fixed rule can be laid down. Accordingly, in thoſe provinces where the cultivation of theſe inſects is chiefly carried on, thoſe gathered by Indians of one village differ from thoſe gathered in another; and even thoſe gathered by one perſon in the ſame village, are often different from thoſe gathered by another; every individual adhering to his own method.

The cochineal-inſect may, in ſome circumſtances, be compared to the ſilk-worm, particularly in the manner of depoſiting its eggs. The inſects deſtined for this purpoſe are taken at a proper time of their growth, and put into a box well cloſed, and lined with a coarſe cloth that none of them be loſt: and in this confinement they lay their eggs and die. The box is kept cloſe ſhut till the time of placing the eggs on the nopal, when, if any motion is perceived, it is a ſufficient indication that the animalcule has life, though the egg is ſo minute as hardly to be perceived; and this is the ſeed placed on the foliage of the nopal, and the quantity contained in the ſhell of a hen's egg is ſufficient for covering a whole plant. It is remarkable that this inſect does not, or at leaſt in any viſible manner, injure the plant, but extracts its nouriſhment from the moſt ſucculent juice, which it ſucks by means of its proboſcis through the fine teguments of the leaves.

The principal countries where the cochineal inſects are bred, are Oaxaca, Tlaſcala, Chulula, Nueva Gallicia, and Chiapa, in the kingdom of New Spain; and Hambato, Loja, and Tucuman in Peru: but it is only in Oaxaca that they are gathered in large quantities, and form a branch of commerce, the cultivation of theſe little creatures being there the chief employment of the Indians.

Though the cochineal belongs to the animal kingdom, of all others the moſt liable to corruption, yet it never ſpoils. Without any other care than merely that of keeping in a box, it has been preſerved for ages. In drying, it loſes about two thirds of its weight. When dried, it is ſorted into large entire grains, and ſmall or broken ones: the firſt are called by the Spaniards *grana*, the latter *granilla*. In trade, four ſorts are diſtinguiſhed, *Maſtique*, *Campeſchane*, *Tetraſchale*, and *ſylveſter*; of which the firſt is accounted the beſt, and the laſt the worſt. The three firſt are named from the places where they are produced; the latter from its being found wild without any culture.

In medicine, cochineal has been ſtrongly recommended as a ſudorific, cardiac and alexipharmac; but practitioners have never obſerved any conſiderable effects from it. Its principal conſumption is among dyers. See the article DYEING.

4. The coccus ilicis, or that forming the kermes grains, inhabits the quercus coccifera of the ſouthern parts of Europe. Mr Hellot of the French Accademy of Sciences, in his Art of Dyeing, chap. 12. ſays it is found in the woods of Vauvert, Vendeman, and Narbonne; but more abundantly in Spain, towards Alicant and Valencia. It not only abounds in Valencia, but alſo in Murcia, Jaen, Cordova, Seville, Eſtremadura, la Mancha, Serranias de Cuenca, and other places.

Dillon's Travels through Spain.

In Xixona and Tierra de Relleu, there is a diſtrict called *De la Grana,* where the people of Valencia firſt began to gather it, whoſe example was followed all over Spain. It has ſome years produced 30,000 dollars (5000l.) to the inhabitants of Xixona.

Both ancients and moderns ſeem to have had very confuſed notions concerning the origin and nature of the kermes; ſome conſidering it as a fruit, without a juſt knowledge of the tree which produced it; others taking it for an excreſcence formed by the puncture of a particular fly, the ſame as the common gall obſerved upon oaks. Tournefort was of this number. Count Marſigli, and Dr Niſole a phyſician of Montpelier, made experiments and obſervations, with a view of further diſcoveries; but did not perfectly ſucceed. Two other phyſicians at Aix in Provence, Dr Emeric and Dr Garidel, applied themſelves about the ſame time, and with greater ſucceſs; having finally diſcovered that the kermes is in reality nothing elſe but the body of an inſect transformed into a grain, berry, or huſk, according to the courſe of nature.

The progreſs of this transformation muſt be conſidered at three different ſeaſons. In the firſt ſtage, at the beginning of March, an animalcule, no larger than a grain of millet, ſcarce able to crawl, is perceived ſticking to the branches of the tree, where it fixes itſelf, and ſoon becomes immoveable; at this period it grows the moſt, appears to ſwell and thrive with the ſuſtenance it draws in by degrees. This ſtate of reſt ſeems to have deceived the curious obſerver, it then reſembling an excreſcence of the bark; during this period of its growth, it appears to be covered with a down, extending over its whole frame like a net, and adhering to the bark: its figure is convex, not unlike a ſmall ſloe; in ſuch parts as are not quite hidden by this ſoft garment, many bright ſpecks are perceived of a gold colour, as well as ſtripes running acroſs the body from one ſpace to another. At the ſecond ſtage, in April, its growth is completed; its ſhape is then round, and about the ſize of a pea: it has then acquired more ſtrength, and its down is changed into duſt, and ſeems to be nothing but a huſk or a capſule, full of a reddiſh juice not unlike diſcoloured blood. Its third ſtate is towards the end of May, a little ſooner or later according to the warmth of the climate. The huſk appears replete with ſmall eggs, leſs than the ſeed of a poppy. Theſe are properly ranged under the belly of the inſect, progreſſively placed in the neſt of down that covers its body, which it withdraws in proportion to the number of eggs: after this work is performed, it ſoon dies, though it ſtill adheres to its poſition, rendering a further ſervice to its progeny, and ſhielding them from the inclemency of the weather, or the hoſtile attacks of an enemy. In a good ſeaſon they multiply exceedingly, having from 1800 to 2000 eggs, which produce the ſame number of animalcules. When obſerved with the microſcope in July or Auguſt, we find, that what appeared as duſt, are ſo many eggs or open capſules, as white as ſnow, out of each of which iſſues a gold-coloured animalcule, of the ſhape of a cockroach, with two horns, ſix feet, and a forked tail. In Languedoc and Provence the poor are employed to gather the kermes, the women letting their nails grow for that purpoſe, in order to pick them off with greater facility.

The cuſtom of lopping off the boughs is very injudicious, as by this means they deſtroy the next year's harveſt. Some women will gather two or three pounds a-day: the great point being to know the places where they are moſt likely to be found in any quantity, and to gather them early with the morning-dew, as the leaves are more pliable and tender at that time than after they have been dried and parched by the rays of the ſun: ſtrong dews will occaſionally make them fall from the trees ſooner than uſual: when the proper ſeaſon paſſes, they fall off of themſelves, and become food for birds, particularly doves. Sometimes there will be a ſecond production, which is commonly of a leſs ſize with a fainter tinge. The firſt is generally found adhering to the bark, as well as on the branches and ſtalks; the ſecond is principally on the leaves, as the worms chooſe that part where the nutritious juice preſerves itſelf the longeſt, is moſt abundant, and can be moſt eaſily devoured in the ſhort time that remains of their exiſtence, the bark being then drier and harder than the leaves.

Thoſe who buy the kermes to ſend to foreign parts, ſpread it on linen; taking care to ſprinkle it with vinegar, to kill the worms that are within, which produces a red duſt, which in Spain is ſeparated from the huſk. Then they let it dry, paſſing it through a ſearce, and make it up into bags. In the middle of each, its proportion of red duſt, put in a little leather bag, alſo belongs to the buyer; and then it is ready for exportation, being always in demand on the African coaſt. The people of Hinojos, Bonares Villalba, and other parts of the kingdom of Seville, dry it on mats in the ſun, ſtirring it about, and ſeparating the red duſt, which is the fineſt part, and being mixed with vinegar goes by the name of *paſtel.* The ſame is done with the huſks; but theſe have but half the value of the duſt. The kermes of Spain is preferred on the coaſt of Barbary, on account of its goodneſs. The people of Tunis mix it with that of Tetuan, for dyeing thoſe ſcarlet caps ſo much uſed in the Levant. The Tuniſians export every year above 150,000 dozen of theſe caps, which yields to the Dey a revenue of 150,000 hard dollars (33,750 l.) *per annum* for duties; ſo that, excluſive of the uſes and advantages of kermes in medicine, it appears to be a very valuable branch of commerce in Spain.

5. The coccus lacca, or gum-lac animal, is a native of the Eaſt Indies. The head and trunk form one uniform, oval, compreſſed, red body, of the ſhape and magnitude of a very ſmall louſe, conſiſting of twelve tranſverſe rings. The back is carinite; the belly flat; the antennæ half the length of the body, filiform, truncated, and diverging, ſending off two, often three, delicate, diverging hairs, longer than the antennæ; the mouth and eyes could not be ſeen with the naked eye. The tail is a little white point, ſending off two horizontal hairs as long as the body. It has three pair of limbs, half the length of the inſect.

This is its deſcription in that ſtate in which it ſallies forth from the womb of the parent in the months of November and December. They traverſe the branches of the trees upon which they were produced for ſome time, and then fix themſelves upon the ſucculent extremities of the young branches. By the middle of January they are all fixed in their proper ſituations; they appear as plump as before, but ſhow no other marks of life. The limbs, antennæ, and ſetæ of the tail are no longer to be ſeen. Around their edges they are environed with a ſpiſſid ſubpellucid liquid, which ſeems to glue them to the branch: it is the gradual accumulation of this liquid, which forms a complete cell for each inſect, and is what is called *gum lacca*. About the middle of March the cells are completely formed, and the inſect is in appearance an oval, ſmooth, red-bag, without life, about the ſize of a ſmall cuchanical inſect, emerginated at the obtuſe end, full of a beautiful red liquid. In October and November we find about 20 or 30 oval eggs, or rather young grubs, within the red fluid of the mother. When this fluid is all expended, the young inſects pierce a hole through the back of their mother, and walk off one by one, leaving their exuviæ behind, which is that white membranous ſubſtance found in the empty cells of the ſtick lac.

The inſects are the inhabitants of four trees: 1. Ficus religioſa, *Linnæi;* 2 Ficus indica, *Linnæi;* 3. Plaſo, *Hortus Malabarici;* and 4. Rhamnus jujuba, *Linnæi.*

The inſects generally fix themſelves ſo cloſe together, and in ſuch numbers, that ſcarcely one in ſix can have room to complete her cell: the others die, and are eat up by various inſects. The extreme branches appear as if they were covered with a red duſt, and their ſap is ſo much exhauſted, that they wither and produce no fruit, the leaves drop off, or turn to a dirty black colour. Theſe inſects are tranſplanted by birds: if they perch upon theſe branches, they muſt carry off a number of the inſects upon their feet to the next tree they reſt upon. It is worth obſerving, that theſe fig-trees when wounded drop a milky juice, which inſtantly coagulates into a viſcid ropey ſubſtance, which, hardened in the open air, is ſimilar to the cell of the coccus lacca. The natives boil this milk with oils into a bird-lime, which will catch peacocks or the largeſt birds.

A red medicinal gum is procured by inciſion from the plaſo tree, ſo ſimilar to the gum lacca, that it may readily be taken for the ſame ſubſtance. Hence it is probable, that thoſe inſects have little trouble in animalizing the ſap of theſe trees in the formation of their cells. The gum lacca is rarely ſeen upon the rhamnus jujuba; and it is inferior to what is found upon the other trees. The gum lacca of this country is principally found upon the uncultivated mountains on both ſides the Ganges, where bountiful nature has produced it in ſuch abundance, that was the conſumption ten times greater the markets might be ſupplied by this minute inſect. The only trouble in procuring the lac is in breaking down the branches, and carrying them to market. The preſent price in Dacca is about twelve ſhillings the hundred pounds weight, although it is brought from the diſtant country of Aſſam. The beſt lac is of a deep red colour. If it is pale, and pierced at top, the value diminiſhes, becauſe the inſects have left their cells, and conſequently they can be of no uſe as a dye or colour, but probably they are better for varniſhes.

This inſect and its cell has gone under the various names of gum lacca, lack, loc tree. In Bengal, la; and by the Engliſh it is diſtinguiſhed into four kinds, differently demominated: for which, and their ſeveral uſes, ſee the article Lacca.

In the figure, *a* repreſents the inſect at its birth; *b* ditto, big with young; both the natural ſize. γ The embryo before birth incloſed in its membrane; δ The coccus, with two hairs from each antenna; ε Ditto, with three hairs from each antenna; theſe three figures are magnified.

6. Coccus Polonicus, an inſect which may properly enough be called the *cochineal* of the northern part of the world. As the cochineal loves only the hot climates, this creature affects only the cold ones. It is collected for the uſe of dyers: but the crops of it are much ſmaller, more difficultly made, and the drug itſelf greatly inferior to the true cochineal. It is commonly known by the name of *coccus Polonicus*, or the *ſcarlet grain of Poland*. That country is indeed the place where it is gathered in the greateſt abundance; but it is not the only one where it is found. It is to be met with in many of the northern countries; and poſſibly may be found in ſome of the more temperate ones, where it is not yet known; as it is very much hid by nature from the eyes of common obſervers. It is found affixed to the root of a plant, and uſually to plants of that ſpecies from thence called *polygonum cocciferum:* though authors have informed us of the ſame *berry*, as it is often called, being found at the roots of the mouſe-ear, rupture-wort, pimpernel, and pellitory of the wall; and that it is in no other than ſandy places that it is found at the roots of thoſe plants. Breynius, in 1731, printed at Dantzick a very curious account of this production, which proves it inconteſtably to be an animal. Towards the end of June the coccus is in a fit ſtate for being gathered. Every one of the creatures is then nearly of a ſpherical form, and of a fine violet colour. Some of them, however, are not larger than poppy ſeeds, and others of the ſize of a pepper corn; and each of them is lodged, either in part or entirely, in a ſort of cup like that of an acorn. More than half the ſurface of the body of the animal is covered by this cup. The outſide of the covering is rough, and of a blackiſh brown; but the inſide is ſmooth, poliſhed, and ſhining. On ſome plants they find only one or two of theſe, and on others more than forty; and they are ſometimes placed near the origin of the ſtalks of the plants.

Breynius began his obſervations on the animals in this ſtate, ſeveral of them being put into veſſels of glaſs; and by the 24th of July, there was produced from every one of them a hexapod, or ſix-legged worm, with two antennæ on its head. Several of theſe were kept a fortnight, and ſhowed no inclination to eat any thing. They run about, however, very ſwiftly for ſome time; but then began to be more quiet, drew up their bodies ſhorter, and ceaſed to run about any longer. They were now of a purple colour; but in this ſtate, though they did not walk about, they were ſubject to various contortions. At length, when they were become wholly motionleſs, their bodies became covered with a fine down; this was white, and formed them a perfect covering, which was ſometimes of a ſpherical, and ſometimes of an irregular figure: it was always, however, very elegant; and the downy matter plainly enough tranſpired out of the animal's body. The creatures remained in this ſtate of reſt, and covered with this down, for five or ſix days; but at the end that time, every one of them laid more than 150 eggs. Theſe eggs were depoſited upon the paper on which the animals were placed, and were enveloped in ſome meaſure by a downy matter. When the creatures had laid all their eggs, they died; and about the 24th of Auguſt there came from every egg a ſmall inſect, which to the eye ſcarce ſeemed any other than a red point; it might, however, be obſerved very plainly to move about. Theſe young animals lived about a month, wholly without ſuſtenance. Mr Breynius was induced at firſt to believe, that theſe animals came to be in a ſtate to produce perfect eggs, without any congreſs with the male; but farther obſervations convinced him of the error of this opinion. He ſaw afterwards a ſort of very ſmall flies with two white wings bordered with red, produced from ſeveral of the cocci. Theſe flies are plainly of the ſame kind with the male gall-inſects.

It has before been obſerved, that theſe cocci differ in ſize. The flies are produced by the ſmall ones not bigger than a poppy ſeed; the others produce the worms before deſcribed: and one obſervation of Mr Breynius's affords a plain proof that theſe flies are the male inſects of the ſpecies; ſince all thoſe of the females, which had been a day or two accompanied by thoſe flies, quickly covered themſelves with down and began to lay their eggs; whereas thoſe which had not this commerce with the flies remained in the ſame ſtate, or elſe got only a very thin and ſlight covering of down, and never laid any eggs. The manner of this creature's life, however, from its being hatched, to its being found in the ſhape of a berry at the roots of the plants, is yet unknown: and how they aſſume the ſhape of a ball lodged in a cup, muſt require a nice obſervation to diſcover.

The proper time for gathering this inſect, as we have already obſerved, is about the end of June, when it is quite full of a purple juice. Thoſe who gather it have a hollow ſpade with a ſhort handle; then, taking hold of the plant with one hand, they raiſe it out of the ground with the tool held in the other; after which they very quickly and dexterouſly detach the inſects, and replace the plant in the ground, where it again takes root. The coccus is then ſeparated from the earth by means of a ſieve; and in order to prevent them from turning into worms, they ſprinkle them with very cold water or vinegar. Laſtly, they are killed by expoſure to the ſun, or keeping them for ſome time in a warm place; but this muſt be done with caution, as too haſty drying would ſpoil the colour. Sometimes they ſeparate the inſects from the veſicles with their fingers, and form them into balls: but by this operation the price is greatly increaſed.

We are informed by Bernard de Bemith, from whom this account is taken, that the harveſt of coccus was farmed out to the Jews by ſome Poliſh lords, who had poſſeſſions in the Ukraine; that it was uſed by them, as well as the Turks and Armenians, for dyeing not only wood and ſilk, but the tails and manes of their horſes; that by its means the Turkiſh women dyed the tips of their fingers of a beautiful carnation; and that it was formerly uſed by the Dutch along with an equal quantity of cochineal, the coccus being purchaſed at a very dear rate; that beautiful paints may be prepared from this inſect and pounded chalk, &c. All this, however, M. Macquer ſuppoſes to have been exaggerated, as he never could produce with it any other than lilach, fleſh-colour, or crimſon; and he found it, morever, vaſtly more expenſive than cochineal, as not yielding one-fifth part of the colour. Hence this drug is almoſt entirely fallen into diſuſe, being ſcarce known in any of the European cities remarkable for having good dyers.

COCCYGÆUS MUSCULUS. See ANATOMY, Table of the muſcles.

COCCYX, or COCCYGIS OS. See ANATOMY, nº 35.

COCHIN, a Dutch ſettlement on the coaſt of Malabar in N. Lat. 9°. 58. E. Long. 75. 58.—The town is not unpleaſant, though it falls far ſhort of their ſettlement at Columbo in the iſland of Ceylon. The fortification is irregular, but ſtrong enough to reſiſt any of the Indian powers, and has 40 or 50 cannon facing the ſea. The people in this town and the country adjacent are ſubject to a ſtrange diſorder of the legs called *Cochin* or *elephant legs*, in which the ſwelled limb is ſometimes of ſuch an enormous bulk as to have greatly the appearance both in ſhape and ſize of the leg of an elephant. According to Mr Ives, this diſorder ſeems to be merely an oedematous ſwelling, occaſioned by an improveriſhed ſtate of the blood and juices. The perſons afflicted with this diſtemper very ſeldom apply to European ſurgeons, and thus are rarely, if ever cured. Indeed, our author, obſerves, that their application would probably be of little avail, as the only thing that could be preſcribed would be an alteration from the pooreſt to the moſt cordial and nutritious diet; and the Indians are ſo invincibly wedded to their own cuſtoms, that they would ſooner die than break through them. Of this he ſays there were ſeveral inſtances in their long paſſage to Bengal, during which ſome of the Sepoys periſhed for want of food, rather than ſave themſelves by partaking of the ſhip's proviſions after their own had been expended. Moſt of thoſe afflicted with the diſorder we ſpeak of, are unable to call any aſſiſtance, being the very pooreſt of the people, who live entirely upon a kind of fiſh called *Sardinias*, without being able to purchaſe even the ſmalleſt quantity of rice to eat along with it; their drink is alſo mere water, unleſs they ſometimes procure a draught of the ſimple unfermented juice called *toddy*. Cochin is the principal place from whence the Dutch import their pepper into Europe.

COCHIN-CHINA, a kingdom of Aſia, bounded on the north by Tonquin; on the eaſt, by the ſea of China; on the ſouth, by the Indian ocean; and on the weſt, by Cambodia, and a ridge of mountains inhabited by a ſavage people called *Kemois*, who live independent of any government. Little of the hiſtory of this kingdom is known. M. le Poivre, a French traveller informs us, that about half a century before the French firſt arrived in theſe diſtant regions, a prince of Tonquin, as he fled from his ſovereign, by whom he was purſued as a rebel, had with his ſoldiers and adherents croſſed the river, which ſerves as a barrier between Tonquin and Cochin China. The fugitives, who were warlike and civilized men, ſoon expelled the ſcattered inhabitants, who wandered about without any ſociety or form of government, and founded a new kingdom, which ſoon grew rich and populous. During the reigns of the firſt ſix kings, no nation could be happier than the Cochin-Chineſe. Their monarchs governed them as a father does his family, eſtabliſhing no laws but thoſe of nature, to which they themſelves were the firſt to pay obedience. They honoured and encouraged agriculture, as the moſt uſeful employment of mankind: and required from their ſubjects only a ſmall annual free-gift to defray the expence of their defenſive war againſt the Tonquineſe, who were their enemies. This impoſition was regulated, by way of poll-tax, with the greateſt equity. Every man, able to till the ground, paid into the prince a ſmall ſum proportioned to the ſtrength of his conſtitution, and the vigour of his arm; and nothing more.

Cochin-China continued happy under theſe princes for more than a century; but the diſcovery of gold mines put a ſtop to the above mild regulations. Luxury immediately took place. The prince began to deſpiſe the ſimple habitation of his anceſtors, and cauſed a ſuperb palace to be built a league in circumference, ſurrounded with a wall of brick in the model of that of Pekin, and defended by 1600 pieces of cannon. Not content with this, he would needs have a winter palace, an autumn palace, and a ſummer palace. The old taxes were by no means ſufficient to defray theſe expences; new ones were deviſed; and oppreſſion and tyranny every where took place. His courtiers, to flatter their prince, gave him the title of the *king of heaven*, which he continues to aſſume. When ſpeaking of his ſubjects, he ſtyles them his *children*, but by no means behaves as if he was their father: for our author informs us, that he has ſeen whole villages newly abandoned by their inhabitants, who were haraſſed with toil and inſupportable exactions; the neceſſary conſequence of which was, that their lands returned to their former uncultivated ſtate.

M. le Poivre repreſents the Cochin-Chineſe as gentle, hoſpitable, frugal, and induſtrious. There is not a beggar in the country; and robbery and murder are abſolutely unknown. A ſtranger may wander over the kingdom from one end to the other (the capital excepted) without meeting with the ſlighteſt inſult. He will be every where received with the moſt eager curioſity, but at the ſame time with the greateſt benevolence. A Cochin-Chineſe traveller, who has not money ſufficient do defray his expences at an inn, enters the firſt houſe of the town or village he arrives at, and waiting the hour of dinner, takes part with the family; and goes away when he thinks proper, without ſpeaking a word, or any perſon's putting to him a ſingle queſtion.

The country of Cochin-China is much of the ſame temperature with that of Tonquin; though rather milder, as lying nearer the ſea. Like Tonquin, it is annually overflowed, and conſequently fruitful in rice, which requires no other manure than the mud left by the inundations. They have ſugar-canes, and the ſame kinds of fruits common to other parts of India. The country produces no grapes, and therefore they drink liquor brewed from rice. They have vaſt woods of mulberry-trees, which run up as faſt as our hemp. Their ſilk is ſtronger than that of China, but not ſo fine. They have the beſt timber in the world, particularly a ſort which abounds in the mountains, and is called the *incorruptible tree*; becauſe it never rots under earth or water, and it is ſo ſolid that it ſerves for anchors. There are two kinds, black and red. The trees are very tall, ſtraight and ſo big that two men can ſcarce fathom them. They have alſo on the mountains of the Kemois a tree of the moſt fragrant ſcent, which is ſuppoſed to be the ſame with lignum aloes. This, being reckoned the beſt product of the country is engroſſed by the king, and is ſold from five to 16 ducats *per* pound. It is highly valued both in China and Japan, where the logs of it are ſold for 200 ducats a pound, to make pillows for the king and nobility; and among thoſe Indians which continue to burn their dead, great quantities of it are uſed in the funeral piles. The young trees called *aquila*, or eagle wood, are every one's property, which makes the old ones called *calamba* ſo ſcarce and dear. They have oak and large pines, for the building of ſhips: ſo that this country is of the ſame uſe to China that Norway is to Britain. In general, they have the ſame kind of trees and plants that are to be met with in Tonquin they have mines of gold, as well as diamonds; but the laſt they do not value ſo highly as pearl. They alſo eſteem their coral and amber very much. In all the provinces there are great granaries filled with rice, in ſome of which that grain is kept upwards of 30 years. One of the greateſt rarities in theſe parts, eſpecially in grand entertainments, is a ragout made of the eatable birds neſts, which ſome ſay are found only in Cochin-China, and others in four iſlands that lie ſouth of its coaſt. See Birds-Nests.

The merchants of Cambodia, Tonquin, China, Macao, Manila, Japan, and Malacca, trade to Cochin-China with plate, which they exchange for the commodities of the country. The Portugueſe are the moſt favoured here of any Europeans. The Cochin-Chineſe themſelves, not being inclined to travel, ſeldom ſail out of ſight of their own ſhore, but purchaſe many trifles from foreigners at great rates, particularly combs, needles, bracelets, glaſs pendants, *&c.* They are very fond of our hats, caps, girdles, ſhirts, and other clothes; and, above all, ſet a great value on coral. The country is ſaid to have 700 miles of coaſt, with many large inlets of the ſea, and above 60 convenient landing places; which, however, according to Captain Hamilton, are but ſeldom viſited by ſtrangers.

The people of this country have a great affinity with thoſe of Tonquin, with whom they have a common origin, and from whom they differ very little in their manner of living, as well as their manners and cuſtoms, all of which they have in a great meaſure borrowed from the Chineſe. The principal exports of the country are ſilk, ſugar, ebony, and calamba wood; gold in duſt or in bars, which is ſold for only ten times its weight in ſilver; and copper and porcelain brought from China and Japan. From this country alſo are exported the birds-neſts eſteemed ſuch a delicacy at the table. They are found in four iſlands ſituated near the coaſts of Cochin-China, to the eaſtward of which are five other ſmaller ones, where are found prodigous numbers of turtles, the fleſh of which is ſo delicate that the Tonquineſe and people of Cochin-China frequently fight deſperate battles, in order to take them from one another.—The commodities which ſell moſt readily in this country are, ſalt petre, ſulphur, lead, fine cloths, and barred or flowered chintz. Pearls, amber, and coral, were formerly in great requeſt, but at preſent only the two laſt are ſaleable; and even theſe will not anſwer unleſs the beads of coral be round, well poliſhed, and of a beautiful red colour; the amber muſt alſo be extremely clear, the beads of an equal ſize, and not larger than an hazel nut.

The only money current in Cochin-China is that of Japan, which is paid and received by weight. The money of the country is of copper, and as large as our counters; of a round figure, and having an hole in the middle by which the pieces may be ſtrung like beads. Three hundred of theſe are put on one ſide, and as many on the other, which in Cochin China paſs for a thouſand; becauſe in 600 are found ten times 60, which make a century among almoſt all the people of the eaſt. There is, however, ſcarce any country in which merchants are more apt to be deceived with regard to the value of money than Cochin-China; owing to the pieces being unequal in figure and quality, and the difficulty of determining their value, which is regulated only by a few characters ſtamped upon them. The dealers muſt therefore be at pains to have honeſt and ſkilful people to aſcertain the value of the pieces they receive; otherwiſe they run a great riſk of being deceived in their value, as the Cochin-Chineſe make a great merit of being able to cheat an European.

European merchants complain, according to M. Groſier, unjuſtly of the demands made in Cochin-China for entrance, clearance, and anchorage. The duties indeed are very trifling, amounting only, even thoſe of the cuſtomhouſe, to 4 *per cent*; but nothing can be removed from a ſhip which arrives there until ſhe has firſt been inſpected, when the cuſtomhouſe officers unload her, weigh and count the ſmalleſt pieces, and generally take what they look upon to be moſt valuable, in order to ſend it to the king. The monarch takes what he thinks proper, and returns the value; but the grandees are ſaid to keep part of the goods alſo, without paying any thing for them. Thus the ordinary goods, which, had they been accompanied with the more valuable part of the cargo, would have found a ready market, can now ſcarcely be diſpoſed of; though our author is of opinion, that the matter is not altogether without remedy. When the Dutch ſent to this country, veſſels loaded with cloths, lead, and ſaltpetre, their cargoes were ſuffered to remain entire, becauſe they had taken the precaution to pay every year a certain ſum for each veſſel that entered. Other nations, by endeavouring to avoid the payment of this duty, entirely deſtroyed their commerce: the people of Cochin-China, however, for ſome years paſt have been much more moderate in their demands; and whatever their exactions may be, they are far leſs exorbitant than thoſe of the Tonquineſe.

M. Groſier obſerves, that a falſe report has gained ground in Europe, that when a trading veſſel happens to run a-ground in Cochin-China, or to be driven into any of its harbours by ſtreſs of weather, the king ſeizes the cargo if the ruder be broken. He aſſures us, however, that, ſo far from this being the caſe, a veſſel in diſtreſs is much ſafer on the coaſts of Cochin-China than almoſt any where elſe. Barks are immediately ſent to the relief of the crew, and people employed to drag the ſea with nets in order to recover the goods that are loſt; and in ſhort neither labour nor expences are ſpared to put the ſhip in the beſt condition poſſible. Only two things can hurt the trade of foreigners at Cochin-China, one of which may be eaſily avoided. This regards the clearing out of veſſels. Thus, while the maſter is waiting on the evening before his departure, or on the day fixed for ſailing, in order to receive his diſpatches, it often happens that he loſes his voyage, which may prove the ruin of a trader. For this reaſon, care muſt be taken to ſolicit a clearance a month before, by which means one is always certain of obtaining it, and departing on the day appointed. The other difficulty is occaſioned by the neceſſity of ſelling goods on credit, which are ſeldom paid at the ſtipulated time. This, however, is contrary to the inclination of the prince; for every merchant who can convey to him an account of theſe unjuſt delays, is ſure to be paid, and ſometimes even with intereſt.

COCHINEAL, or COCHENEEL, a drug uſed by the dyers, &c. for giving red colours, eſpecially crimſons and ſcarlets, and for making carmine; and likewiſe in medicine as a cardiac, cordial, ſudorific, alexipharmac, and febrifuge.

The cochineal, in the ſtate in which it is brought to us is in ſmall bodies of an irregular figure, uſually convex, and ridged and furrowed on one ſide, and concave on the other. The colour of the beſt is a purpliſh grey, powdered over with a ſort of white duſt. All that the world knew of it for a long time was, that it was gathered from certain plants in Mexico; and therefore it was naturally ſuppoſed to be a ſeed, till in the year 1692 Father Plumier gave Pomet an account of its being an animal. And this, though then diſregarded, has been confirmed by ſubſequent obſervations. Indeed, to determine the point, we have now the means in our own hands, even in this part of the world.—We need only moiſten and ſoak in water or in vinegar, a number of cochineals till they are ſwelled and diſtended, to know that every one is the more or leſs perfect body of an inſect; the moſt imperfect and mutilated ſpecimens always ſhow the rings of the body; and from obſerving others, it will be eaſy to find the number and diſpoſition of the legs; parts, or even whole ones, being left on ſeveral, and often complete pairs. In this way the legs, antennæ, and proboſcis, may be diſcovered. See COCCUS above.

M. Macquer obſerves, that the cochineal of Sylveſtre is gathered in the woods of Old and New Mexico. The inſect lives, grows, and multiplies on the uncultivated opuntias which grow there in great abundance. It is there expoſed to the inclemencies of the weather, and dies naturally. The colour is more durable than that of the common cochineal, but leſs bright: but there is no advantage in uſing it; for, though cheaper, a greater quantity is requiſite.

COCHLEA, the ſhell-ſnail, in zoology. See HELIX.

COCHLEA, in Anatomy. See ANATOMY, p. 765. col. 1.

COCHLEARIA, SCURVY-GRASS: A genus of the ſiliculoſa order, belonging to the tetradynamia claſs of plants; and in the natural method ranking under the 39th order, *Siliquoſæ*. The ſilicula is emarginated, turgid, and ſcabrous; with the valves gibbous and obtuſe. There are ſix ſpecies; the moſt remarkable of which are, 1. The angelica, or garden ſcurvy-graſs, grows naturally on the ſea-ſhore, in the north of England and in Holland; but is cultivated for uſe in the gardens near London. It hath a fibrous root, from which ariſe many round ſucculent leaves, which are hollowed like a ſpoon; the ſtalks riſe from ſix inches to a foot high: theſe are brittle, and garniſhed with leaves which are oblong and ſinuated. The flowers are produced in cluſters at the end of the branches, conſiſting of four ſmall white petals which are placed in the form of a croſs; and are ſucceeded by ſhort, roundiſh, ſwelling, ſeed-veſſels, having two cells divided by a thin partition. In each of theſe are lodged four or five roundiſh ſeeds. 2. The armoracia, or horſe-radiſh, is ſo well known as to need no deſcription.

The firſt is propagated by ſeeds, which are to be ſown in July, in a moiſt ſpot of ground; and when the plants are come up, they ſhould be thinned, ſo as to be left at about ſix inches diſtance each way. The plants that are taken out may be tranſplanted into other borders. In the ſpring theſe plants will be fit for uſe; thoſe that are left will run up to ſeed in May, and perfect their ſeeds in June. If the ſeeds are ſown in the ſpring, they ſeldom grow well. The horſe-radiſh is propagated by cuttings or buds from the ſides of the old roots. The beſt ſeaſon for this work is in October or February; the former for dry lands, the latter for moiſt.

Uſes. Scurvy-graſs is a pungent ſtimulating medicine; capable of diſſolving viſcid juices, opening obſtructions of the viſcera and the more diſtant glands, and promoting the more fluid ſecretions. It is particularly celebrated in ſcurvies, and is the principal herb employed in theſe diſorders in the northern countries. Horſe-radiſh root has a quick pungent ſmell, and a penetrating acrid taſte; it nevertheleſs contains in certain veſſels a ſweet juice, which ſometimes exſudes on the ſurface. By drying it loſes all its acrimony, becoming firſt ſweetiſh, and then almoſt inſipid: if kept in a cool place in ſand, it retains its qualities for a conſiderable time. The medical effects of it are to ſtimulate the ſolids, attenuate the juices, and promote the fluid ſecretions: it ſeems to extend its action through the whole habit, and to effect the minuteſt glands. It has frequently done ſervice in ſome kinds of ſcurvies, and other chronic diſorders proceeding from a viſcidity of the juices or obſtructions of the excretory ducts. Sydenham recommends it likewiſe in dropſies, particularly thoſe which follow intermittent fevers. Both water and rectified ſpirit extract the virtues of this root by infuſion, and elevate them in diſtillations: along with the aqueous fluid an eſſential oil riſes, poſſeſſing the whole taſte and pungency of the horſe-radiſh.

COCHLITES, in natural hiſtory, an appellation given to the petrified ſhells of the cochleæ or ſnails.

COCINTUM (anc. geog.), a promontory of the Bruttii, reckoned the longeſt in Italy: and which Holſtenius and Voſſius have reſtored to Ovid, reading *Cocintia* for *Ceurania*, Metam. XV. v. 704—*Cocintum*, alſo a town, 22 miles to the ſouth of Scylaceum, almoſt on the ſpot where *Stilo* now ſtands; from which the oppoſite promontory *Cocintum* is commonly called *Capo de Stilo*.

COCK, in zoology, the Engliſh name of the males of gallinaceous birds, but more eſpecially uſed for the common dunghill cock. See PHASIANUS.

Black Cock. } See TETRAO.
Cock of the Wood. } See TETRAO.

Cock-Chaffer. See SCARABÆUS.

Cock-Paddle, Lump-fiſh, or *Sea-owl.* See CYCLOPTERUS.

Cock-Pit, a ſort of theatre upon which game-cocks fight.

It muſt appear aſtoniſhing to every reflecting mind, that a mode of diverſion ſo cruel and inhuman as that of cock-fighting ſhould ſo generally prevail, that not only the ancients, barbarians, Greeks, and Romans, ſhould have adopted it; but that a practice ſo ſavage and heatheniſh ſhould be continued by Chriſtians of all ſorts, and even purſued in theſe better and more enlightened times.

The ancient Greeks and Romans, as is well known, were wont to call all the nations in the world barbarians; yet certainly, if we conſider the many inſtances of cruelty practiſed among them, there was very little reaſon for the diſtinction. Human ſacrifices were common both to them and the barbarians; and with them the expoſing of infants, the combats of men with wild beaſts, and of men with men in the gladiatorial ſcenes, were ſpectacles of delight and feſtivity.

The iſlanders of Delos, it ſeems, were great lovers of cock-fighting; and Tanagra a city in Bœotia, the iſle of Rhodes, Chalcis in Eubœa, and the country of Media, were famous for their generous and magnanimous race of chickens. The kingdom of Perſia was probably included in the laſt, from whence this kind of poultry was firſt brought into Greece: and if one may judge of the reſt from the fowls of Rhodes and Media, the excellency of the broods at that time conſiſted in their weight and largeneſs (as the fowls of thoſe countries were heavy and bulky), and of the nature of what our ſportſmen call *ſhakebags* or *turnpokes*. The Greeks, moreover, had ſome method of preparing the birds for battle, by feeding; as may be collected from Columella.

It ſhould ſeem, that at firſt cock-fighting was partly a religious, and partly a political inſtitution at Athens; and was there continued for the purpoſe of improving the ſeeds of valour in the minds of their youth; but was afterwards abuſed and perverted both here and in the other parts of Greece to a common paſtime, without any moral, political, or religious intention, and as it is now followed and practiſed among us.

At Rome, as the Romans were prone to imitate the Greeks, we may expect to find them following their example in this mode of diverſion, and in the worſt way, viz. without any good or laudable motives; ſince, when they took and brought it to Rome, the Greeks had forgotten every thing that was commendable in it, and had already perverted it to a low and unmeaning ſport. Signior Hyam thinks the Romans borrowed the paſtime from Dardanus in Aſia; but there is little reaſon for making them go ſo far for it, when it was ſo generally followed in Greece, whoſe cuſtoms the Romans were addicted to borrow and imitate. However, it is probable, they did not adopt this opinion very early. It may be gathered from Columella, that the Romans did not uſe the ſport in his time. This author ſtyles cock fighting a *Grecian diverſion*; and ſpeaks of it in terms of ignominy, as an expenſive amuſement, unbecoming the frugal houſe-holder, and often attended with the ruin of the parties that followed it. The words are remarkable. "Nos enim cenſemus inſtituere vectigal induſtrii patris familias, non rixoſarum avium laniſtæ, cujus plerumque totum patrimonium pignus aleæ, victor gallinaceus pyctes abſtulit:" Where he deſcribes, as we think, the manner, not of the Romans, but of the Greeks, who had in his time converted the diverſion of cock-fighting into a ſpecies of gaming, and even to the total ruin of their families, as happens but too often in other places at this day. The Romans, however, at laſt gave into the cuſtom, tho' not till the decline of the empire. The firſt cauſe of contention between the two brothers Baſſianus and Geta, ſons of the emperor Septimus Severus, happened, according to Herodian, in their youth, about the fighting of their cocks; and if the battling between theſe two princes was the firſt inſtance of it, probably they had ſeen and learned it in Greece, whither they had often accompanied the emperor their father.

It is obſervable, that cocks and quails pitted for the purpoſe of engaging one another, *a outrance*, or to the laſt gaſp, for diverſion, are frequently compared, and with much propriety, to gladiators. Hence Pliny's expreſſion, *Gallorum—ceu gladiatorum*; and that of Columella, *rixoſarum avium laniſtæ*; *laniſta* being the proper term for the maſter of the gladiators. Conſequently one would expect, that when the bloody ſcenes of the amphitheatre were diſcarded, as they were ſoon after the Chriſtian religion became the eſtabliſhment of the empire, the wanton ſhedding of mens blood in ſport, being of too cruel and ſavage a nature to be patroniſed and encouraged in an inſtitution ſo harmleſs and innocent as the Chriſtian was, one might juſtly expect that the ορτυγομανια and the αλεκτρυομανια would have ceaſed of courſe. The fathers of the church are continually inveighing againſt the ſpectacles of the arena, and upbraiding their adverſaries with them. Theſe indeed were more unnatural and ſhocking than a main of cocks; but this, however, had a tendency towards infuſing the like ferocity and implacability in the breaſts and diſpoſitions of men.

Beſides, this mode of diverſion has been in fact the bane and deſtruction of thouſands in modern times, as well as thoſe of *laniſtæ avium*, "cock-feeders," mentioned by Columella, whoſe patrimonial fortunes were totally diſſipated and deſtroyed by it.

The cock is not only an uſeful animal, but ſtately in his figure, and magnificent in his plumage. "*Imperitant ſuo generi*, ſays Pliny, *et regnum*, in quacunque ſunt domo, *exercent*." Ariſtophanes compares him to the king of Perſia; moſt authors alſo take notice of the "ſpectatiſſimum inſigne, ſerratum, quod eorum verticem *regiæ coronæ modo* exornat." His tenderneſs towards his brood is ſuch, that, contrary to the cuſtom of many other males, he will ſcratch and provide for them with an aſſiduity almoſt equal to that of the hen; and his generoſity is ſo great, that, on finding a hoard of meat, he will chuckle the hens together, and without touching one bit himſelf will relinquiſh the whole of it to them. He was called *the bird*, κατ εξοχην, by many of the ancients; he was highly eſteemed in ſome countries, and in others was even held ſacred, inſomuch that one cannot but regret that a creature ſo uſeful and noble, ſhould, by a ſtrange fatality, be ſo enormouſly abuſed by us. It is true, our αλεκτρυομανια, or the maſſacre of Shrove Tueſday, is now in a declining way; and, in a few years, it is to be hoped will be totally diſuſed: but the cock-pit ſtill continues a reproach to the humanity of Engliſhmen, and to their religion; the pureſt, the tendereſt, and moſt compaſſionate, of all others, not excepting even the Brachmannic.

It is unknown when the pitched battle firſt entered England; but it was probably brought thither by the Romans. The bird was here before Cæſar's arrival, but no notice of his fighting occurs earlier than the time of William Fitz-Stephen, who wrote the life of archbiſhop Becket, ſome time in the reign of Henry II. and deſcribes the cocking as a ſport of School-boys on Shrove Tueſday. From this time at leaſt the diverſion, however abſurd, and even impious, was continued amongſt them. It was followed, though diſapproved and prohibited 39 Edward III.; alſo in the reign of Henry VIII; and A. D. 1569. It has by ſome been called a *royal diverſion*; and, as every one knows, the cock-pit at Whitehall was erected by a crowned head, for the more magnificent celebration of it. There was another pit in Drury-lane, and another in Javin-ſtreet. It was prohibited, however, by one of Oliver's acts, March 31. 1664. What aggravates the reproach and diſgrace upon Engliſhmen, are thoſe ſpecies of fighting which are called the *battle-royal* and the *Welſh-main*, known no where in the world but there: neither in China, nor in Perſia, nor in Malacca, nor among the ſavage tribes in America. Theſe are ſcenes ſo bloody as almoſt to be too ſhocking to relate; and yet, as many may not be acquainted with the horrible nature of them, it may be proper for the excitement of our averſion and deteſtation to deſcribe them in a few words. In the former, an unlimited number of fowls are pitted, and when they have ſlaughtered one another for the diverſion (*Dii boni!*) of the otherwiſe generous and humane Engliſhman, the ſingle ſurviving bird is to be eſteemed the victor, and carries away the prize. The Welſh-main conſiſts, we will ſuppoſe of 16 pair of cocks; of theſe, the 16 conquerors are pitted a ſecond time; the 8 conquerors of theſe are pitted a third time; the 4 conquerors the fourth time; and laſtly, the two conquerors of theſe are pitted the fifth time; ſo that (incredible barbarity!) 31 cocks are ſure to be moſt inhumanely murdered for the ſport and pleaſure, the noiſe and nonſenſe, the profane curſing and ſwearing, of thoſe who have the effrontery to call themſelves, with all theſe bloody doings, and with all this impiety about them, *Chriſtians*; nay, what with many is a ſuperior and diſtinct character, men of benevolence and morality. But let the morality and benevolence of ſuch be appretiated from the following inſtance recorded as authentic in the obituary of the

Gentleman's Magazine for April 1739. "Died, April 4. at Tottenham, John Ardeſoif, Eſq; a young man of large fortune, and in the ſplendor of his carriages and horſes rivalled by few country gentlemen. His table was that of hoſpitality, where it may be ſaid he ſacrificed too much to conviviality; but if he had his foibles, he had his merits alſo that far outweighed them. Mr Ardeſoif was very fond of cock-fighting; and had a favourite cock upon which he had won many profitable matches. The laſt bet he laid upon this cock he loſt; which ſo enraged him, that he had the bird tied to a ſpit and roaſted alive before a large fire. The ſcreams of the miſerable animal were ſo affecting, that ſome gentlemen who were preſent attempted to interfere; which ſo enraged Mr Ardeſoif, that he ſeized a poker, and with the moſt furious vehemence declared, that he would kill the firſt man who interpoſed; but, in the midſt of his paſſionate aſſeverations, he fell down dead upon the ſpot. Such, we are aſſured, were the circumſtances which attended the death of this great pillar of humanity."

Cock-pit, of a ſhip of war, the apartment of the ſurgeon and his mates; being the place where the wounded men are dreſſed in time of battle, or otherwiſe. It is ſituated under the lower deck.

COCKBURNE (Mrs Catharine), a moſt accompliſhed lady and celebrated writer, was the daughter of Captain David Trotter, a native of Scotland, and a ſea-commander in the reign of King Charles II. She was born in London, Auguſt 16, 1679, and baptized in the Proteſtant church, according to which ſhe was bred up in her infancy a Proteſtant; but being a ſprightly, ingenious, and beautiful child, ſhe was particularly careſſed by ſome conſiderable families among the Papiſts. This favour naturally wrought a good opinion of ſuch friends; and entering into an intimacy with them as ſhe grew up, ſhe became an eaſy conqueſt to their faith, in which ſhe continued many years. In the mean time her genius ripened apace, and ſhot forth proofs of her talents for poetry, even before ſhe had paſſed her childhood. In her 17th year ſhe produced a tragedy called *Agnes de Caſtro*, which was acted in 1695. This performance, and ſome verſes addreſſed to Mr Congreve upon his *Mourning Bride* in 1697, brought her into the acquaintance of that gentleman. Thus encouraged in her firſt attempt, her Muſe brought upon the ſtage three plays more, before the death of Mr Dryden in 1701, to whoſe memory ſhe joined with ſeveral other ladies in paying a tribute of verſe. However, poetry and dramatic writing was not the moſt diſtinguiſhed of Miſs Trotter's talents; ſhe had a remarkable philoſophic turn, and equal to ſuch reſearches. Mr Locke's Eſſay on Human Underſtanding came out during this interval: that famous philoſopher had dreſſed out logic and metaphyſics in ſuch a new mode as was very agreeable to the taſte of the ſex in general, and particularly engaged the attention and admiration of our young authoreſs. She had begun to project a defence of the Eſſay againſt ſome remarks of Dr Burnet of the Charter-houſe, which was finiſhed ſo early as the beginning of December 1701. She had but lately paſſed the 22d year of her age; and the maſterly way in which the piece was drawn, muſt needs have given ſingular pleaſure to her great champion, who accordingly expreſſed his ſatisfaction by a preſent of books to his fair defendreſs. Philoſophy ſojourns in the neighbourhood of religion; theſe philoſophic reveries would naturally lead a thoughtful mind to that ſubject; and taking into her conſideration the tenets of her preſent faith, ſhe began to diſcover their indefenſible grounds: ſhe therefore reſolved to renounce it, and publiſhed a vindication of her change in 1707; and returning to the eſtabliſhed church of Scotland, ſhe changed her condition likewiſe the next year, 1708; and was married to Mr Cockburne, a learned divine of that church. The duties of a wife and mother called Mrs Cockburne from her books and pen many years; and domeſtic cares engaging her attention, we hear nothing of her as a writer till 1726, when her zeal for Mr Locke's opinions drew her again into public light. She exerciſed her pen afterwards as occaſion offered; and in 1739 ſhe entered into the controverſy concerning the foundation of moral duty and obligation. In that controverſy ſhe wrote two treatiſes, the firſt of which ſhe tranſmitted in manuſcript to Mr afterwards Dr Warburton, the late biſhop of Glouceſter, who publiſhed it, with a preface of his own, in 1747. Mrs Cockburne ſurvived this publication two years only. She died in 1749, and was interred at Long Horſley, near her huſband, who died the year before her, with this ſhort ſentence upon the tomb, "Let their works praiſe them in the gates." Prov. xxx. 31. Her Works were collected and publiſhed in 1751, in two volumes 8vo, with an account of her life prefixed.—This collection is an inconteſtable proof of the author's genius. But her abilities as a writer will not be ſeen without attending to the peculiar circumſtances in which her writings were produced: her early youth, for inſtance, when ſhe wrote ſome; her very advanced age, and ill ſtate of health, when ſhe drew up others; the uneaſy ſituation of her fortune during the whole courſe of her life; and an interval of near 20 years, in the vigour of it, ſpent in the cares of a family, without the leaſt leiſure for reading or contemplation; after which, with a mind ſo long diverted and encumbered, reſuming her ſtudies, ſhe inſtantly recovered its entire powers; and, in the hours of relaxation from domeſtic employments, purſued to the utmoſt limits ſome of the deepeſt reſearches the human underſtanding is capable of. Her character is that of a moſt uncommon lady, no leſs celebrated for her beauty in her younger years, than for her genius and accompliſhments. She was ſmall of ſtature, but had a remarkable livelineſs in her eyes, and a delicacy of complexion which continued to her death.

COCKERMOUTH, a town of Cumberland in England, ſituated in W. Long. 3. 12. N. Lat. 54. 35. It is a large town irregularly built, with broad ſtreets. It is waſhed by the Derwent on the weſtern ſide; divided in two by the Cocker; and the parts are connected by a ſtone-bridge of one ſingle arch. The number of inhabitants is between three and four thouſand: the manufactures are ſhalloons, worſted ſtockings, and hats; the laſt exported from Glaſgow to the Weſt Indies. It is a borough-town, and the right of voting is veſted by burgeſ tenure in certain houſes: this is alſo the town where the county elections are made. —Here is a caſtle ſeated on an artificial mount on a bank above the Derwent. It has a ſquare building, and ſtrengthened with ſeveral ſquare towers: on each ſide of the inner gate are two deep dungeons capable of holding 50 perſons in either; they are vaulted at top, and have only a ſmall opening in order to lower through it the unhappy priſoners into this dire priſon; and on the outſide of each is a narrow ſlit with a ſlope from it, down which were ſhot the proviſions allotted for the wretched inhabitants. This caſtle was founded by Waldof, firſt lord of Allerdale, and ſon of Goſpatrick earl of Northumberland, cotemporary with William the Conqueror. Waldof reſided firſt at Papcaſtle, which he afterwards demoliſhed; and with the materials built that at Cockermouth, where he and his family long reſided; but ſeveral arms over the gateway, which Cambden ſays are thoſe of the *Multons*, *Humfranvilles*, *Lucies*, and *Piercies*, evince it to have belonged in latter times to thoſe families. It appears that it was firſt granted by Edward II. to Anthony de Lucie, ſon of Thomas de Multon, who had aſſumed that name, becauſe his mother was daughter and co-heireſs to Richard de Lucie; and afterwards, by marriages, this caſtle and its honours deſcended to the Humfranvilles, and finally to the Percies. In 1658, it was garriſoned for the king; and being beſieged and taken by the rebels, was burnt, and never afterwards repaired.—Cockermouth is now in the poſſeſſion of the Lowther family, who have here a great property in coal-works. The town ſends two members to parliament.

COCKET, is a ſeal belonging to the king's cuſtomhouſe, or rather a ſcroll of parchment ſealed and delivered by the officers of the cuſtoms to merchants, as a warrant that their merchandiſes are cuſtomed.

It is alſo uſed for the office where goods tranſported were firſt entered, and paid their cuſtom, and had a cocket or certificate of diſcharge.

COCKLE, in ichthyology. See CARDIUM.

COCKLE, or SHIRLE, in mineralogy, a ſpecies of ſtones of the garnet kind, belonging to the ſiliceous claſs. It is called *Schoerlus* by Bergman, *Lapis corneus cryſtallizatus* by Wallerius and *Stannum cryſtallis columnaribus* by Linnæus. It is hard and heavy, ſhooting into cryſtals of a priſmatic figure, principally of a black or green colour. The name *cockle* for theſe kinds of ſtones is an old Corniſh word; but is ſometimes alſo applied to very different ſubſtances. The term *ſhirl* is adopted from the Germans. The Engliſh mineral name of *call* has alſo been uſed by ſome authors as ſynonimous with *cockle*, and theſe are even confounded together at the mines; but the *call*, definitively ſpeaking, is the ſame with the ſubſtance called *wolfram* by the Germans.

The ſpecific gravity of theſe ſtones is between 3000 and 3400, though always in proportion to their different ſolidities. They crack in the fire, and are very difficult to be fuſed; reſiſting both microcoſmic ſalt and mineral alkali. They cannot totally be diſſolved in aqua-fortis; but the diſſolved part is precipitated in a gelatinous form on the addition of an alkali. On a chemical analyſis they are found to contain ſiliceous earth, argil, calcareous earth, and iron; which laſt is found in a much greater quantity when they are opaque than when tranſparent. According to Bergman, ſome contain 55 parts of ſiliceous earth, 39 of argillaceous, and ſix of pure calcareous earth: but ſome contain ten or twelve of magneſia. In Britain they are chiefly found in Cornwall, about the tin mines, and ſome fine cryſtallized kinds have been brought from Scotland. The varieties are,

1. The *ſchoerlus martialis*, or cockle mixed with iron. It is of a green colour, and found in moſt of the Swediſh iron mines. It is coarſe, and without any determinate figure.

2. The *ſpatoſus*, or ſparry cockle, is found in ſome places of a deep green colour; whence authors have called it the mother of emeralds. Its ſpecific character is, that it always breaks in a cubic or rhomboidal form. In ſome parts of Sweden it is found of a pale green, white, or black colour, and of a brown colour in Weſtmoreland in England. It frequently occurs in the ſcaly lime-ſtones, and its colour changes from a deep green to white, in proportion as it contains more or leſs iron.

3. Fibrous cockle reſembles threads of glaſs. Theſe are either parallel, or like rays from a centre, in which laſt caſe it is called *ſtarred cockle*. Its colours are black, green, white, blackiſh green, and light green; all which are to be met with in Sweden. In Weſtmanland it is found along with a ſteel-grained lead ore; and here the whole is called *gran-ris-malm*, or pine-ore, from its reſemblance to the branches of that tree. Cronſtedt obſerves, that the ſtructure of this ſubſtance has cauſed it to be ſometimes confounded with the aſbeſtus, and that to this ſpecies belong moſt of the ſubſtances called *imperfect aſbeſti*. The ſtriated cockle, compared with the aſbeſti, is of a ſhining and angular ſurface, though this ſometimes requires the aid of a magnifying glaſs to diſcover it; always ſomewhat tranſparent; and is pretty eaſily vitrified before the blowpipe, without being conſumed as the pure aſbeſti ſeem to be.

4. Cryſtallized cockle is found of black, deep-green, light-green, and reddiſh-brown in Sweden, and ſome other European countries. Near Baſil in Switzerland is found, though very rarely, a ſtone called *tauffſtein*, belonging to this variety. It is of a reddiſh-brown colour, and conſiſts of two hexagonal cryſtals of cockle grown together in the form of a croſs, which is worn by the Roman Catholics as an amulet, and called by them *lapis crucifier*, or the croſs-ſtone. This form, however, is not peculiar to the cockle, for both Werner and Bergman mention cryſtals of mountain-cryſtal joined together in the ſame manner.

This variety was lately found by M. Fichtel on the Carpathian mountains, cryſtallized in priſms, and embodied in lime-ſtone. It effervesces ſlightly with acids, and contains 61.6 of ſilex, 21.6 of calcareous earth, 6.6 of argil, 5 of magneſia, 1.6 of iron, and three of water. The reddiſh-brown priſmatic ſhirl from Veſuvius contains 48 of ſilex, 40 of argil, five of calx, one of magneſia, and five of iron. Other kinds, however, have afforded 50 *per cent.* of ſiliceous earth, 30 of argillaceous, one or two of magneſia, and 18 or 20 of iron. The white ſort probably contain leſs iron, but all become reddiſh by calcination. Cronſtedt informs us that he has heard of lead being melted out of a kind of cockle from Rodbeck's Eng at Umea in Lapland; and he alſo thinks it very probable, that ſome of the cockles found in the Engliſh tin mines may contain tin. Some cryſtals of cockles are more fuſible than any ſort of ſtone whatever; theſe are always glaſſy and ſemitranſparent.

mitranſparent. The preciſe figure of the cockle, tho' always priſmatical, is uncertain: that from Yxſio, at Nya Kopparberg, is quadrangular; the French kind has nine ſides or planes, and the tauffſtein is hexagonal.

COCKNEY, a very ancient nickname for a citizen of London. Ray ſays, an interpretation of it is, A young perſon coaxed or cocquered, made a wanton, or neſtle-cock, delicately bred and brought up, ſo as when arrived at man's eſtate to be unable to bear the leaſt hardſhip. Another, A perſon ignorant of the terms of country œconomy, ſuch as a young citizen, who having been ridiculed for calling the neighing of a horſe laughing, and told that it was called neighing, next morning, on hearing the cock crow, to ſhow inſtruction was not thrown away upon him, exclaimed to his former inſtructor, How that cock neighs! whence the citizens of London have ever ſince been called cockneighs, or cockneys. Whatever may be the origin of this term, we at leaſt learn from the following verſes, attributed to Hugh Bagot earl of Norfolk, that it was in uſe in the time of king Henry II.

> Was I in my caſtle at Bungay,
> Faſt by the river Waveney,
> I would not care for the king of cockney.
> (*i. e.* the king of London.)

The king of the cockney occurs among the regulations for the ſports and ſhows, formerly held in the Middle temple, on Childermas day, where he had his officers, a marſhal, conſtable, butler, &c.—See dugdale's *Origines Juridiciales*, p. 247.

COCKROACH. See BLATTA. In Captain Cook's laſt voyage, the ſhips, while at Huaheine, were infeſted with incredible numbers of theſe creatures, whom it was found impoſſible by any means to deſtroy. Every kind of food, when expoſed only for a few minutes, was covered with thoſe noxious inſects, and pierced ſo full of holes, that it reſembled an honey-comb. They were particularly deſtructive to birds which had been ſtuffed for curioſities, and were ſo fond of ink, that they ate out the writing on labels. Books, however, were ſecured from their ravages by the cloſeneſs of the binding, which prevented them from getting in between the leaves. They were of two kinds, the *Blatta Orientalis* and *Germanica*.

COCKSWAIN, or COCKSON, an officer on board a man of war, who hath the care of the boat, or ſloop, and all things belonging to it. He is to be always ready with his boat's gang or crew, and to man the boat on all occaſions. He ſits in the ſtern of the boat, and ſteers: and hath a whiſtle to call and encourage his men.

COCLES, (Pub. Horat.) a celebrated Roman, who alone oppoſed the whole army of Porſenna at the head of a bridge, while his companions behind him were cutting of the communication with the other ſhore. When the bridge was deſtroyed, Cocles, tho' wounded by the darts of the enemy, leapt into the Tiber, and ſwam acroſs it with his arms. A brazen ſtatue was raiſed to him in the temple of Vulcan, by the conſul Publicola, for his eminent ſervices.

COCOA, in botany. See COCOS.

COCONATO, a town of Piedmont in Italy, famous for being the birth-place of Columbus, who firſt diſcovered America; E. Long 8. 0. N. Lat. 44. 50.

Plate CXLIII. COCOS, in botany: a genus belonging to the natural order of *Palmæ*. The calyx of the male is tripartite; the corolla tripetalous, with ſix ſtamina. The calyx of the female quinquepartite; the corolla tripetalous; the ſtigmata three, and the plum choriaceous. There is only one ſpecies known, which is cultivated in both the Indies, and is of the greateſt uſe to the inhabitants. It is ſuppoſed to be a native of the Maldive and ſome deſert iſlands in the Eaſt Indies; and from thence to have been tranſported to all the warm parts of America: for it is not found in any of the inland parts, nor any where far diſtant from ſettlements. The tree frequently riſes 60 feet high. The body of the trunk, which generally leans to one ſide, occaſioned as is is ſuppoſed, by the great weight of nuts it ſuſtains when young, is the exact ſhape of an apothecary's large iron peſtle, being of an equal thickneſs at top and at bottom, but ſomewhat ſmaller in the middle; its colour is of a pale brown throughout, and the bark ſmooth. The leaves or branches are often 14 or 15 feet long, about 28 in number, winged, of a yellow colour, ſtraight and tapering. The pinnæ or partial leaves are green, often three feet long next the trunk, but diminiſhing in length towards the extremity of the branches. The branches are faſtened at top by brown ſtringy threads that grow out of them, of the ſize of ordinary pack-thread, and are interwoven like a web. The nuts hang at the top of the trunk, in cluſters of a dozen in each. Each nut, next the ſtem, has three holes cloſely ſtopped: one of them being wider, and more eaſily penetrated than the reſt. When the kernel begins to grow, it incruſts the inſide of the nut in a bluiſh, jelley-like ſubſtance; this grows harder, the incloſed liquid, diſtilled into the nut from the roots, become ſomewhat acid; and the kernel, as the nut ripens, becomes ſtill more ſolid; and at length lines the whole inſide of the nut for above a quarter of an inch thick, being as white as ſnow, and of the flavour of an almond. The quantity of liquor in a full grown nut is frequently a pint and upwards. The huſky tegument of the nut conſiſts of ſtrong, tough, ſtringy filaments, which, when removed from the fruit reſemble coarſe oakhum, and may perhaps be conveniently enough uſed as ſuch. The ſhells of theſe nuts, being tipped with ſilver, are frequently uſed for drinking bowls. The bark of the tree may be wrought into cordage, and the leaves into baſkets, brooms, hammocks in form of nets, mats, ſacks, and other uſeful utenſils. The liquor contained in the ſhell is a moſt cooling wholeſome beverage in thoſe ſultry climates, and the white kernel a moſt agreeable food. The Maldive cocoa-nut is eſteemed, by the inhabitants of theſe iſlands, as a powerful antidote againſt the bites of ſerpents and other poiſons. The cocoa-nut tree is propagated by planting the nuts; which, in ſix weeks or two months time, will come up, provided they are freſh and thoroughly ripe; but this is what few of them are when brought into this country; for they always gather them before they are ripe, that they may keep during their paſſage. The beſt way, therefore, would be to gather ſuch nuts as are thoroughly ripe in their native country, and plant them in a tub of dry ſand, in order to keep them from the vermin during their paſſage. Here they will frequently ſprout, which will be an advantage, as they may then be immediately planted in pots of earth, and plunged in the bark-ſtove.

COCTION, a general term for all alterations made in bodies by the application of fire or heat.

COCYTUS, one of the rivers of hell, according to the theology of the poets. It has its name *απο τȣ κωκυειν*, from groaning and lamenting. Hence Milton,

> Cocytus nam'd of lamentation loud,
> Heard on the rueful ſtream.

It was a branch of the river Styx; and flowed, according to Horace, with a dull and languid ſtream.

COD, in ichthyology. See GADUS and FISHERY.

COD is alſo a term uſed, in ſome parts of England, for a pod. See POD.

COD-Cape, a promontory on the coaſt of New England, near the entrance of Boſton harbour. W. Long. 69. 50. N. Lat. 42. 0.

CODDY-MODDY, the Engliſh name of a ſpecies of LARUS.

CODE *(codex)*, a collection of the laws and conſtitutions of the Roman emperors, made by the order of Juſtinian. The word comes from the Latin *codex* "a paper book;" ſo called *a codicibus*, or *caudicibus arborum*, "the trunks of trees;" the bark whereof being ſtripped off, ſerved the ancients to write their books on.

The code is accounted the ſecond volume of the civil law, and contains twelve books; the matter of which is nearly the ſame with that of the digeſts, eſpecially the firſt eight books: but the ſtyle is neither ſo pure, nor the method ſo accurate, as that of the digeſts; and it determines matters of daily uſe, whereas the digeſts diſcuſs the more abſtruſe and ſubtle queſtions of the law, giving the various opinions of the ancient lawyers. Although Juſtinian's code is diſtinguiſhed by the appellation of *code*, by way of eminence, yet there were codes before his time; ſuch were, 1. The Gregorian code, and Hermogenean code; collections of the Roman laws, made by two famous lawyers, Gregorius and Hermogenes, which included the conſtitutions of the emperors from Adrian to Diocleſian and Maximinus. 2. The Theodoſian code, compriſed in 16 books, formed out of the conſtitutions of the emperors from Conſtantine the Great to Theodoſius the younger: this was obſerved almoſt over all the weſt, till it was abrogated by the Juſtinian code. There are alſo ſeveral later codes, particularly the ancient Gothic, and thoſe of the French kings; as the code of Euridic, code-Lewis, code-Henry, code-Marchande, code des Eaux, &c; and the preſent king of Pruſſia has lately publiſhed a code, which compriſes the laws of his kingdom in a very ſmall volume.

CODEX, in antiquity, denotes a book or tablet on which the ancients wrote. See CODEX.

CODEX alſo denoted a kind of puniſhment by means of a clog or block of wood, to which ſlaves who had offended were tied faſt, and obliged to drag it along with them; and ſometimes they ſat on it cloſely bound.

CODIA, among botaniſts, ſignifies the head of any plant, but more particularly a poppy head; whence its ſyrup is called *diacodium*.

CODIA, in botany: A genus of the diginia order, belonging to the octandria claſs of plants. The calyx is tetraphyllous, with ſmall oblong horizontal leaves; the corolla conſiſts of four very ſmall linear petals; the ſtamina are eight filaments twice as long as the calyx; the antheræ are roundiſh.

CODICIL, is a writing, by way of ſupplement to a will, when any thing is omitted that the teſtator would have added, or wants to be explained, altered, or recalled.

CODLIN, an apple uſeful in the kitchen, being the moſt proper for baking.

CODLING, a appellation given to the cod-fiſh when young. See GADUS.

CODON (Κωδων), in antiquity, a cymbal, or rather little braſs bell, reſembling the head of a poppy. They were faſtened to the trappings and bridles of horſes.

CODON, in botany: A genus of the monogynia order, belonging the decandria claſs of plants. The calyx is decempartite, with the ſegments alternately long and ſhort; the corolla campanulated, with the limb decempartite and equal; the nectarium decemlocular, of ten ſcales inſerted into the heels of the ſtamina; the ſeed-caſe bilocular; the ſeeds hairy, roundiſh, in a dry coloured pulp.

CODRINGTON, (Chriſtopher), a brave Engliſh officer, and not leſs diſtinguiſhed for his learning and benevolence; was born at Barbadoes in the year 1668, and educated at Oxford; after which he betook himſelf to the army; and, by his merit and courage, ſoon recommending himſelf to the favour of king William, was made a captain in the firſt regiment of foot-guards. He was at the ſiege of Namur in 1695; and, upon the concluſion of the peace of Ryſwick, was made captain-general and governor in chief of the Leeward and Caribbee iſlands. However, in 1701, ſeveral articles were exhibited againſt him to the houſe of commons in England; to which he publiſhed a diſtinct and particular anſwer, and was honourably acquitted of all imputations. In 1703, he ſhowed great bravery at the attack of Gaudaloupe; but at laſt he reſigned his government, and lived a ſtudious retired life; for a few years before his death, he chiefly applied himſelf to church-hiſtory and metaphyſics. He died at Barbadoes, on the 7th of April 1710, and was buried there the day following; but his body was afterwards brought over to England, and interred, on the 19th of June 1716, in the chapel of All-Souls College, Oxford. By his laſt will, he bequeathed his plantations in Barbadoes, and part of the iſland of Barbuda, to the ſociety for propagating the goſpel in foreign parts; and left a noble legacy to All-Souls College, of which he had been a fellow. This legacy conſiſted of his library, which was valued at 6000*l.*; and 10,000*l.* to be laid out, 6000 in building a library, and 4000 in furniſhing it with books. He wrote ſome of the poems in the *Muſæ Anglicanæ*, printed at London in 1741.

CODRUS, the 17th and laſt king of Athens, ſon of Melanthus. When the Heraclidæ made war againſt Athens, the oracle ſaid that the victory would be granted to that nation whoſe king was killed in battle. The Heraclidæ upon this gave ſtrict orders to ſpare the life of Codrus; but the patriotic king diſguiſed himſelf and attacked one of the enemy, by whom he was killed. The Athenians obtained the victory, and Codrus was deſervedly called the father of his country. He reigned 21 years, about 2153 years before the Chriſtian era. To pay more honour to his memory, the Athenians made a reſolution that no man after Codrus ſhould reign in Athens under the name of *king*.

COECUM, or BLIND-GUT. See ANATOMY, n° 93. Dr Muſgrave gives us an account, in the Philoſophical Tranſactions, of the coecum of a dog being cut out without any prejudice to the animal. Mr Giles gives us another of the coecum of a lady being diſtended, ſo as to form a tumor that held almoſt ſix pints of a thin, greyiſh almoſt liquid ſubſtance, of which ſhe died. And Mr Knowler a third, of a boy's coecum being vaſtly extended and ſtuffed with cherry-ſtones, which likewiſe proved mortal.

COEFFICIENTS, in algebra, are ſuch numbers or known quantities as are put before letters or quantities, whether known or unknown, and into which they are ſuppoſed to be multiplied. Thus, in $3x$, ax, or bx; 3, a and b, are the coefficients of x: and in $6a$, $9b$; 6, and 9, are the coefficients of a and b. See ALGEBRA.

COELESTIAL, or CELESTIAL, in general, denotes any thing belonging to the heavens: thus we ſay, *cæleſtial obſervations*, *the cæleſtial globe*, &c.

COELIAC ARTERY, in anatomy, that artery which iſſues from the aorta, juſt below the diaphragm. See ANATOMY, n° 123.

Coeliac Vein, in anatomy, that running through the inteſtinum rectum, along with the coeliac artery.

COELIMONTANA PORTA (Pliny), one of the gates of Rome, ſituated at the foot of mount Coelius; and hence its name: thought to be the ancient *Aſinaria* by ſome; but this others doubt. By this gate Alaric with his Goths is ſaid to have entered and plundered Rome.

COELIOBRIGA (anc. geog.), a town of the Bracari in the Hither Spain, to the ſouth of Bracara Auguſta, the north of the Durius, and not far from the Atlantic; a municipium (Coin). Now thought to be *Barcelos*, a town of Entre Minho y Duero. W. Long. 9. 15. Lat. 41. 20.

COELIUS MONS, one of the ſeven hills of Rome; ſo called from *Coeles*, a Tuſcan captain, who came to the aſſiſtance of Romulus againſt the Sabines, (Dionyſius Halicarnaſſeus). Called alſo *Querculanus*, or *Querceтulanus*, from the oaks growing on it; and *Auguſtus*, by Tiberius (Tacitus, Suetonius). To the eaſt it had the city walls, on the ſouth the Coeliolus, to the weſt the Palatine, and on the north the Eſquiliæ.

COELIOLUS, a part of mount Coelius to the ſouth, called *Minor Coelius* (Martial); having the city walls on the eaſt, the Aventine to the ſouth, on the weſt and north the valley through which the rivulet of the Appia runs.

COELOMA, among phyſicians, a hollow ulcer, ſeated in the tunica cornea of the eye.

COELOS PORTUS (anc. geog.), a town of the Cherſoneſus of Thrace, to the ſouth of Seſtos; where the Athenians erected a trophy, after a ſea victory over the Lacedemonians (Diodorus Siculus).

COELOSYRIA, in the larger ſenſe of the word, was the name of the whole country lying ſouthward of Seleucia, and extending as far as Egypt and Arabia: but this word is principally applied to the valley lying between Libanus and Antilibanus. This word occurs only in the apocryphal writings of the Old Teſtament.

COELUS (Heaven), in Pagan mythology, the ſon of Æther and Dies or Air and Day. According to Heſiod, he married Terra or the Earth: on whom he begat Aurea or the Mountains, the Ocean, &c. But having at length impriſoned the Cyclops, who were alſo his children, his wife, being offended, incited her ſon Saturn to revenge the injury done to his brothers; and, by her aſſiſtance, he bound and caſtrated Coelus, when the blood that flowed from the wound produced the three furies, the giants, and the wood-nymphs; and the genital parts being thrown into the ſea, impregnated the waters, and formed the goddeſs Venus. This deity was called by the Greeks *Uranus*.

COEMETERY. See CEMETERY.

COEMPTIONALES, among the Romans, an appellation given to old ſlaves, which were ſold in a lot with others, becauſe they could not be ſold alone.

COENOBITE, a religious who lives in a convent, or in community, under a certain rule; in oppoſition to anachoret, or hermit, who lives in ſolitude. The word comes from the Greek κοινος *communis*; and βιος, *vita*, "life". Caſſian makes this difference between a *convent* and a *monaſtery*, that the latter may be applied to the reſidence of a ſingle religious or recluſe; whereas the *convent* implies *cænobites*, or numbers of religious living in common. Fleury ſpeaks of three kinds of monks in Egypt; *anachorets*, who live in ſolitude; *cænobites*, who continue to live in community; and *ſarabaites*, who are a kind of monks-errant, that ſtroll from place to place. He refers the inſtitution of coenobites to the times of the apoſtles, and makes it a kind of imitation of the ordinary lives of the faithful at Jeruſalem. Though St Pachomius is ordinarily owned the inſtitutor of the coenobite life; as being the firſt who gave a rule to any community.

COENOBIUM, κοινοβιον, the ſtate of living in a ſociety, or community, where all things are common. Pythagoras is thought to be the author or firſt inſtitutor of this kind of life; his diſciples, though ſome hundreds in number, being obliged to give up all their private eſtates, in order to be annexed to the joint ſtock of the whole. The Eſſenians among the Jews and Platoniſts are ſaid to have lived in the ſame manner. Many of the Chriſtians alſo have thought this the moſt perfect kind of ſociety, as being that in which Chriſt and his apoſtles choſe to live.

COESFELDT, a town of Germany, in Weſtphalia, and in the territories of the biſhop of Munſter, where he often reſides. It is near the river Burkel, E. Long. 64. 2. N. Lat. 51. 58.

COEVORDEN, one of the ſtrongeſt towns in the United Provinces, in Overyſſel, fortified by the famous Cohorn. It was taken by the biſhop of Munſter, 1673; and the Dutch retook it the ſame year. It is ſurrounded by a moraſs. E. Long. 6. 41. N. Lat. 52. 40.

COFFEA, the COFFEE-TREE: A genus of the monogynia order, belonging to the pentandria claſs of plants; and in the natural method ranking under the 47th order, *Stellatæ*. The corolla is funnel-ſhaped; the ſtamina above the tube; the berry inferior, diſpermous; the ſeeds arillated, or having a proper exterior covering dropping off of its own accord. There is but one ſpecies, ſuppoſed to be a native of Arabia Felix. It ſeldom riſes more than 16 or 18 feet in height; the main ſtem grows upright, and is covered with a light brown bark; the branches are produced horizontally and oppoſite, croſſing each other at every joint; ſo that every ſide of the tree is fully garniſhed with them, and they form a ſort of pyramid. The leaves alſo ſtand oppoſite; and when fully grown are about four or five inches long, and two broad in the middle, decreaſing toward each end; the borders are waved, and the ſurface is of a lucid green. The flowers are produced in cluſters at the root of the leaves, ſitting cloſe to the branches; they are tubulous, and ſpread open at the top, where they are divided into five parts; they are of a pure white, and have a very grateful odour, but are of ſhort duration. The fruit, which is the only uſeful part, reſembles a cherry. It grows in cluſters, and is ranged along the branches under the axillæ of the leaves, of the ſame green as the laurel, but ſomething longer. When it comes to be of a deep red, it is gathered for the mill, in order to be manufactured into thoſe *coffee-beans* now ſo generally known. The mill is compoſed of two wooden rollers furniſhed with iron plates 18 inches long, and 10 or 12 in diameter. Theſe moveable rollers are made to approach a third which is fixed, and which they call the *chops*. Above the rollers is a hopper, in which they put the coffee, from whence it falls between the rollers and the chops, where it is ſtripped of its firſt ſkin, and divided into two parts, as may be ſeen by the form of it after it has undergone this operation; being flat on the one ſide and round on the other. From this machine it falls into a braſs ſieve, where the ſkin drops between the wires, while the fruit ſlides over them into the baſkets placed ready to receive it: it is then thrown into a veſſel full of water, where it ſoaks for one night, and is afterwards thoroughly waſhed. When the whole is finiſhed, and well dried, it is put into another machine called the *peeling-mill*. This is a wooden grinder, turned vertically upon its trendle by a mule or horſe. In paſſing over the coffee it takes off the parchment, which is nothing but a thin ſkin that detaches itſelf from the berry in proportion as it grows dry. The parchment being removed, it is taken out of this mill to be put into another, which is called the *winnowing-mill*. This machine is provided with four pieces of tin fixed upon an axle, which is turned by a ſlave with conſiderable force; and the wind that is made by the motion of theſe plates clears the coffee of all the pellicles that are mixed with it. It is afterwards put upon a table, where the broken berries, and any filth that may remain among them, are ſeparated by negroes, after which the coffee is fit for ſale.

The coffee-tree is cultivated in Arabia, Perſia, the Eaſt Indies, the Iſle of Bourbon, and ſeveral parts of America. It is alſo raiſed in botanic gardens in ſeveral parts of Europe. Prince Eugene's garden at Vienna produced more coffee than was ſufficient for his own conſumption. It delights particularly in hills and mountains, where its root is almoſt always dry, and its head frequently watered with gentle ſhowers. It prefers a weſtern aſpect, and ploughed ground without any appearance of graſs. The plants ſhould be placed at eight feet diſtance from each other, and in holes twelve or fifteen inches deep. If left to themſelves, they would riſe to the height of 16 or 18 feet, as already obſerved: but they are generally ſtinted to five, for the conveniency of gathering their fruit with the greater eaſe. Thus drawſt, they extend their branches ſo, that they cover the whole ſpot round about them. They begin to yield fruit the third year, but are not in full bearing till the fifth. With the ſame infirmities that moſt other trees are ſubject to, theſe are likewiſe in danger of being deſtroyed by a worm or by the ſcorching rays of the ſun. The hills where the coffee-trees are found have generally a gravelly or chalky bottom. In the laſt, it languiſhes for ſome times and then dies: in the former, its roots, which ſeldom fail of ſtriking between ſtones, obtain nouriſhment, and keep the tree alive and fruitful for 30 years. This is nearly the period for plants of the coffee-tree. The proprietor, at the end of this period, not only finds himſelf without trees, but has his land reduced, that it is not fit for any kind of culture; and unleſs he is ſo ſituated, that he can break up a ſpot of virgin land, to make himſelf amends for that which is totally exhauſted by the coffee-trees, his loſs is irreparable.

The coffee produced in Arabia is found ſo greatly to excel that raiſed in the American plantations or elſewhere, that the cultivation of the tree is now but ſeldom practiſed in any of the Britiſh colonies. Large plantations of this kind were formerly made in ſome of them; and it was propoſed to the parliament to give a proper encouragement for cultivating this commodity there, ſo as to enable the planters to underſell the importers from Arabia. Accordingly, there was an abatement of the duty payable on all coffee imported from the colonies in America, which at that time was ſuppoſed to be ſufficient encouragement for this kind of commerce; but the inferiority of the American coffee to the Arabian hath almoſt ruined the project. Mr Miller propoſes ſome improvements in the method of cultivation. According to him, the trees are planted in too moiſt a ſoil, and the berries are gathered too ſoon. They ought, he ſays, to be permitted to remain on the trees till their ſkins are ſhrivelled, and they fall from the trees when ſhaken. This will indeed greatly diminiſh their weight, but the value of the commodity will thereby be increaſed to more than double of that which is gathered ſooner. In Arabia, they always ſhake the berries off the trees, ſpreading cloths to receive them, and only take ſuch as readily fall at each time. Another cauſe may be the method of drying the berries. They are, he obſerves, very apt to imbibe moiſture, or the flavour of any thing placed near them. A bottle of rum placed in a cloſet, in which a canaſter of coffee-berries cloſely ſtopped was ſtanding on a ſhelf at a conſiderable diſtance, in a few days ſo impregnated the berries as to render them very diſagreeable: the ſame hath alſo happened by a bottle of ſpirit of wine ſtanding in the ſame cloſet with coffee and tea, both which were in a few days ſpoiled by it. Some years ago, a coffee-ſhip from India had a few bags of pepper put on board, the flavour of which was imbibed by the coffee, and the whole cargo ſpoiled. For theſe reaſons, Mr Miller directs that coffee-berries ſhould never be brought over in ſhips freighted with rum, nor laid to dry in the houſes where ſugars are boiled or rum diſtilled. When they are fully ripe, they ſhould be ſhaken off when the trees are perfectly dry, and ſpread upon cloths in the ſun to dry, carrying them every evening under cover, to prevent the dews or rain from falling on them. When perfectly dry, they ſhould have their outer ſkins beaten off, and then be carefully packed up in cloths or bags three or four times double.

The coffee-tree, as we have already obſerved, is ſometimes cultivated in European gardens; but for this it requires the aſſiſtance of a ſtove. It makes a fine appearance at all ſeaſons of the year (being an evergreen), but eſpecially when in flower, and when the berries are red, which is generally in the winter, ſo that they continue a long time in that ſtate. It is propagated from the berries; but they muſt be planted immediately when gathered from the tree, for they loſe their vegetative quality in a very ſhort time: when ſent abroad by the poſt, they have conſtantly failed in thoſe that have been a fortnight on their journey; ſo that where theſe trees are deſired, the young plants muſt be ſent, if it be at any diſtance from the place where they grow. The freſh berries may be planted in ſmall pots, and plunged into a hot-bed of tanners bark. If the bed be of a proper temperature, the young plants will appear in a month or five weeks time; and in ſix weeks more, will be ready for tranſplanting into ſeveral pots. During ſummer, they muſt be frequently watered; but not in too great plenty, otherwiſe the roots will be apt to rot. The firſt ſign of the plants being diſordered is their leaves ſweating out a clammy juice; after which they are over-run with inſects, that cannot be deſtroyed till the plants have recovered their health; ſo that on the firſt appearance of theſe inſects, the trees ſhould be removed into freſh earth, and all poſſible care taken to recover them. The diſorders incident to them, generally proceed either from their having been put into large pots, or from the earth about them being too ſtiff or over-watered. The moſt proper ſoil for them is that of a kitchen-garden, which is naturally looſe, and not ſubject to bind, eſpecially if it has conſtantly been well wrought and dunged.

Coffee alſo denotes a kind of drink, prepared from thoſe berries; very familiar in Europe for theſe 100 years, and among the Turks for 170.

Its original is not well known. Some aſcribe it to the prior of a monaſtery; who being informed by a goat-herd, that his cattle ſometimes browzing on the tree would wake and caper all night, became curious to prove its virtue: accordingly, he firſt tried it on his monks, to prevent their ſleeping at matins. Others from Sehehabeddin, refer the invention of coffee to the Perſians: from whom it was learned in the 15th century by Gemaleddin, mufti of Aden, a city near the mouth of the Red ſea; and who having tried its virtues himſelf, and found that it diſſipated the fumes which oppreſſed the head, inſpired joy, opened the bowels, and prevented ſleep, without being incommoded by it, recommended it firſt to his derviſes, with whom he uſed to ſpend the night in prayer. Their example brought coffee into vogue at Aden; the profeſſors of the law for ſtudy, artiſans to work, travellers to walk in the night, in fine every body at Aden, drank coffee. Hence it paſſed to Mecca; where firſt the devotees, then the reſt of the people, took it. From Arabia Felix it paſſed to Cairo. In 1541, Kahie Beg prohibited it, from a perſuaſion that it inebriated, and inclined to things forbidden. But Sultan Cauſou immediately after took off the prohibition; and coffee advanced from Egypt to Syria and Conſtantinople. The derviſes declaimed againſt it from the Alcoran, which declares, that coal is not of the number of things created by God for food. Accordingly, the mufti ordered the coffee-houſes to be ſhut; but his ſucceſſor declaring coffee not to be *coal*, they were again opened. During the war in Candia, the aſſemblies of news-mongers making too free with ſtate affairs, the grand viſir Cuproli ſuppreſſed the coffee-houſes at Conſtantinople: which ſuppreſſion, though ſtill on foot, does not prevent the public uſe of the liquor there. Thevenot, the traveller, was the firſt who brought it into France; and a Greek ſervant, named *Paſqua*, brought into Englnd by Mr Dan. Edwards, a Turkey merchant, in 1652, to make his coffee, firſt ſet up the profeſſion of *coffee-man*, and introduced the drink into that iſland.

The word *coffee* is originally Arabic: the Turks pronounce it *caheuh*, and the Arabians *cahuah*; which ſome authors maintain to be a general name for any thing that takes away the appetite, others for any thing that promotes appetite, and others again for any thing that gives ſtrength and vigour. The Mahometans, it is obſerved, diſtinguiſh three kinds of *cahuah*. The firſt is wine, or any liquor that inebriates: the ſecond is made of the pods that contain the coffee-berry; this they call the *Sultan's coffee*, from their having firſt introduced it on account of its heating leſs than the berry, as well as its keeping the bowels open: the third is that made with the berry itſelf, which alone is uſed in Europe, the pods being found improper for tranſportation. Some Europeans who imported the pods called them the *flower of the coffee-tree*. The deep brown colour of the liquor occaſioned its being called *ſyrup of the Indian mulberry*, under which ſpecious name it firſt gained ground in Europe.

The preparation of coffee conſiſts in roaſting, or giving it a juſt degree of torrefaction on an earthen or metalline plate, till it have acquired a browiſh hue equally deep on all ſides. It is then ground in a mill, as much as ſerves the preſent occaſion. A proper quantity of water is next boiled, and the ground coffee put into it. After it has juſt boiled, it is taken from the fire, and the decoction having ſtood a while to ſettle and fine, they pour or decant it into diſhes. The ordinary method of roaſting coffee amongſt us is in a tin cylindrical box full of holes, through the middle whereof runs a ſpit; under this is a ſemicircular hearth, whereon is a large charcoal-fire: by help of a jack the ſpit turns ſwift, and ſo roaſts the berry being now and then taken up to be ſhaken. When the oil riſes, and it is grown of a dark brown colour, it is emptied into two receivers made with large hoops, whoſe bottoms are iron plates: there the coffee is ſhaken and left till almoſt cold; and if it look bright and oily, it is a ſign it is well done.

Very different accounts have been given of the medicinal qualities of this berry. To determine its real effects on the human body, Dr Percival has made ſeveral experiments, the reſult of which he gives in the following words: "From theſe obſervations we may infer that coffee is ſlightly aſtringent, and antiſceptic; that it moderates alimentary fermentation, and is powerfully ſedative. Its action on the nervous ſyſtem

Eſſays, Vol. II. p. 127.

probably depends on the oil it contains; which receives its flavour, and is rendered mildly empyreumatic, by the proceſs of roaſting. Neumann obtained by diſtillation from one pound of coffee, five ounces five drachms and a half of water, ſix ounces and half a drachm of thick fetid oil, and four ounces and two drachms of a caput mortuum. And it is well known, that rye, torrefied with a few almonds, which furniſh the neceſſary proportion of oil, is now frequently employed as a ſubſtitute for theſe berries.

"The medicinal qualities of coffee ſeem to be derived from the grateful ſenſation which it produces in the ſtomach, and from the ſedative powers it exerts on the *vis vitæ*. Hence it aſſiſt digeſtion, and relieves the headach; and is taken in large quantities, with peculiar propriety, by the Turks and Arabians; becauſe it counteracts the narcotic effects of opium, to the uſe of which thoſe nations are much addicted.

"In delicate habits, it often occaſions watchfulneſs tremors, and many of thoſe complaints which are denominated nervous. It has been even ſuſpected of producing palſies; and from my own obſervation, I ſhould apprehend, not entirely without foundation. Slare affirms that he became paralytic by the too liberal uſe of coffee, and that his diſorder was removed by abſtinence from that liquor.

"The following curious and important obſervation is extracted from a letter with which I was honoured by Sir John Pringle, in April 1773: "On reading your ſection concerning coffee, one quality occurred to me which I have obſerved of that liquor, confirming what you have ſaid of its ſedative virtues. It is the beſt abater of the paroxyſms of the periodic aſthma that I have ſeen. The coffee ought to be of the beſt Mocco, newly burnt, and made very ſtrong immediately after grinding it. I have commonly ordered an ounce for one diſh: which is to be repeated freſh after the interval of a quarter or half an hour; and which I direct to be taken without milk or ſugar. The medicine in general is mentioned by Muſgrave, in his treatiſe *De arthritide anomla*: but I firſt heard of it from a phyſician in this place, who having once practiſed it in Litchfield, had been informed by the old people of that place, that Sir John Floyer, during the latter year of his life, kept free from, or at leaſt lived eaſy under, his aſthma, from the uſe of very ſtrong coffee. This diſcovery it ſeems, he made after the publication of his book upon that diſeaſe." Since the receipt of that letter, I have frequently directed coffee in the aſthma with great ſucceſs."

COFFER, in architecture, a ſquare depreſſure or ſinking in each interval between the modillions of the Corinthian cornice: ordinarily filled up with a roſe, ſometimes with a pomegranate, or other enrichment.

Coffer, in fortification, denotes a hollow lodgment, athwart a dry moat, from 6 to 7 feet deep, and from 16 to 18 broad: the upper part made of pieces of timber raiſed two feet above the level of the moat; which little elevation has hurdles laden with earth for its covering, and ſerves as a parapet with embraſures: the coffer is nearly the ſame with the caponiere, excepting that this laſt is ſometimes made beyond the counterſcarp on the glacis; and the coffer always in the moat taking up its whole breadth, which the caponiere does not. It differs from the traverſe and gallery, in that theſe latter are made by the beſiegers, and the coffer by the beſieged. The beſieged generally make uſe of coffers to repulſe the beſiegers when they endeavour to paſs the ditch. To ſave themſelves from the fire of theſe coffers, the beſiegers throw up the earth on that ſide towards the coffer.

COFFERER *of the* KING'S HOUSHOLD, in Britain, a principal officer in the court, next under the comptroller. He was likewiſe a white-ſtaff officer, and always a member of the privy council. He had a ſpecial charge and overſight of the other officers of the houſehold. He paid the wages of the king's ſervants below ſtairs, and for proviſions as directed by the board of green cloth. This office is now ſuppreſſed, and the buſineſs of it is tranſacted by the lord ſteward, and paymaſter of the houſehold. He had L. 100 a-year wages, and L. 400 a-year board-wages.

COFFIN, the cheſt in which dead bodies are put into the ground.

The ſepulchral honours paid to the manes of departed friends in ancient times, demand attention, and are extremely curious. Their being *put into a coffin* has been particularly conſidered as a mark of the higheſt diſtinction. With us the pooreſt people have their coffins. If the relations cannot afford them the pariſh is at the expence. On the contrary, in the eaſt they are not at all made uſe of in our times; Turks and Chriſtians, as Thevenot aſſures us, agree in this. The ancient Jews ſeem to have buried their dead in the ſame manner: neither was the body of our Lord, it ſhould ſeem, put into a coffin; nor that of Eliſha, 2 Kings xiii. 21. whoſe bones were touched by the corpſe that was let down *a little after* into his ſepulchre. However, that they were anciently made uſe of in Egypt, all agree; and antique *coffins of ſtone* and *ſycomore wood*, are ſtill to be ſeen in that country; not to mention thoſe ſaid to be made of a kind of paſteboard; formed by folding or glewing cloth together a great many times, curiouſly plaſtered, and then painted with hieroglyphics. Its being an ancient Egyptian cuſtom, and not practiſed in the neighbouring countries, were, doubtleſs, the cauſe that the ſacred hiſtorian expreſsly obſerves of Joſeph, that he was not only enbalmed, but put into a coffin too *; both being managements peculiar to the Egyptians.

Biſhop Patrick, in his commentary on this paſſage, takes notice of theſe Egyptian coffins of ſycomore wood, and of paſte-board; but he doth not mention the contrary uſage in the neighbouring countries which was requiſite, one might ſuppoſe, in order fully to illuſtrate the place: but even this perhaps would not have conveyed the whole idea of the ſacred author. Maillet apprehends that all were not encloſed in coffins who were laid in the Egyptian repoſitories of the dead: but that it was an honour appropriated to perſons of figure: for after having given an account of ſeveral riches found in thoſe chambers of death, he adds †, "But it muſt not be imagined that the bodies depoſited in this gloomy apartments were *all* incloſed in *cheſts*, and placed in niches. The greateſt part were ſimply embalmed and ſwathed after that manner which every one hath ſome notion of; after which they laid them one by the ſide of another without any ceremony. Some were even laid in theſe tombs without any embalming at all; or ſuch a ſlight one, that there remains nothing of them in the linen in which they were wrapped, but the bones, and thoſe half rotten. It is probable, that each conſiderable family had one of theſe burial places to themſelves; that the nitches were deſigned for the bodies of the heads of the families; and that thoſe of their domeſtics or ſlaves had no other care taken of them than the laying them on the ground, after having been embalmed, or even without that; which, with ut doubt, was alſo all that was done even to the heads of families of leſs diſtinction." After this he gives an account of a way of burial, practiſed anciently in that country, which had been but lately diſcovered; and which conſiſted in placing the bodies, after they were ſwathed, upon a layer of charcoal, and covering them with a mat, under a depth of ſand of ſeven or eight feet.

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* Gen. l. 26.

† Let. vii. p. 281.

That *coffins* then were not univerſally uſed in Egypt, is undoubted from theſe accounts; and probably they were only perſons of diſtinction who were buried in them. It is alſo reaſonable to believe, that in times ſo remote as that of Joſeph, they might be much leſs common than afterwards; and conſequently, that Joſeph's being put in a coffin in Egypt might be mentioned with a deſign to expreſs the great honours which the Egyptians did him at his death, as well as in life, being interred after the moſt ſumptuous manner of the Egyptians, *embalmed*, and *put into a coffin*. Agreeably to this, the Septuagint verſion, which was made for Egyptians, ſeems to repreſent coffins as a mark of grandeur. Job xxi. 32.

It is no objection to this account, that the widow of Nain's ſon is repreſented as carried forth to be buried in a σορος, or "on a bier:" for the preſent inhabitants of the Levant, who are well known to lay their dead bodies in the earth uninclosed, carry them frequently out to burial in a kind of coffin. So Dr Ruſſel, in particular, deſcribes the bier uſed for the Turks at Aleppo, as a kind of coffin much in the form of ours, only that the lid riſes with a ledge in the middle. Chriſtians, indeed, as he tells us, are carried to the grave on an open bier: but as the moſt common kind of bier reſembles our coffins, that uſed by the people of Nain might very poſſibly be of the ſame kind; in which caſe the word σορος was very proper.

COGGLE, or Cog, a ſmall fiſhing-boat upon the coaſts of Yorkſhire: and cogs (cogones) are a kind of little ſhips or veſſels uſed in the rivers Ouſe and Humber; (Stat. 23. H. VIII. c. 18.) *Præparatis cogonibus, galleis, & aliis navibus, &c.* (Matt. Paris. ann. 1066.) And hence the cogmen, boatmen, and ſeamen, who after ſhipwreck or loſſes by ſea travelled and wandered about to defraud the people by begging and ſtealing, until they were reſtrained by proper laws.

COGITATION, a term uſed by ſome for the act of thinking.

COGNAC, a town of France in Angoumois, with a caſtle, where Francis I. was born. It is ſeated on the river Charante, in a very pleaſant country, abounding in wine, and remarkable for excellent brandy. W. Long. 0. 10. N. Lat. 45. 42.

COGNATE, in Scots law, any male relation thro' the mother.

COGNATION, in the civil law, a term for that line of conſanguinity which is between males and females, both deſcended from the ſame father; as agnation is for the line of parentage between males only deſcended from the ſame ſtock.

COGNI, an ancient and ſtrong town of Caramania in Turkey in Aſia, and the reſidence of a beglerbeg. It is ſeated in a pleaſant country, abounding in corn, fruits, pulſe, and cattle. Here are ſheep whoſe tails weigh 30 pounds. E. Long. 32. 56. N. Lat. 37. 56.

COGNITIONIS CAUSA, in Scots law. When a creditor charges the heir of his debtor to enter, in order to conſtitute the debt againſt him, and the heir renounces the ſucceſſion, the creditor can obtain no decreet of conſtitution of that debt againſt the heir; but only a decreet ſubjecting the *hæreditas jacens*, or the eſtate which belonged to the debtor, to his diligence: and this is called a decreet *cognitionis cauſa*.

COGNIZANCE, or CONNUSANCE, in Engliſh law, has divers ſignifications. Sometimes it is an acknowledgement of a fine, or confeſſion of ſomething done; ſometimes the hearing of a matter judicially, as to take cognizance of a cauſe; and ſometimes a particular juriſdiction, as cognizance of pleas is an authority to call a cauſe or plea out of another court, which no perſon can do but the king, except he can ſhow a charter for it. The cognizance is a privilege granted to a city or a town to hold plea of all contracts, *&c.* within the liberty; and if any one is impleaded for ſuch matters in the courts at Weſtminſter, the mayor, *&c.* of ſuch franchiſe may demand cognizance of the plea, and that it may be determined before them.

COGNIZANCE is alſo uſed for a badge on a waterman's or ſerving-man's ſleeve, which is commonly the giver's creſt, whereby he is diſcerned to belong to this or that nobleman or gentleman.

COGS. See COGGLE.

COHABITATION, denotes the ſtate of a man and a woman who live together without being legally married. By the common law of Scotland, cohabitation for year and day, or a complete twelvemonth, is deemed equivalent to matrimony.

CO-HEIR, one who ſucceeds to a ſhare of an inheritance, to be divided among ſeveral.

COHESION, one of the four ſpecies of attraction, denoting that force by which the parts of bodies adhere or ſtick together.

1
Conſidered by Sir Iſaac Newton as an eſſential property of matter.

This power was firſt conſidered by Sir Iſaac Newton as one of the properties eſſential to all matter, and the cauſe of all that variety we obſerve in the texture of different terreſtrial bodies. He did not, however, abſolutely determine that the power of coheſion was an immaterial one; but thought it might poſſibly ariſe, as well as that of gravitation, from the action of an ether.

2
His account of the original conſtitution of matter.

His account of the original conſtitution of matter is as follows: It ſeems probable, that God in the beginning formed *matter* in ſolid, maſſy, impenetrable, moveable particles; of ſuch ſizes, figures, and other properties, and in ſuch proportion to ſpace, as moſt conduced to the end for which he formed them: and that theſe primitive particles being ſolid, are incomparably harder than any porous bodies compoſed of them; even ſo very hard as never to wear or break in pieces; no ordinary power being able to divide what God himſelf made one at the firſt creation. While the particles continue entire, they may compoſe bodies of one and the ſame nature and texture in all ages; but ſhould they wear away, or break in pieces, the nature of all things depending on them would be changed. Water and earth compoſed of old worn particles and fragments of particles, would not now be of the ſame texture with water and earth compoſed of entire particles in the beginning. And therefore, that nature may be laſting, the changes of corporeal things are to be placed in the various ſeparations and new aſſociations and motions of theſe permanent particles; compound bodies being apt to break, not in the midſt of ſolid particles, but where theſe particles are laid together, and touch in a few points." It ſeems farther, "That theſe particles have not only a *vis inertiæ*, accompanied with ſuch paſſive laws of motion as naturally reſult from that force; but alſo that they are moved by certain active principles, ſuch as that of gravity, and that which cauſeth fermentation and the coheſion of bodies. Theſe principles are to be conſidered not as occult qualities, ſuppoſed to reſult from the ſpecific forms of things, but as general laws of nature by which the things themſelves are formed; their truth appearing to us by phenomena, though their cauſe is not yet diſcovered."

3
Attraction the general law of nature.

The general law of nature, by which all the different bodies in the univerſe are compoſed, according to Sir Iſaac Newton, is that of attraction: *i. e.* "Every particle of matter has an attractive force, or a tendency to every other particle; which power is ſtrongeſt in the point of contact, and ſuddenly decreaſes, inſomuch that it acts no more at the leaſt ſenſible diſtance; and at a greater diſtance is converted into a repellent force, whereby the parts fly from each other. On this principle of attraction may we account for the coheſion of bodies, otherwiſe inexplicable.

4
Formation of particles of different ſizes.

"The ſmalleſt particles may cohere by the ſtrongeſt attractions, and compoſe bigger particles of weaker virtue; and many of theſe may cohere, and compoſe bigger particles, whoſe virtue is ſtill leſs; and ſo on for divers ſucceſſions, until the progreſſion end in the biggeſt particles, on which the operations in chemiſtry, and the colours of natural bodies, depend; and which, by cohering, compoſe bodies of a ſenſible magnitude. If the body is compact, and bends or yields inward to preſſure without any ſliding of its parts, it is hard and elaſtic; returning to its figure with a force ariſing from the mutual attraction of its parts. If the parts ſlide from one another, the body is malleable or ſoft. If they ſlip eaſily, and are of a fit ſize to be agitated by heat, and the heat is great enough to keep them in agitation, the body is fluid; and if it be apt to ſtick to things, it is humid; and the drops of every fluid affect a round figure by the mutual attractions of their parts, as the globe of the earth and ſea affects a round figure from the mutual attraction and gravity of its parts.

5
Diſtinction of bodies into hard, ſoft, humid, &c.

6
Exiſtence of repulſive power proved.

"Since metals diſſolved in acids attract but a ſmall quantity of the acid, their attractive force reaches but to a ſmall diſtance. Now, as in algebra, where affirmative quantities ceaſe, their negative ones begin; ſo in mechanics, where attraction ceaſes, there a repulſive virtue muſt ſucceed. That there really is ſuch a virtue ſeems to follow from the reflections and inflections of the rays of light; the rays being repelled by bodies in both theſe caſes without the immediate contact of the reflecting or inflecting body. The ſame thing ſeems alſo to follow from the emiſſion of light; a ray, as ſoon as ſhaken off from a body by the vibrating motion of the parts of the body, and got beyond the reach of attraction, being driven away with exceeding great velocity: for that force which is ſufficient to turn it back in reflection may be ſufficient to emit it. From the ſame repelling power it ſeems to be that flies walk upon the water without wetting their feet; that the object-glaſſes of long teleſcopes lie upon one another without touching; and that dry powders are difficultly made to touch one another ſo as to ſtick together, without melting them or wetting them with water, which, by exhaling, may bring them together.

"The particles of all hard homogeneous bodies which touch one another, cohere with a great force: to account for which, ſome philoſophers have recourſe to a kind of hooked atoms, which in effect is nothing elſe but to beg the queſtion. Others imagine, that the particles of bodies are connected by reſt, *i. e.* in effect by nothing at all; and others, by conſpiring motions, *i. e.* by a relative reſt among themſelves. For myſelf, it rather appears to me, that the particles of bodies cohere by an attractive force, whereby they tend mutually to each other."

7
No concluſion to be drawn from this account.

From this account of the formation and conſtitution of bodies, we can conclude nothing, except that they are compoſed of an infinite number of little particles, kept together by a force or power; but of what nature that power is, whether material or immaterial, we muſt remain ignorant till farther experiments are made. Some of the Newtonian philoſophers, however, have poſitively determined theſe powers to be immaterial. In conſequence of this ſuppoſition, they have ſo refined upon attractions and repulſions, that their ſyſtems ſeem not far from downright ſcepticiſm, or denying the exiſtence of matter altogether. A ſyſtem of this kind we find adopted by Dr Prieſtley,* from Meſſrs Boſcovich and Michell, in order to ſolve ſome difficulties concerning the Newtonian doctrine of light. "The eaſieſt method (ſays he) of ſolving all difficulties, is to adopt the hypotheſis of Mr Boſcovich, who ſuppoſes that matter is not impenetrable, as has been perhaps univerſally taken for granted; but that it conſiſts of phyſical points only, endued with powers of attraction and repulſion in the ſame manner as ſolid matter is generally ſuppoſed to be: provided therefore that any body move with a ſufficient degree of velocity, or have a ſufficient *momentum* to overcome any powers of repulſion that it may meet with, it will find no difficulty in making its way through any body whatever; for nothing elſe will penetrate one another but powers, ſuch as we know do in fact exiſt in the ſame place, and counterbalance or over-rule one another. The moſt obvious difficulty, and indeed almoſt the only one that attends this hypotheſis, as it ſuppoſes the mutual penetrability of matter, ariſes from the idea of the nature of matter, and the difficulty we meet with in attempting to force two bodies into the ſame place. But it is demonſtrable that the firſt obſtruction ariſes from no actual contact of matter, but from mere powers of repulſion. This difficulty

8
Mr Michell's hypotheſis adopted by Dr Prieſtley.

9
Bodies oppoſe each other not from actual contact.

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* *Hiſt. of Viſion*, vol. i. p. 392.

culty we can overcome; and having got within one ſphere of repulſion, we fancy that we are now impeded by the ſolid matter itſelf. But the very ſame is the opinion of the generality of mankind with reſpect to the firſt obſtruction. Why, therefore, may not the next be only another ſphere of repulſion, which may only require a greater force than we can apply to overcome it, without diſordering the arrangement of the conſtituent particles; but which may be overcome by a body moving with the amazing velocity of light.

10
Mr Baxter's opinion.

"This ſcheme of the *immateriality of matter*, as it may be called, or rather the *mutual penetration of matter*, firſt occurred to Mr Michell on reading *Baxter on the immateriality of the Soul*. He found that this author's idea of matter was, that it conſiſted as it were of bricks cemented together with immaterial mortar. Theſe bricks, if he would be conſiſtent with his own reaſoning, were again compoſed of leſs bricks, cemented likewiſe by an immaterial mortar; and ſo on *ad infinitum*. This putting Mr Michell upon the conſideration of the ſeveral appearances of nature, he began to percieve that the bricks were ſo covered with this immaterial mortar, that if they had any exiſtence at all, it could not poſſibly be percieved; every effect being produced, in nine inſtances of ten certainly, and probably in the tenth alſo, by this immaterial, ſpiritual, and penetrable mortar. Inſtead therefore of placing the world upon the giant, the giant upon the tortoiſe, and the tortoiſe upon he could not tell what, he placed the world at once upon itſelf."

11
Coheſion ſuppoſed owing to elementary fire.

Other philoſophers have ſuppoſed the powers both of gravitation and coheſion to be material; and to be only different actions of the etherial fluid, or elementary fire. In ſupport of this it hath been urged, that before we have recourſe to a ſpiritual and immaterial power as the cauſe of any natural phenomenon, we ought to be well aſſured that there is no material ſubſtance with which we are acquainted, that is capable of producing ſuch effects. In the preſent caſe, we are ſo far from having ſuch aſſurance, that the contrary is manifeſt to our ſenſes. One inſtance of this is in the experiment with the *Magdeburg hemiſpheres*, as they are called. Theſe are two hollow hemiſpheres of braſs, exactly fitted to one another, ſo as to form one globe when joined together, without admitting any air at the joining. In this ſtate, if the air within them is exhauſted by means of a pump, they will cohere with ſuch force, if they are five or ſix inches diameter, as to require a weight of ſome hundreds of pounds to ſeparate them. The preſſure of the atmoſphere, we ſee, is in this caſe capable of producing a very ſtrong coheſion; and if there is in nature any fluid more penetrating, as well as more powerful in its effects, than the air we breathe, it is poſſible that what is called the *attraction of coheſion* may ſome how or other be an effect of the action of that fluid. Such a fluid as this is the element of fire. Its activity is ſuch as to penerate all bodies whatever; and in the ſtate in which it is commonly called *fire*, it acts according to the quantity of ſolid matter contained in the body. In this ſtate, it is capable of diſſolving the ſtrongeſt coheſions obſerved in nature: but whatever is capable of diſſolving any coheſion, muſt neceſſarily be endued with greater power than that by which the coheſion is cauſed. Fire, therefore, being able to diſſolve coheſions, muſt alſo be capable of cauſing them, provided its power is exerted for that purpoſe. Nor will it ſeem at all ſtrange that this fluid ſhould act in two ſuch oppoſite ways, when we conſider the different appearances which it aſſumes. Theſe are three, *viz.* fire or heat, in which it conſumes, deſtroys, and diſſolves: light, in which it ſeems deprived of all deſtructive or diſſolvent power, and to be the moſt mild, quiet, and placid being in nature. The third ſtate of this element is, when it becomes what is called the *electric fluid*; and then it attracts, repels, and moves bodies in a vaſt variety of ways, without either burning or rendering them viſible by its light. In this ſtate it is not leſs powerful than in either of the other two; for a violent ſhock of electricity will diſplace and tear in pieces the moſt heavy and ſolid bodies. The ſeeming capricious nature of this fluid, however, probably renders it leſs ſuſpected as the cauſe of coheſion, than it otherwiſe would be, were the attractions regular and permanent, which we obſerve it to occaſion. But here we muſt obſerve, that the fluid has an exiſtence in all bodies before the experiments are tried which make its effects viſible to us, and was acting in them according to its ſettled and eſtabliſhed laws. While acting in this manner it was perfectly inviſible; and all we can do is, to produce ſome little infringement of theſe regular laws according to which it commonly acts. In ſome caſes, however, the electrical attractions produced by art are found to be pretty permanent and ſtrong. Thus, Mr Symmer, in ſome experiments with ſilk ſtockings, found their attraction ſo ſtrong, that it required upwards of 15 pounds weight to ſeparate them from each other; and this attraction would continue for more than an hour. In plates of glaſs, too, he obſerved a remarkable coheſion when electrified. In the Philoſophical Tranſactions for 1777, we find this hypotheſis taken notice of, and in ſome meaſure adopted, by Mr Henly. "Some gentlemen (ſays he) have ſuppoſed that the electric matter is the cauſe of the coheſion of the particles of bodies. If the electric matter be, as I ſuſpect, a real elementary fire inherent in all bodies, that opinion may probably be well founded; and perhaps the ſoldering of metals, and the cementation of iron, by fire, may be conſidered as ſtrong proofs of the truth of their hypotheſis."

On this laſt hypotheſis we muſt obſerve, that if the electric, or any other fluid, is ſuppoſed to be the cauſe of the attraction of coheſion univerſally, the particles of that fluid muſt be deſtitute of all coheſion between themſelves; otherwiſe we ſhould be at as great a loſs to account for the coheſion of theſe particles, as for that of terreſtrial matter. Philoſophers, indeed, do not ſuppoſe any coheſion between the particles of the electric fluid themſelves; it is generally believed that the particles of this fluid are repulſive of one another, though attracted by all other matter. If this is a fact, we cannot ſuppoſe the electric fluid to be the cauſe of coheſion. The probability or improbability of the hypotheſis juſt mentioned, muſt greatly depend on its being aſcertained whether the particles of the electric fluid do really repel one another, and attract all other kinds of matter, or not; but for this we muſt refer to the article ELECTRICITY.

COHOBATION, in chemiſtry, an operation by which the ſame liquor is frequently diſtilled from the ſame body, either with an intention to diſſolve this body, or to produce ſome change upon it. This is one of thoſe operations which the ancient chemiſts practiſed with great patience and zeal, and which are now neglected. To make this operation eaſier, and to prevent the trouble of frequently changing the veſſels, a particular kind of alembic, called a *pelican*, was invented. This veſſel was made in the form of a cucurbit with an alembic-head, but had two ſpouts communicating with the body. As the vapour roſe up into the head, it was gradually condenſed, and ran down the ſpouts into the body of the pelican, from whence it was again diſtilled; and ſo on. This veſſel is repreſented Plate CXXXIV. fig. 6.

COHORN (N.) the greateſt engineer Holland has produced. Among his other works, which are eſteemed maſter-pieces of ſkill, he fortified Bergen-op-zoom; which, to the ſurpriſe of all Europe, was taken by the French in 1747. He wrote a treatiſe on fortification; and died in 1704.

COHORT, in Roman antiquity, the name of part of the Roman legion, comprehending about 600 men. There were ten cohorts in a legion, the firſt of which exceeded all the reſt both in dignity and number of men. When the army was ranged in order of battle, the firſt cohort took up the right of the firſt line; the reſt followed in their natural order: ſo that the third was in the centre of the firſt line of the legion, and the fifth on the left; the ſecond between the firſt and third; and the fourth between the third and fifth: the five remaining cohorts formed a ſcond line in their natural order.

COIF, the badge of a ſergeant at law, who is caled ſergeant of the coif, from the lawn coif they wear under their caps, when they are created ſergeants.

The chief uſe of the coif was to cover the clerical tonſure. See Tonsure.

COILING, on ſhipboard, implies a ſort of ſerpentine winding of a cable or other rope, that it may occupy a ſmall ſpace in the ſhip. Each of the windings of this ſort is called a *fake;* and one range of fakes upon the ſame line is called a *tier*. There are generally from five to ſeven fakes in a tier; and three or four tiers in the whole length of a cable. This, however, depends on the extent of the fakes. The ſmaller ropes employed about the ſails are coiled upon cleats at ſea, to prevent their being entangled amongſt one another in traverſing, contracting, or extending the ſails.

COILON, in the ancient Grecian theatres, the ſame with the cavea of the Romans.

COIMBRA, a handſome, large, and celebrated town of Portugal, capital of the province of Beira, with a biſhop's ſee, and a famous univerſity. The cathedral and the fountains are very magnificent. It is ſeated in a very pleaſant country abounding in vineyards, olive-trees, and fruits. It ſtands on a mountain, by the ſide of the river Mondego. W. Long. 8. 57. N. Lat. 40. 10.

COIN, a piece of metal converted into money by the impreſſing of certain marks or figures thereon.

Coin differs from Money as the ſpecies from the genus. Money is any matter, whether metal, wood, leather, glaſs, horn, paper, fruits, ſhells, or kernels, which have currency as a medium in Commerce. Coin is a particular ſpecies, always made of metal, and ſtruck according to a certain proceſs called Coining.

The preciſe epocha of the invention of money is too ancient for our annals; and, if we might argue from the neceſſity and obviouſneſs of the thing, muſt be nearly coeval with the world.

Whether coins be of equal antiquity, may admit of ſome doubt; eſpecially as moſt of the ancient writers are ſo frequent and expreſs in their mention of leathern-moneys, paper-moneys, wooden-moneys, *&c.* Some, however, notwithſtanding this are of opinion, that the firſt moneys were of metal: the reaſons they give, are the firmneſs, neatneſs, cleanlineſs, durableneſs, and univerſality of metals; which, however, do rather conclude they ought to have been ſo, than that they actually were ſo.

In effect, the very commodities themſelves were the firſt moneys, *i. e.* were current for one another by way of exchange; and it was the difficulty of cutting or dividing certain commodities, and the impoſſibility of doing it without great loſs, that firſt put men on the expedient of a general medium. See Exchange.

Indeed, thus much may be ſaid in behalf of coins, that, on this view, it was natural for men to have their firſt recourſe to metals; as being almoſt the only things whoſe goodneſs and as it were integrity, is not diminiſhed by partition; beſides the advantages above expreſſed, and the conveniences of melting and returning them into a maſs of any ſize or weight.

It was probably, then, this property of metals which firſt accuſtomed people, who trafficked together, to account them in lieu of quantities of other merchandizes in their exchanges, and at length to ſubſtitute them wholly in their ſtead; and thus aroſe money: as it was their other property to preſerve any mark or impreſſion a long time, which confirmed them in the right; and thus was the firſt riſe of coins.

In the firſt ages, each perſon cut his metal into pieces of different ſizes and forms, according to the quantity to be given for any merchandize, or according to the demand of the ſeller, or the quantity ſtipulated between them. To this end they went to market loaden with metal in proportion to the purchaſe to be made, and furniſhed with inſtruments for portioning it, and ſcales for dealing it out, according as occaſion required. By degrees, it was found more commodious to have pieces ready weighed; and as there were different weights required according to the value of the different wares, all thoſe of the ſame weight began to be diſtinguiſhed with the ſame mark or figure: thus were coins carried one ſtep further. At length the growing commerce of money beginning to be diſturbed with frauds, both in the weights and the matter, the public authority interpoſed; and hence the firſt ſtamps or impreſſions of money; to which ſucceeded the names of the moniers; and at length the effigy of the prince, the date, legend, and other precautions to prevent the alterations of the ſpecies; and thus were coins completed.

Modern Coins. In England the current ſpecies of gold are the guinea, half-guinea, Jacobus, laureat, angel, and roſe-noble: the four laſt of which are now ſeldom to be met with; having been moſt of them converted into guineas, chiefly during the reign of Charles II. and James II. The ſilver coins are the crown, half-crown, ſhilling, and ſixpence. Copper coins are the half-penny and farthing.

In Scotland, by the articles of the Union, it is appointed that all the coins be reduced to the Engliſh, and the ſame accounts obſerved throughout. Till then the Scots had their pounds, ſhillings, and pence, as in England; but their pound was but 20 pence Engliſh, and the others in proportion: accordingly, their merk was 13⅓ s. Scots, current in England at 13⅓ d. their noble in proportion. Beſides theſe they had their turnorer-pence and half-pence; their penny $\frac{1}{12}$ of that of England: beſides baſe money of achiſons, babees, and placks. The bodle ⅙ of the penny, ¼ of the achiſon, ⅓ of the babee, and ½ of the plack.

In Ireland, the coins are as in England, *viz.* ſhillings, pence, *&c.* with this difference, that their ſhilling is but equal to $11\frac{3}{400}$ d. Sterling: whence their pound is only 18 s. 5¼ d.

But, for a view of all the coins preſently current in the four quarters of the globe, with their values and proportions, ſee the table ſubjoined to the article MONEY.

In many places ſhells are current for coins; particularly a ſmall white kind dug out of the ground in the Maldives, and ſome parts of America, called in the Indies *cowries*, or *coris*, on the coaſt of Africa *bonges*, and in America *porcelaines*; of which it takes a vaſt number to be equivalent in value to a penny. Of zimbis, another kind of ſhell current, particularly in the kingdoms of Angola and Congo, two thouſand make what the negroes call a *macoute*; which is no real money; for of this there is none in this part of Africa but a manner of reckoning: thus, two Flemiſh knives they eſteem a macoute; a copper-baſon two pounds weight, and 12 inches diameter, they reckon three macoutes; a fuſee 10, *&c.*

In ſome places fruits are current for coins. Of theſe there are three ſorts uſed; two in America, particularly among the Mexicans, which are the cacao and maize; the other in the Eaſt Indies, *viz.* almonds brought thither from Lar, and growing in the deſarts of Arabia. Of cacao 15 are eſteemed equivalent to a Spaniſh rial, or ſeven pence ſterling. Maize has ceaſed to be a common money ſince the diſcovery of America by the Europeans. Almonds are chiefly uſed where the *cowries* are not current. As the year proves more or leſs favourable to this fruit, the value of the money is higher or lower. In a common year 40 almonds are ſet againſt a *peſcha*, or halfpenny ſterling; which brings each almond to $\frac{1}{10}$ of a farthing.

Ancient COINS are thoſe chiefly which have been current among the Jews, Greeks, and Romans. Their values and proportions are as follows.

				JEWISH.	*l.*	*s.*	*d.* ſter.
				Gerah	0	0	$1\frac{57}{100}$
10				Becah	0	0	$1\frac{11}{16}$
20	2			Shekel	0	0	$2\frac{3}{8}$
1200	120	50		Maneh Mina hebraica	5	14	$0\frac{3}{4}$
60000	6000	3000	60	Talent	342	3	9
				Solidus aureus, or ſextula, worth	0	12	$0\frac{1}{2}$
				Siclus aureus, worth	1	16	6
				A talent of gold, worth	5475	0	0

										GRECIAN.	*s.*	*d.*	*qrs.* ſter.
										Lepton	0	0	$0\frac{31}{336}$
7										Chalcus	0	0	$0\frac{31}{48}$
14	2									Dichalcus	0	0	$1\frac{7}{24}$
28	4	2								Hemiobolum	0	0	$2\frac{7}{12}$
56	8	4	2							Obolus	0	1	$1\frac{1}{6}$
112	16	8	4	2						Diobolum	0	2	$2\frac{1}{3}$
224	32	16	8	4	2					Tetrobolum	0	5	$0\frac{2}{3}$
336	48	24	12	6	3	1½				Drachma	0	7	3
662	96	48	24	12	6	3	2			Didrachmon	1	3	2
1324	192	96	48	24	12	6	4	2		Tetrard ſtater	2	7	0
1660	384	120	60	30	15	7½	5	2½	1¼	Pentrad.	3	2	3

Note: Of theſe the drachma, didrachm, &c. were of ſilver, the reſt for the moſt part of braſs. The other parts, as tridrachm, triobolus, &c. were ſometimes coined.

Note alſo: The drachma is here, with the generality of authors, ſuppoſed equal to the denarius; though there is reaſon to believe that the drachma was ſomewhat the weightier. See DRACHMA and DENARIUS.

	l.	*s.*	*d.* Sterl.
The Grecian gold coin was the ſtater aureus, weighing two attic drachms, or half of the ſtater argenteus; and exchanging uſually for 25 attic drachms of ſilver; in ſterl. money	0	16	1¾
According to our proportion of gold to ſilver	1	0	9
There were likewiſe the ſtater cycizenus, exchanging for 28 attic drachms, or	0	18	1
Stater philippicus, and ſtater alexandrinus, of the ſame value.			
Stater daricus, according to Joſephus, worth 50 attic drachms, or	1	12	3½
Stater cræſius, of the ſame value.			

					ROMAN.	*s.*	*d.*	*qrs.* Sterl.
					Teruncius	0	0	$0\frac{775}{1000}$
2					Semilibella	0	0	$1\frac{55}{100}$
4	2				Libella As	0	0	$3\frac{1}{10}$
10	5	2½			Seſtertius	0	1	3¾
20	10	5	2		Quinarius Victoriatus	0	3	3½
40	20	10	4	2	Denarius	0	7	3

Note: Of theſe the denarius, victoriatus, ſeſtertius, and ſometimes the as, were of ſilver, the reſt of braſs. See As, &c.

There were ſometimes alſo coined of braſs the triens, ſextans, uncia, ſextula, and dupondius.

	l.	*s.*	*d.* Sterl.
The Romon gold coin was the aureus, which weighed generally double the denarius; the value of which, according to the firſt proportion of coinage, mentioned by Pliny, was	1	4	3¾
According to the proportion that obtains now amongſt us, worth	1	0	9

	l.	s.	d.
According to the decuple proportion, mentioned by Livy and Julius Pollux, worth	0	12	11
According to the proportion mentioned by Tacitus, and which afterwards obtained, whereby the aureus exchanged for 25 denarii, its value ——	0	16	$1\frac{3}{4}$

Coin, in architecture, a kind of dye cut diagonalwiſe, after the manner of a flight of a ſtair-caſe, ſerving at bottom to ſupport columns in a level, and at top to correct the inclination of an entablature ſupporting a vault.

Coin is alſo uſed for a ſolid angle compoſed of two ſurfaces inclined towards each other, whether that angle be exterior, as the coin of a wall, a tree, &c. or interior, as the coin of a chamber or chimney. See Quoin.

COINAGE, or Coining, the art of making money, as performed either by the hammer or mill.

Formerly the fabric of coins was different from what it is at preſent. They cut a large plate of metal into ſeveral little ſquares, the corners of which were cut off with ſheers. After having ſhaped theſe pieces, ſo as to render them perfectly conformable, in point of weight, to the ſtandard piece, they took each piece in hand again, to make it exactly round by a gentle hammering. This was called a *planchet*, and was fit for immediate coining. Then engravers prepared, as they ſtill do, a couple of ſteel maſſes in form of dyes, cut and terminated by a flat ſurface, rounded off at the edges. They engraved or ſtamped on it the hollow of a head, a croſs, a ſcutcheon, or any other figure, according to the cuſtom of the times, with a ſhort legend. As one of theſe dyes was to remain dormant, and the other moveable, the former ended in a ſquare priſm, that it might be introduced into the ſquare hole of the block, which, being fixed very faſt, kept the dye as ſteady as any vice could have done. The planchet of metal was horizontally laid upon this inferior maſs, to receive the ſtamp of it on one ſide, and that of the upper dye, wherewith it was covered, on the other. This moveable dye, having its round engraved ſurface reſiſting upon the planchet, had at its oppoſite extremity a flat ſquare, and larger ſurface, upon which they gave ſeveral heavy blows, with a hammer of an enormous ſize, till the double ſtamp was ſufficiently, in relievo, impreſſed on each ſide of the planchet. This being finiſhed, was immediately ſucceeded by another, and they thus became a ſtandard coin, which had the degree of fineneſs of the weight and mark determined by the judgment of the inſpectors, to make it good current money. The ſtrong tempering which was and is ſtill given to the two dyes, rendering them capable of bearing thoſe repeated blows. Coining has been conſiderably improved and rendered expeditious, by ſeveral ingenious machines, and by a wiſe application of the ſureſt phyſical experiments to the methods of fining, dyeing, and ſtamping the different metals.

The three fineſt inſtruments the mint-man uſes, are the laminating engine; the machine for making the impreſſions on the edges of coins; and the mill.

After they have taken the laminæ, or plates of metal, out of the mould into which they are caſt, they do not beat them on the anvil, as was formerly done, but they make them paſs and repaſs between the ſeveral rollers of the laminating engine, which being gradually brought cloſer and cloſer to each other, preſently give the lamina its uniform and exact thickneſs. Inſtead of dividing the lamina into ſmall ſquares, they at once cut clean out of it as many planchets as it can contain, by means of a ſharp ſteel trepan, of a roundiſh figure, hollow within, and of a proportionable diameter, to ſhape and cut off the piece at one and the ſame time. After theſe planchets have been prepared and weighed with ſtandard pieces, filed or ſcraped to get off the ſuperfluous part of the metal, and then boiled and made clean, they arrive, at laſt, at the machine (fig. 1.), which marks them upon the edge; and finally, the mill (fig. 2), which, ſqueezing each of them ſingly between the two dyes, brought near each other with one blow, forces the two ſurfaces or fields of the piece to fill exactly all the vacancies of the two figures engraved hollow. The engine which ſerves to laminate lead, gives a ſufficient notion of that which ſerves to flaten gold and ſilver laminæ between rollers of a leſſer ſize.

Plate CXLIV.

The principal pieces of the machine (fig. 1.), to ſtamp coins on the edge, are two ſteel laminæ, about a line thick. One half of the legend, or of the ring, is engraved on the thickneſs of one of the laminæ, and the other half on the thickneſs of the other; and theſe two laminæ are ſtraight, although the planchet marked with them be circular.

When they ſtamp a planchet, they firſt put it between the laminæ in ſuch a manner, as that theſe being each of them laid flat upon a copper-plate, which is faſtened upon a very thick wooden table, and the planchet being likewiſe laid flat upon the ſame plate, the edge of the planchet may touch the two laminæ on each ſide, and in their thick part.

One of theſe laminæ is immoveable, and faſtened with ſeveral ſcrews; the other ſlides by means of a dented wheel, which takes into the teeth that are on the ſurface of the lamina. This ſliding lamina makes the planchet turn in ſuch a manner, that it remains ſtamped on the edge, when it has made one turn. Only crown and half-crown pieces can bear the impreſſion of letters on the thickneſs of their edges.

The coining engine or mill is ſo handy (fig. 2.), that a ſingle man may ſtamp twenty thouſand planchets in one day: gold, ſilver, and copper planchets, are all of them coined with a mill, to which the coining ſquares (fig. 3.), commonly called dyes, are faſtened; that of the face under, in a ſquare box garniſhed with male and female ſcrews, to fix and keep it ſteady; and the other above, in a little box garniſhed with the ſame ſcrews, to faſten the coining ſquare. The planchet is laid flat on the ſquare of the effigy, which is dormant; and they immediately pull the bar of the mill by its cords, which cauſes the ſcrew ſet within it to turn. This enters into the female ſcrew, which is in the body of the mill, and turns with ſo much ſtrength that by puſhing the upper ſquare upon that of the effigy, the planchet, violently preſſed between both ſquares, receives the impreſſion of both at one pull, and in the twinkling of an eye.

The planchet thus ſtampt and coined, goes through a final examination of the mint wardens, from whoſe hands it goes into the world.

In the Coining of Medals, the proceſs is the ſame, in effect, with that of money; the principal difference conſiſting in this, that money having but a ſmall relievo, receives its impreſſion at a ſingle ſtroke of the engine; whereas for medals the height of their relievo makes it neceſſary that the ſtroke be repeated ſeveral times: to this end the piece is taken out from between the dyes, heated, and returned again; which proceſs, in medallions and large medals, is repeated fifteen or twenty times before the full impreſſion be given: care muſt be taken, every time the planchet is removed, to take off the ſuperfluous metal ſtretched beyond the circumference with a file. Medallions, and medals of high relievo, are uſually firſt caſt in ſand, by reaſon of the difficulty of ſtamping them in the preſs, where they are put only to perfect them; in regard the ſand does not leave them clear, ſmooth, and accurate enough. Therefore we may ſee that medals recieve their form and impreſſion by degrees, whereas money receives them all at once.

Britiſh Coinage, both by the beauty of the engraving, and by the invention of the impreſſions on the edges, that admirable expedient for preventing the alteration of the ſpecies, is carried to the utmoſt perfection.

It was only in the reign of king William. III. that the hammer-money ceaſed to be current in England, where till then it was ſtruck in that manner, as in other nations. Before the hammer ſpecies was called in, the Engliſh money was in a wretched condition, having been filed and clipped by natives as well as foreigners, inſomuch that it was ſcarce left of half the value: the retrieving this diſtreſſed ſtate of the Engliſh money is looked upon as one of the glories of king William's reign.

The Britiſh coinage is now wholly performed in the Tower of London, where there is a corporation for it under the title of the *mint*. Formerly there were here, as there are ſtill in other countries, the rights of ſeinorage and braſſage: but ſince the eighteenth year of king Charles II. there is nothing taken either for the king or for the expences of coining; ſo that weight is returned for weight, to any perſon who carries their gold and ſilver to the Tower.

The ſpecies coined in Great Britain are eſteemed contraband goods, and not to be exported. All foreign ſpecies are allowed to be ſent out of the realm, as well as gold and ſilver in bars, ingots, duſt, &c.

Barbary Coinage, particularly that of Fez and Tunis, is under no proper regulations as every goldſmith, Jew, or even private perſon, undertakes it at pleaſure; which practice renders their money exceeding bad, and their commerce very unſafe.

Muſcovite Coinage. In Muſcovy there is no other coin ſtruck but ſilver, and that only in the cities of Muſcow, Novogrod, Twere, and Pleſkow, to which may be added Peterſburgh. The coinage of each of theſe cities is let out to farm, and makes part of the royal revenue.

Perſian Coinage. All the money made in Perſia is ſtruck with a hammer, as is that of the reſt of Aſia; and the ſame may be underſtood of America, and the coaſts of Africa, and even Muſcovy: the king's duty, in Perſia, is ſeven and a half *per cent.* for all the moneys coined, which are lately reduced to ſilver and copper, there being no gold coin there except a kind of medals, at the acceſſion of a new ſophi.

Spaniſh Coinage is eſteemed one of the leaſt perfect in Europe. It is ſettled at Seville and Segovia, the only cities where gold and ſilver are ſtruck.

COIRE, or, as the Germans call it, CHUR, a large and handſome town of Switzerland, and capital of the country of the Griſons, with a biſhop's ſee, whoſe prelate has the right of coining money. It is divided into two parts; the leaſt of which is of the Roman Catholic religion, and the greateſt of the Proteſtant. It is governed by its own laws, and ſeated in a plain, abounding in vineyards and game, on the river Pleſſure, half a mile from the Rhine. E. Long. 9. 27. N. Lat. 46. 50.

COITION, the intercourſe between male and female in the act of generation.

It is obſerved that frogs are forty days in the act of coition. Bartholine, &c. relate, that butterflies make 130 vibrations of the wings in one act of coition.

COIX, JOB'S-TEARS: A genus of the triandria order, belonging to the monœcia claſs of plants; and in the natural method ranking under the 4th order, *Gramina*. The male flowers grow in ſpikes remote from one another; the calyx is a biflorous, beardleſs glume. The calyx of the female is a biflorous glume; the corolla a beardleſs glume; the ſtyle bipartite; the ſeed covered with the calyx oſſified. Of this there is but one ſpecies, a native of the Archipelago iſlands, and frequently cultivated in Spain and Portugal, and alſo in the Weſt Indies. It is an annual plant, riſing from a fibrous root, with two or three jointed ſtalks, to the height of two feet, with ſingle, long, narrow leaves at each joint, reſembling thoſe of the reed; at the baſe of the leaves come out the ſpikes of flowers ſtanding on ſhort foot-ſtalks; the ſeeds greatly reſemble thoſe of gromwell; whence the plant has by ſome writers been called *lithoſpermum*. This plant may be propagated in Britain by ſeeds brought from Portugal, and ſown on a hot-bed; after which the young plants are to be removed into a warm border, and planted at the diſtance of two feet at leaſt from each other. They will require no other care than to be kept free from weeds. In Spain and Portugal the poor people grind the ſeeds of this plant, in times of ſcarcity, and make a coarſe kind of bread of them. The ſeeds are incloſed in ſmall capſules about the bigneſs of an Engliſh pea, and of different colours. Theſe are ſtrung upon ſilk, and uſed inſtead of bracelets by ſome of the poorer ſort in the Weſt Indies, but eſpecially by the negroes.

COKE, or COOKE (Sir Edward), lord chief juſtice of the king's bench in the reign of James I. was deſcended from an ancient family in Norfolk, and born at Milcham in 1549. When he was a ſtudent in the Inner-Temple, the firſt occaſion of his diſtinguiſhing himſelf was the ſtating the caſe of a cook belonging to the Temple ſo exactly, that all the houſe, who were puzzled with it, admired him and his pleading, and the whole bench took notice of him. After his marriage with a lady of great fortune, preferments flowed in upon him. The cities of Norwiſh and Coventry choſe him for their recorder; the county of Norfolk, for one of their knights in parliament; and the houſe of commons, for their ſpeaker, in the 35th year of queen Elizabeth. The queen appointed him ſolicitor-general in 1592, and attorney-general the next year. In 1603, he was knighted by king James I.; and in November the ſame year, upon the trial of Sir Walter Raleigh, *&c.* at Wincheſter, he treated that gentleman with a ſcurrility of language hardly to be paralleled. June 27, he was appointed lord chief juſtice of the common pleas; and in 1613, lord chief juſtice of the king's bench, and ſworn one of the privy council. In 1615, he was very vigorous in the diſcovery and proſecution of the perſons employed in poiſoning Sir Thomas Overbury in the Tower in 1612. His conteſt not long after with the lord chancellor Egeton, with ſome other caſes, haſtened the ruin of his intereſt at court: ſo that he was ſequeſtered from the council-table and the office of lord chief juſtice. In 1621, he vigorouſly maintained in the houſe of commons, that no proclamation is of any force againſt the parliament. The ſame year, being looked upon as one of the great incendiaries in the houſe of commons, he was removed from the council of ſtate with diſgrace; the king ſaying, that "he was the fitteſt inſtrument for a tyrant that ever was in England:" he was alſo committed to the Tower, and his papers were ſeized. Upon the calling of a new parliament in 1625, the court-party, to prevent his being elected a member, got him appointed ſheriff of Buckinghamſhire; to avoid the office, if poſſible, he drew up exceptions againſt the oath of a ſheriff, but was obliged to undertake the office. In 1628, he ſpoke vigorouſly upon grievances; and made a ſpeech in which he affirmed, that "the duke of Buckingham was the cauſe of all our miſeries." While he lay upon his deathbed, his papers and laſt will were ſeized by an order of council. He died in 1634, and publiſhed many works: the moſt remarkable are his Inſtitutes of the laws of England; the firſt part of which is only a tranſlation and comment of Sir Thomas Littleton, one of the chief juſtices of the common pleas in the reign of Edward IV.

COKENHAUSEN, a ſtrong town of Livonia in Sweden, on the river Divina. E. Long. 24. 26. N. Lat. 56. 40.

COL, a name given by ſome to one of the weſtern iſlands of Scotland, it abounds in corn, paſture, ſalmon, eels, and cod. W. Long. 7. 35. N. Lat. 57.

COLAPIS, COLOPS (anc. geog.), a river of Liburnia, which after a winding north-eaſt courſe, falls into the Savus, at the Inſula Segiſtica. Now the *Culpe*, the boundary of the Alps, running through Croatia into the Save. Colapiani, the people living on it (Pliny).

COLARBASIANS, or COLORBASIANS, a ſet of Chriſtians in the ſecond century; ſo called from their leader Colarbaſus, a diſciple of Valentinus; who, with Marcus, another diſciple of the ſame maſter, maintained the whole plenitude, and perfection, of truth and religion, to be contained in the Greek alphabet: and that it was upon this account that Jeſus Chriſt was called the *alpha* and *omega*. This ſect was a branch of the Valentinians. See alſo MARCOSIANS.

COLBERG, a ſtrong, handſome ſea-port town of Germany, in Pomerania, belonging to the king of Pruſſia. It is remarkable for its ſalt works; and is ſeated at the mouth of the river Perſant, on the Baltic ſea, 60 miles north-eaſt of Stetin, and 30 north-eaſt of Camin. E. Long. 15. 57. N. Lat. 54. 18.

COLBERT (JOHN BAPTIST), marquis of Segnelai, one of the greateſt ſtateſmen that France ever had, was born at Paris in 1619; and deſcended from a family that lived at Rheims in Champaigne, no way conſiderable for its ſplendor and antiquity. His grandfather is ſaid to have been a wine-merchant, and his father at firſt followed the ſame occupation; but afterwards traded in cloth, and at laſt in ſilk. Our Colbert was inſtructed in the arts of merchandize; and afterwards became clerk to a notary. In 1648, his relation John Baptiſt Colbert, lord of S. Pouange, preferred him to the ſervice of Michael Le Tellier, ſecretary of ſtate, whoſe ſiſter he had married; and here he diſcovered ſuch diligence, and exactneſs in executing all the commiſſions that were entruſted to his care, that he quickly grew diſtinguiſhed. One day his maſter ſent him to cardinal Mazarine, who was then at Sedan, with a letter written by the queen mother; and ordered him to bring it back, after that miniſter had ſeen it. Colbert carried the letter, and would not return without it, though the cardinal treated him roughly, uſed ſeveral arts to deceive him, and obliged him to wait for it ſeveral days. Some time after, the cardinal returning to court, and wanting one to write his agenda or memoranda, deſired Le Tellier to furniſh him with a perſon fit for that employment: and Colbert being preſented to him, the cardinal had ſome remembrance of him, and deſired to know where he had ſeen him. Colbert was afraid of putting him in mind of Sedan, leſt the remembrance of his importunacy, in demanding the queen's letter, ſhould renew the cardinal's anger. But his eminency was ſo far from hating him for his faithfulneſs to his late maſter, that he recieved him on condition, that he ſhould ſerve him with the like zeal and fidelity.

Colbert applied himſelf wholly to the advancement of his maſter's intereſts, and gave him ſo many marks of his diligence and ſkill, that afterwards he made him his intendant. He accommodated himſelf ſo dexterouſly to the inclinations of that miniſter, by retrenching his ſuperfluous expences, that he was entruſted with the management of that gainful trade of ſelling benefices and governments. It was by Colbert's counſel, that the cardinal obliged the governors of frontier places to maintain their garriſons with the contributions they exacted; with which advice his eminency was extremely pleaſed. He was ſent to Rome, to negociate the reconciliation of cardinal de Rets, for which the Pope had ſhowed ſome concern; and to perſuade his holineſs to conſent to the diſincamerating of Caſto, according to the treaty concluded with his predeceſſor Urban VIII. Upon the whole, Mazarine had ſo high an opinion of Colbert's abilities, and withal ſuch a regard for his faithful ſervices, that at his death, which happened in 1661, he earneſtly recommended him to Louis XIV. as the propereſt perſon to regulate the finances, which at that time ſtood in much need of reformation. Louis accepted the recommendation, and made Colbert intendant of the finances. He applied himſelf to their regulation, and ſucceeded: though it procured him many enemies, and ſome affronts. France is alſo obliged to this miniſter for eſtabliſhing at that time her trade with the Eaſt and Weſt Indies, a great deſign, and from which ſhe has reaped innumerable advantages.

In 1664, he became ſuperintendant of the buildings; and for that time applied himſelf ſo earneſtly to the enlarging and adorning of the royal edifices, that they are at preſent ſo many maſter-pieces of architecture: witneſs the palace of the Thuilleries, the Louvre, St Germain, Fontainbleau, and Chombord. As for Verſailles, it may be ſaid that he raiſed it from the ground. It was formerly a dog-kennel, where Louis XIII. kept his hunting furniture: it is now a palace fit for the greateſt monarch. But royal palaces were not Colbert's only care: he formed ſeveral deſigns for increaſing the beauty and convenience of the capital city, and he did it with great magnificence and grandeur. The public was obliged to this ſame miniſter for the eſtabliſhment of the academy for painting and ſculpture in 1664. The king's painters and ſculptors, with other ſkilful profeſſors of thoſe arts, being proſecuted at law by the maſter-Painters at Paris, joined together and began to form a ſociety, under the name of the Royal Academy for Sculpture and Painting. Their deſign was to keep public exerciſes, for the ſake of improving thoſe fine arts, and advancing them to the higheſt degree of perfection. They put themſelves under the protection of Mazarine, and chooſe chancellor Seguier their vice-protector, and after Mazarine's death, chooſe Seguier their protector, and Colbert their vice-protector. It was at his ſolicitation that they were finally eſtabliſhed by a patent, containing new privileges, in 1664. Colbert, being made protector after the death Seguire, thought fit that an hiſtoriographer ſhould be appointed, whoſe buſineſs it ſhould be to collect all curious and uſeful obſervations that ſhould be made at their conferences. This was accordingly done; and his majeſty was pleaſed to ſettle on him a ſalary of 300 livres. To Colbert alſo the lovers of naval knowledge are obliged for the erection of the Academy of Sciences: for the making of which the more uſeful, he cauſed to be erected, in 1667, the royal obſervatory at Paris, which was firſt inhabited by Caſſini. But theſe are not the only obligations France has to that miniſter: ſhe owes to him all the advantages ſhe receives by the union of the two ſeas; a prodigous work, begun in 1666 and finiſhed in 1680. Colbert was alſo very intent upon matters of a more private nature, ſuch as regarded the order, decency, and well-being of ſociety. He undertook to reform the courts of juſtice, and to put a ſtop to the uſurpation of noble titles, which it ſeems was then very common in France. In the former of thoſe attempts he failed, in the latter he ſucceeded.

In 1669, he was made ſecretary of ſtate, and entruſted with the management of affairs relating to the ſea: and his performances in this province were anſwerable to the confidence his majeſty repoſed in him. He ſuppreſſed ſeveral offices, which were chargeable, but uſeleſs: and in the mean time perceiving the king's zeal for the extirpation of hereſy, he ſhut up the chamber inſtituted by the edicts of Paris and Roan. He propoſed ſeverally new regulations concerning criminal courts; and was extremely ſevere with the parliament of Tholouſe for obſtructing the meaſures he took to carry the ſame execution. His main deſign in reforming the tedious methods of proceeding at law, was to give the people more leiſure to apply themſelves to trading: for the advancement of which he procured an edict, to erect a general inſurance-office at Paris, for merchants, &c. In 1672, he was made miniſter of ſtate: for how buſied ſoever he was in the regulation of public affairs, yet he never neglected his own or his family's intereſt and grandeur, or miſſed any opportunity of advancing either. He had been married many years, had ſons and daughters grown up; all of whom, as occaſion ſerved, he took care to marry to great perſons. For though he had no reaſon to doubt of his maſter's favour, yet he wiſely ſecured his fortune by powerful alliances. However, buſineſs was certainly Colbert's natural turn; and he not only loved it, but was very impatient to be interrupted in it, as the following anecdote may ſerve to ſhow. A lady of great quality was one day urging him, when he was in the height of his power, to do her ſome piece of ſervice: and perceiving him inattentive and inflexible, threw herſelf at his feet, in the preſence of above 100 perſons, crying, "I beg your greatneſs, in the name of God, to grant me this favour." Upon which Colbert, kneeling down over againſt her, replied, in the ſame mournful tone, "I conjure you, madam, in the name of God, not to diſturb me."

This great miniſter died of the ſtone, September 6, 1683, in his 65th year: leaving behind him ſix ſons and three daughters. He was of a middle ſtature, rather lean than fat. His mein, was low and dejected, his air gloomy, and his aſpect ſtern. He ſlept little, and was very ſober. Though naturally ſour and moroſe, he knew how to act the lover, and had miſtreſſes. He was of a ſlow conception, but ſpoke judiciouſly of every thing after he had once comprehended it. He underſtood buſineſs perfectly well, and he purſued it with unwearied application. Thus he filled the moſt important places with high reputation and credit; and his influence diffuſed itſelf through every part of the government. He reſtored the finances, the navy, the commerce: and he erected thoſe various works of art, which have ever ſince been monuments of his taſte and magnificence. He was a lover of learning, though he never applied to it himſelf; and therefore conferred donations and penſions upon ſcholars in other countries, while he eſtabliſhed and protected academies in his own. He invited into France painters, ſtatuaries, mathematicians, and artiſts of all kinds, who were any way eminent: thus giving new life to the ſciences, and making them flouriſh, as they did exceedingly. Upon the whole, he was a wiſe, active, generous ſpirited miniſter; ever attentive to the intereſts of his maſter, the happineſs of the people, the progreſs of arts and manufactures, and in ſhort to every thing that could advance the credit and intereſt of his country. He was a pattern for all miniſters of ſtate; and every nation may wiſh themſelves bleſſed with a Colbert.

COLCHESTER, the capital of the county of Eſſex in England. It is by ſome thought to be the place mentioned by Antoninus under the name of *Colonia*, different from Colonia Camaloduni, and by the Saxons called *Caer Colin*. It is a beautiful, populous, and pleaſant town, extended on the brow of a hill from eaſt to weſt, and adorned with 10 churches. It had formerly ſtrong walls and a caſtle, but now there are ſcarce any remains of either. This place is ſaid to have given birth to Fl. Julia Helena, mother to Conſtantine the Great, and daughter to king Coelus, ſo much celebrated for her piety and zeal and propagating the Chriſtian religion. Here, and in the neighbouring towns, is a great manufacture of bays and ſays. It is alſo famous for its oyſters; in pickling and barrelling which, the inhabitants excel. The rendering navigable the river Coln, on which the town ſtands, has greatly promoted its trade and manufactures. The town had formerly an abbey whoſe abbot was mitred and ſat in parliament. In the time of the civil wars it was beſieged by the parliament's troops and reduced by famine. It was formerly a corporation, but lately loſt its charter for ſome miſdemeanor; however, it ſtill ſends two members to parliament. E. Long. 1. 2. N. Lat. 51. 55.

COLCHI (Arrian, Ptolemy), a town of the Hither India; thought to be *Cochin*, on the coaſt of Malabar; now a factory and ſtrong fort of the Dutch. E. Long. 75. 0. N. Lat. 10. 0.

COLCHICUM, MEADOW-SAFFRON: A genus of the trigynia order, belonging to the hexandria claſs of plants; and in the natural method ranking under the ninth order, *Spathaceæ*. The corolla is ſexpartite, with its tube radicated, or having its root in the ground; there are three capſules, connected and inflated. There are three ſpecies, all of them bulbous-rooted, low, perennials, poſſeſſing the ſingular property of their leaves appearing at one time, and their flowers at another; the former riſing long and narrow from the root in the ſpring, and decaying in June; the flowers, which are monopetalous, long, tubular, erect, and ſix-parted, riſe naked from the root in autumn, not more than four or five inches high. Their colours afford a beautiful variety; being purple, variegated purple, white, red, roſe-coloured, yellow, &c. with ſingle and double flowers. They are all hardy plants, inſomuch that they will flower though the roots happen to lie out of the ground; but by this they are much weakened. They are propagated by offſets from the roots, of which they are very prolific. Theſe are to be taken up and divided at the decay of the leaf in the ſummer, palnting the whole again before the middle of Auguſt. They are to be placed at nine inches diſtance from one another, and three inches deep in the ground.

The root of this plant is poiſonous. When young and full of ſap, its taſte is very acrid; but whan old, mealy and faint. Two drachms of it killed a large dog in 13 hours, operating violently by ſtool, vomit, and urine. One grain of it ſwallowed by a healthy man, produced heats in the ſtomach, and ſoon after fluſhing heats in different parts of the body, with frequent ſhiverings, followed by colicky pains; after which an itching in the loins and urinary paſſages was perceived; then came on a continual inclination to make water, a teneſmus, pain in the head, quick pulſe, thirſt, and other diſagreeable ſymptoms. Notwithſtanding theſe effects, however, an infuſion of the roots in vinegar, formed into a ſyrup with honey or ſugar, proves a ſafe and powerful pectoral and diuretic, and is often of ſervice in dropſies, &c. The virtues of colchicum ſeem much to reſemble thoſe of ſquills. The hermodactyl of the ſhops is ſaid to be the root of the variegatum, a ſpecies of this genus.

COLCHIS, a country of Aſia, at the ſouth of Aſiatic Sarmatia, eaſt of the Euxine Sea, north of Armenia, and weſt of Iberia. It is famous for the expedition of the Argonauts, and as the birth-place of Medea. It was fruitful in poiſonous herbs, and produced excellent flax. The inhabitants were originally Egyptians, who ſettled there when Seſoſtris king of Egypt extended his conqueſts in the north.

COLCOTHAR, the ſubſtance remaining after the diſtillation or calcination of martial vitriol by a violent fire. See CHEMISTRY, n° 621.

1 Definition

COLD, in a relative ſenſe, ſignifies the ſenſation which accompanies a tranſition of the fine veſſels of the human body from an expanded to a more contracted ſtate. In an abſolute ſenſe, it ſignifies the cauſe of this tranſition; or, in general, the cauſe of the contraction of every ſubſtance, whether ſolid or fluid, in nature.

2 Cold tends to make bodies electric.

The arguments concerning the ſubſtance of cold in the abſtract, are diſcuſſed under the article CHEMISTRY, to which we muſt at preſent refer the reader. In that article it is obſerved, that cold naturally tends to make bodies electric which are not ſo naturally, and to increaſe the electric properties of thoſe which are: and in confirmation of the hypotheſis there advanced, it may be obſerved, that all bodies do not tranſmit cold equally well; but that the beſt coudu̇ctors of electricity, *viz.* metals, are likewiſe the beſt conductors of cold. We may alſo add, that when the cold has been carried to ſuch an extremity as to render any body an electric, it then ceaſes to conduct the cold as well as formerly. This is exemplified in the practice of the Laplanders and Siberians, where the cold in winter is extremely ſevere. In order to exclude it from their habitations the more effectually, they cut pieces of ice, which in the winter time muſt always be electric in theſe countries, and put them into their windows; which they find to be much more effectual in keeping out the cold than any other ſubſtance.

3 Bodies rendered electric by cold, conduct it leſs readily than formerly.

4 Why cold cannot increaſe itſelf like heat.

Cold as well as heat, may be produced artificially, though we have no method of making cold increaſe itſelf as heat will do. The reaſon of this eaſily appears from what is ſaid on the ſubject of cold under the article CHEMISTRY: for if this conſiſts in a partial ceſſation of motion in the elementary fluid, it is plain, that though we may partly put an end to this motion in a very ſmall part of it; yet that of the ſurrounding atmoſphere extending for an immenſe way farther than we can extend our influence, will quickly counteract our operations, and reduce the bodies to the ſame temperature they were of before. Though there are therefore ſome liquids, which by mixture will produce conſiderable degrees of cold; yet being left to the action of the ſurrounding warm atmoſphere, the heat is quickly communicated from it to them, and the effect of the mixture ceaſes. The caſe is very different with heat; for this fluid, of itſelf naturally very much inclined to motion, no ſooner finds an opportunity of exerting its action, than vaſt quantities of what was formerly at reſt ruſh from all quarters to the place where the action has commenced, and continue it until the equilibrium is reſtored, as is particularly explained under the article CHEMISTRY.

5 Degrees of cold produced by various ſaline mixtures.

The power of producing cold belongs particularly to bodies of the ſaline claſs. In a paper of the Philoſophical Tranſactions, N° 274, Mr Geoffroy gives an account of ſome remarkable experiments with regard to the production of cold. Four ounces of ſal ammoniac diſſolved in a pint of water, made his thermometer deſcend two inches and three quarters in leſs than fifteen minutes. An ounce of the ſame ſalt put into four or five ounces of diſtilled water, made the thermometer deſcend two inches and a quarter. Half an ounce of ſal ammoniac mixed with three ounces of ſpirit of nitre, made the thermometer deſcend two inches and five lines; but on uſing ſpirit of vitriol inſtead of nitre, it ſunk two inches and ſix lines. In this laſt experiment it was remarked, that the vapours raiſed from the mixture had a conſiderable degree of heat, though the liquid itſelf was ſo extremely cold. Four ounces of ſaltpetre mixed with a pint of water, ſunk the thermometer one inch three lines; but a like quantity of ſea-ſalt ſunk it only two lines. Acids always produced heat, even common ſalt with its own ſpirit. Volatile alkaline ſalts produced cold in proportion to their purity, but fixed alkalies heat.

The greateſt degree of cold produced by the mixture of ſalts and aqueous fluids was that ſhown by M. Homberg; who gives the following receipt for making the experiment: “Take a pound of corroſive ſublimate, and as much ſal ammoniac; powder them ſeparately, and mix the powders very exactly; put the mixture into a vial, pouring upon it a pint and a half of diſtilled vinegar, ſhaking all well together.” This compoſition grows ſo cold, that a man can ſcarce hold it in his hands in ſummer; and it happened, as M. Homberg was making the experiment, that the ſubject froze. The ſame thing once happened to M. Geoffroy in making an experiment with ſal ammoniac and water, but it never was in his power to make it ſucceed a ſecond time.

6 Of mixtures with ice and ſnow.

If, inſtead of making theſe experiments, however, with fluid water, we take it in its congealed ſtate of ice, or rather ſnow, degrees of cold will be produced vaſtly ſuperior to any we have yet mentioned. A mixture of ſnow and common ſalt ſinks Fahrenheit's thermometer to 0; potaſhes and powdered ice ſink it eight degrees farther; two affuſions of ſpirit of ſalt on pounded ice ſunk it below 14½° below 0; but by repeated affuſions of ſpirit of nitre Mr Fahrenheit ſunk it to 40° below 0. This is the ultimate degree of cold which the mercurial thermometer will meaſure: becauſe the mercury itſelf begins then to congeal; and therefore we muſt afterwards have recourſe to ſpirit of wine, naptha, or ſome other fluid which will not congeal. The greateſt degree of cold hitherto producible by artificial means has been 80° below 0; which was done at Hudſon's Bay by means of ſnow and vitriolic acid, the thermometer ſtanding naturally at 20° below 0. Greater degrees of cold than this have indeed been ſuppoſed. Mr Martin, in his Treatiſe on Heat, relates, that at Kirenga in Siberia, the mercurial thermometer ſunk to 118° below 0; and Profeſſor Brown at Peterſburg, when he made the firſt experiment of congealing quickſilver, fixed the point of congelation at 350° below 0; but Dr Black, as ſoon as the experiment was made known in Britain, obſerved, that in all probability the point of congelation was far above this. His reaſons for ſuppoſing this to be the caſe were, that the mercury deſcended regularly only to a certain point, after which it would deſcend ſuddenly and by ſtarts 100 degrees at a time, this, he conjectured, might proceed from the irregular contraction of the metal after it was congealed; and he obſerved, that there was one thermometer employed in the experiment which was not frozen, and which did not deſcend ſo low by a great many degrees. Experience has ſince verified his conjecture; and it is now generally known, that 40° below 0 is the freezing point of quickſilver.

7 Mr Walker's experiments.

Since the diſcovery of the poſſibility of producing cold by artificial means, various experiments have been made on the efficacy of ſaline ſubſtances in this way; all of which, when properly applied, are found to have a conſiderable degree of power. Dr Boerhaave found, that both ſal ammoniac and nitre, when well dried in a crucible, and reduced to fine powder, will produce a greater degree of cold than if they had not been treated in this manner. His experiments were repeated by Mr Walker apothecary to the Redcliffe Infirmary in Oxford with the ſame reſult: but he found, that his thermometer ſunk 32° by means of a ſolution of ſal ammoniac; when Boerhaave's, with the ſame, fell only 28°. Nitre ſunk it 19°. On mixing the two ſalts together, he found that the power of producing cold was conſiderably increaſed. By equal parts of theſe ſalts, he cooled ſome water to 22°, the thermometer ſtanding at 47° in the open air. Adding to this ſome powder of the ſame kind, and immerſing two ſmall phials in the mixture, one containing boiled and the other unboiled water, he ſoon found them both frozen, the unboiled freezing firſt.

Having obſerved that Glauber's ſalt, when it retains the water of cryſtallization, produces cold during its ſolution, he tried its power when mixed with the other ſalts, and thus ſunk the thermometer from 65° to 19°; and thus he was able to freeze water when the thermometer ſtood as high as 70°. And, laſtly, by firſt cooling the ſalts in water in one mixture, and then making another of the cooled thermometers, he was able to ſink the thermometer 64°. Thus he froze a mixture of ſpirit of wine and water in the proportion of ſeven of the latter to one of the former; and by adding a quantity of cooled materials to the mixture in which this was frozen, the thermometer ſunk to—4, or 69°. Spirit of nitre diluted with water reduced the thermometer to —3; and, by the addition of ſal ammoniac, to —15. Nitrous ammoniac reduced it from 50° to 15; but the cold was not augmented by the addition of ſal ammoniac or nitre.

8 His method of freezing quickſilver.

The moſt remarkable experiment, however, was with ſpirit of nitre poured on Glauber's ſalt, the effect of which was found to be ſimilar to that of the ſame ſpirit poured on ice or ſnow; and the addition of ſal ammoniac rendered the cold ſtill more intenſe. The proportions of theſe ingredients recommended by Mr Walker are concentrated nitrous acid two parts by weight, water one part; of this mixture cooled to the temperature of the atmoſphere 18 ounces, of Glauber's ſalt a pound and an half avoirdupois, and of ſal ammoniac 12 ounces. On adding the Glauber's ſalt to the nitrous acid, the thermometer fell from 50° to —1°, or 52 degrees; and on the addition of the ſal ammoniac, to —9°. Thus Mr Walker was able to freeze quickſilver without either ice or ſnow, when the thermometer ſtood at 45°. For the experiments four pans were procured of different ſizes, ſo that one might be put within the other. The largeſt of theſe pans was placed in a veſſel ſtill larger, in which the materials for the ſecond frigorific mixture were thinly ſpread in order to be cooled; the ſecond pan, containing the liquor, *viz.* the vitriolic acid properly diluted, was placed in the largeſt pan; the third pan, containing the ſalts for the third mixture, was immerſed in the liquor of the ſecond pan; and the liquor for the third mixture was put into wide-mouthed phials, which were immerſed in the ſecond pan likewiſe, and floated round the third pan; the fourth pan, which was the ſmalleſt of all, containing its cooling materials, was placed in the midſt of the ſalts of the third pan. The materials for the firſt and ſecond mixtures conſiſted of diluted vitriolic acid and Glauber's ſalt; the third and fourth of diluted nitrous acid, Glauber's ſalt, and ſal ammoniac, in the proportions abovementioned. The pans being adjuſted in the manner already mentioned, the materials of the firſt and largeſt pan were mixed: this reduced the thermometer to 10°, and cooled the liquor in the ſecond pan to 20°; and the ſalts for the ſecond mixture, which were placed underneath in the large veſſel, nearly as much. The ſecond mixture was then made with the materials thus cooled, and the thermometer was reduced to 3°. The ingredients of the third mixture, by immerſion in this, were cooled to 10°; and, when mixed, reduced the thermometer to —15°. The materials for the fourth mixture were cooled by immerſion in this third mixture to about —12°. On mixture they ſunk the mercury very rapidly, and ſeemingly below —40°, though the froth occaſioned by the ebullition of the materials prevented any accurate obſervation. The reaſon why this laſt mixture reduced the thermometer more than the third, though both were of the ſame materials, and the latter of a lower temperature, was ſuppoſed to have been partly becauſe the fourth pan had not another immerſed in it to give it heat, and partly becauſe the materials were reduced to a finer powder.

The experiments were repeated with many variations; but only one mixture appeared to Dr Beddoes, by whom the account was communicated to the Royal Society, to be applicable to any uſeful purpoſe. This is oil of vitriol diluted with about an equal quantity of water; which, by diſſolving Glauber's ſalt, produces about 46° of cold, and by the addition of ſal ammoniac becomes more intenſe by a few degrees. At one time, when Mr Walker was trying a mixture of two parts of oil of vitriol and one of water, he perceived, that at the temperature of 35° the mixture coagulated as if frozen, and the thermometer became ſtationary; but on adding more Glauber's ſalt, it fell again in a ſhort time: but leſs cold was produced than when this circumſtance did not occur, and when the acid was weaker. The ſame appearance of coagulation took place with other proportions of acid and water, and with other temperatures.

9 Obſervations on the experiment

It is obſervable, that this effect of Glauber's ſalt in producing cold took place only when it was poſſeſſed of its water of cryſtallization; and thus the mineral alkali alſo augmented the cold of ſome of the mixtures: but when the water of cryſtallization was diſſipated, neither of them had any effect of this kind. "This circumſtance (ſays Dr Beddoes) leads us in ſome meaſure to the theory of the phenomenon. Water undoubtedly exiſts in a ſolid ſtate in cryſtals; it muſt therefore, as in other caſes, abſorb a determinate quantity of fire before it can return to its liquid ſtate. On this depends the difference between Glauber's ſalt and mineral alkali in its different ſtates of cryſtallization and efflorеſcence. The ſame circumſtance, too, enables us to underſtand the great effect of Glauber's ſalt; which, as far as I underſtand, has the greateſt quantity of water of cryſtallization." On this the reviewers remark, that "if in ſummer the water brought from a deep well is at 52°, in this cheap and eaſy way it might be reduced to 12°; and wine placed in it would be chilled."

Theſe exceſſive degrees of cold occur naturally in many parts of the globe in the winter-time. It is true, the inhabitants of temperate climates are little acquainted with them: yet in the winter of 1780, Mr Wilſon of Glaſgow obſerved, that a thermometer laid on the ſnow ſunk to 25° below 0; but this was only for a ſhort time; and in general the atmoſphere there does not admit of very great degrees of cold for any length of time. Dr Derham, however, in the year 1708, obſerved in England, that the mercury ſtood within one-tenth of an inch of its ſtation when plunged into a mixture of ſnow and ſalt. In 1732, the thermometer at Peterſburg ſtood at 28° below 0; and in 1737, when the French academicians wintered at the north polar circle, or near it, the thermometer ſunk to 33° below 0; and in the Aſiatic and American continents, ſtill greater degrees of cold are very common.

The effects of theſe extreme degrees of cold are very ſurpriſing. Trees are burſt, rocks rent, and rivers and lakes frozen, ſeveral feet deep: metallic ſubſtances bliſter the ſkin like red-hot iron: the air, when drawn in by reſpiration, hurts the lungs, and excites a cough: even the effects of fire in a great meaſure ſeem to ceaſe; and it is obſerved, that though metals are kept for a conſiderable time before a ſtrong fire, they will ſtill freeze water when thrown upon them. When the French mathematicians wintered at Tornea in Lapland, the external air, when ſuddenly admitted into their rooms, converted the moiſture of the air into whirls of ſnow; their breaſts ſeemed to be rent when they breathed it, and the contact of it was intolerable to their bodies; and the ſpirit of wine, which had not been highly rectified, burſt ſome of their thermometers by the congelation of the aqueous part.

Extreme cold very often proves fatal to animals in thoſe countries where the winters are very ſevere; and thus 7000 Swedes periſhed at once in attempting to paſs the mountains which divide Norway from Sweden. It is not neceſſary, indeed, that the cold, in order to prove fatal to the human life, ſhould be ſo very intenſe as has been juſt mentioned. There is only requiſite a degree ſomewhat below 32° of Fahrenheit, accompanied with ſnow or hail, from which ſhelter cannot be obtained. The ſnow which falls upon the clothes, or the uncovered parts of the body, then melts, and by a continual evaporation carries off the animal heat to ſuch a degree, that a ſufficient quantity is not left for the ſupport of life. In ſuch caſes, the perſon firſt feels himſelf extremely chill and uneaſy; he begins to turn liſtleſs, unwilling to walk or uſe exerciſe to keep himſelf warm; and at laſt turns drowſy, ſits down to refreſh himſelf with ſleep, but wakes no more. An inſtance of this was ſeen not many years ago at Terra del Fuego; where Dr. Solander, with ſome others, having taken an excurſion up the country, the cold was ſo intenſe, that one of their number died. The Doctor himſelf, though he had warned his companions of the danger of ſleeping in that ſituation, yet could not be prevented from making that dangerous experiment himſelf; and though he was awaked with all poſſible expedition, his body was ſo much ſhrunk in bulk, that his ſhoes fell off his feet, and it was with the utmoſt difficulty that he was recovered.

In thoſe parts of the world where vaſt maſſes of ice are produced, the accumulation of it, by abſorbing the heat of the atmoſphere, occaſions an abſolute ſterility in the adjacent countries, as is particularly the caſe with the iſland of Iceland; where the vaſt collections of ice floating out from the Northern Ocean, and ſtopped on the coaſt, are ſometimes ſeveral years in thawing. Indeed, where great quantities of ice are collected, it would ſeem to have a power like fire, both augmenting its own cold and that of the adjacent bodies. An inſtance of this is related under the article EVAPORATION, in Mr. Wedgewood's experiment, where the true cauſe of this phenomenon is alſo pointed out.

COLD, in medicine. See MEDICINE-*Index*.

COLD, in farriery. See there, § iii.

COLDENIA, in botany: A genius of the tetragynia order, belonging to the tetrandria claſs of plants; and in the natural method ranked among thoſe the order of which is doubtful. The calyx is tetraphyllous; the corolla funnel-ſhaped; the ſtyles four; the ſeeds two and bilocular. There is but one ſpecies, a native of India. It is an annual plant, whoſe branches trail on the ground, extending about ſix inches from the root. They are adorned with ſmall blue flowers growing in cluſters, which come out from the wings of the leaves. They are propagated by ſeeds ſown on a hot-bed; when the plants come up, they may be removed each into a ſeparate pot, and plunged into a hot-bed of tanner's bark, where they are to remain conſtantly.

COLDINGHAM, ſuppoſed to be the *Colonia* of Ptolemy, and called by Bede the city Coldana and of Colud (*Coludum*), ſituated on the borders of Scotland, about two miles from Eymouth, was a place famous many ages ago for its convent. This was the oldeſt nunnery in Scotland, for here the virgin-wife Etheldreda took the veil in 670; but by the ancient name *Coludum* it ſhould ſeem that it had before been inhabited by the religious called *Culdees*. In 870 it was deſtroyed by the Danes, but its name rendered immortal by the heroiſm of its nuns; who, to preſerve themſelves inviolate from thoſe invaders, cut off their lips and noſes; and thus rendering themſelves objects of horror, were, with their abbeſs Ebba, burnt in the monaſtery by the diſappointed ſavages. After this it lay deſerted till the year 1098, when king Edgar founded on its ſite a priory of benedictines in honour of St. Cuthbert, and beſtowed it on the monks of Durham.

Mr. Pennant's deſcription of the black, joyleſs, heathy moor, where it was ſituated, might be ſufficient to guard the fair inhabitants of the nunnery were it ſtill ſubſiſting. That deſcription, however, is now altogether inapplicable: The whole tract, five miles over, has been ſince improved, and converted into corn fields; the cheerleſs village of Old Cambus is no more; a decent inn with good accommodations has been eſtabliſhed at a convenient diſtance; and the paſſage of the ſteep glen called the *Peaſe*, which terminates the moor on the road towards Edinburgh, and was formerly the terror of travellers, is now rendered ſafe and eaſy by means of a bridge extending from one ſide of the chaſm to the other.

COLDINGUEN, a town of Denmark, in North Jutland, and dioceſe of Ripen. It is remarkable for its bridge, over which paſs all the oxen and other cattle that go from Jutland into Germany, which brings in a conſiderable revenue to the king. It is ſeated on an eminence, in a pleaſant country abounding with game. E. Long. 9. 25. N. Lat. 55. 35.

COLD-FINCH, a ſpecies of MOTACILLA.

COLD-SHIRE IRON, that which is brittle when cold.

COLE (William), the moſt famous botaniſt of his time, was born at Adderbury in Oxfordſhire, about the year 1626, and ſtudied at Merton college in Oxford. He at length removed to Putney, near London; and publiſhed "The Art of Simpling; and Adam in Eden, or Nature's Paradiſe." Upon the reſtoration of king Charles II, he was made ſecretary to Dr Duppa, biſhop of Wincheſter; but died two years after, aged 37.

COLE-FISH, a ſpecies of GADUS.

COLE-Seed, the ſeed of the *napus ſativa*, or long-rooted, narrow-leaved rapa, called in Engliſh *navew*, and reckoned by Linnæus among the braſſicas, or cabbage-kind. See BRASSICA.

This plant is cultivated to great advantage in many parts of England, on account of the rape oil expreſſed from its ſeeds. The practice of ſowing it was firſt introduced by thoſe Germans and Dutchmen who drained the fens of Lincolnſhire; and hence the notion hath generally prevailed, that it will thrive only in a marſhy ſoil; but this is now found to be a miſtake. In preparing the land which is to receive it, care muſt be taken to plow it in May, and again about midſummer, making the ground as fine and even as poſſible. It is to be ſown the very day of the laſt plowing, about a gallon on an acre. In the months of January, February, and March, it affords very good food for cattle, and will ſprout again when cut; after which it is excellent nouriſhment for ſheep. After all, if it is not too cloſely fed, it will bear ſeed againſt next July. The ſame caution, however, is requiſite with this food as with clover, till cattle are accuſtomed to it, otherwiſe it is apt to ſwell them. When this plant is cultivated ſolely with a view to the ſeed, it muſt be ſown on deep ſtrong land without dung, and muſt be ſuffered to ſtand till one-half of the ſeeds at leaſt are turned brown; which, according to the ſeaſons, will be ſometimes ſooner ſometimes later. In this ſtate it is to be cut in the ſame manner and with the ſame care as wheat; and every handful as it is cut is to be regularly ranged on ſheets, that it may dry leiſurely in the ſun, which will commonly be in a fortnight; after which it is to be carefully threſhed out, and carried to the mill for expreſſing the oil. The produce of cole-ſeed is generally from five to eight quarters on an acre; and is commonly ſold at 20 s. *per* quarter.

COLEOPTERA, or BEETLE, the name of Linnæus's firſt order of inſects. ZOOLOGY.

COLEWORT. See BRASSICA.

COLERAIN, a large town of Ireland, in the county of Londonderry and province of Ulſter; ſeated on the river Bann, four miles ſouth of the ocean, in W. Long. 7. 2. N. Lat. 55. 10. It was formerly a place of great conſideration, being the chief town of a county erected by Sir John Perrot, during his government of Ireland; whereas it is now only the head of one of the baronies in the county of Londonderry; but it is ſtill a corporation, and ſends two members to parliament. It is of a tolerable ſize, and very elegantly built. The port is very indifferent, occaſioned by the extreme rapidity of the river, which repels the tide, and makes the coming up to the town difficult; ſo that it has but little trade, and might perhaps have leſs, if it was not for the valuable ſalmon fiſhery, which amounts to ſome thouſand pounds a-year. If the navigation of the Bann could be opened, which is totally obſtructed by a ridge of rocks, it would quickly change the face of things; for then, by the help of this river, and the Newry canal, there would be a direct communication acroſs the kingdom, and, with the aſſiſtance of the Black-water river, which likewiſe falls into Lough Neagh, almoſt all the counties of the province of Ulſter might have a correſpondence with each other by water-carriage, to their reciprocal and very great emolument.

COLES (Eliſha), author of the well known Latin and Engliſh dictionary, was born in Northamptonſhire about the year 1640; and was entered of Magdalene College Oxford, which he left without taking a degree; and taught Latin, to young people, and Engliſh to foreigners, in London, about the year 1663. He afterwards became an uſher in Merchant-taylor's ſchool; but for ſome great fault, nowhere expreſsly mentioned, he was forced to withdraw to Ireland, whence he never returned. He was, however, a good critic in the Engliſh and Latin tongues; and wrote ſeveral uſeful books of inſtruction in his profeſſion.

COLET (John), dean of St Paul's, the ſon of Henry Colet knight, was born in London in the year 1466. His education began in St Anthony's ſchool in that city, from whence, in 1483, he was ſent to Oxford, and probably to Magdalene college. After ſeven years ſtudy of logic and philoſophy, he took his degrees in arts. About the year 1493, Mr Colet went to Paris, and thence to Italy, probably with a deſign to improve himſelf in the Greek and Latin languages, which at this time were imperfectly taught in the univerſities. On his return to England in 1497, he took orders; and returned to Oxford, where he read lectures *gratis*, on the epiſtles of St Paul. At this time he poſſeſſed the rectory of Dennington in Suffolk, to which he had been inſtituted at the age of 19. He was alſo prebendary of York, and canon of St Martin's le Grand in London. In 1502 he became prebendary of Sarum; prebendary of St Paul's in 1505; and immediately after dean of that cathedral, having previouſly taken the degree of doctor of divinity. He was no ſooner raiſed to this dignity, than he introduced the practice of preaching and expounding the ſcriptures; and ſoon after eſtabliſhed a perpetual divinity lecture in St Paul's church, three days in every week; an inſtitution which gradually made way for the reformation. About the year 1508, dean Colet formed his plan for the foundation of St Paul's ſchool, which he completed in 1512, and endowed with eſtates to the amount of L.122 and upwards. The celebrated grammarian, William Lilye, was his firſt maſter, and the company of mercers were appointed truſtees. The dean's notions of religion were ſo much more rational than thoſe of his cotemporary prieſts, that they deemed him little better than a heretic; and on that account he was ſo frequently moleſted, that he at laſt determined to ſpend the reſt of his days in peaceful retirement. With this intention he built a houſe near the palace at Richmond; but, being ſeized with the ſweating ſickneſs, he died in 1519, in the 53d year of his age. He was buried on the ſouth ſide of the choir of St Paul's; and a ſtone was laid over his grave, with no other inſcription than his name. Beſides the preferments abovementioned, he was rector of the guild of Jeſus at St Paul's, and chaplain to king Henry VIII. Dean Colet, though a papiſt, was an enemy to the groſs ſuperſtitions of the church of Rome. He diſapproved auricular confeſſion, the celibacy of the prieſts, and ſuch other ridiculous tenets and ceremonies as have ever been condemned by men of ſound underſtanding in every age and country. He wrote, 1. *Rudimenta grammatices*. 2. The conſtruction of the eight parts of ſpeech. 3. Daily devotions. 4. *Epiſtolæ ad Eraſmum*. 5. Several ſermons; and other works which ſtill remain in manuſcript.

COLIBERTS (*Coliberti*), in law, were tenants in ſoccage, and particularly ſuch villeins as were manumitted or made freemen. But they had not an abſolute freedom; for though they were better than ſervants, yet they had ſuperior lords to whom they paid certain duties, and in that reſpect might be called ſervants, though they were of middle condition between freemen and ſervants.

COLIC, a ſevere pain in the lower venter, ſo called becauſe the colon was formerly ſuppoſed to be the part affected. See MEDICINE-*Index*.

COLIC, in farriery. See there, § xiii.

COLIGNI (Gaſpard de), admiral of France, was born in 1516. He ſignalized himſelf in his youth, in the reigns of Francis I. and Henry II. and was made colonel of infantry and admiral of France in 1552. Henry II. employed him in the moſt important affairs; but after the death of that prince, he embraced the reformed religion, and became the chief of the Proteſtant party: he ſtrongly oppoſed the houſe of Guiſe, and rendered this oppoſition ſo powerful, that it was thought he would have overturned the French government. On the peace made after the battles of Jarnac and Montcontour, Charles IX. deluded Coligni into ſecurity by his deceitful favours; and though he recovered one attempt on his life, when he attended the nuptials of the prince of Navarre, yet he was included in the dreadful maſſacre of the Proteſtants on St Bartholomew's-day 1572, and his body treated with wanton brutality by a miſguided Popiſh populace.

COLIMA, a ſea-port town of Mexico, in North America, and capital of a fertile valley of the ſame name. It is ſeated at the mouth of a river in W. Long. 109. 6. N. Lat. 18. 30.

COLIOURE, a ſmall, but ancient and ſtrong town of France, in Rouſillon, ſeated at the foot of the Pyrenean mountains, with a ſmall harbour. E. Long. 3. 10. N. Lat. 43. 24.

COLIR, an officer in China, who may properly be called an inſpector, having an eye over what paſſes in every court or tribunal of the empire. In order to render him impartial, he is kept independent, by having his poſt for life. The power of the colirs is ſuch, that they make even the princes of the blood tremble.

COLISEUM, or COLISÆUM, in the ancient architecture, an oval amphitheatre, built at Rome by Veſpaſian, in the place where ſtood the baſon of Nero's gilded houſe. The word is formed from *coloſſæum*, on account of the coloſſus of Nero that ſtood near it; or, according to Nardini, from the Italian *coliſeo*. In this were placed ſtatues, repreſenting all the provinces of the empire; in the middle whereof ſtood that of Rome, holding a golden apple in her hand. The ſame term, *coliſeum*, is alſo given to another amphitheatre of the emperor Severus. In theſe *coliſea* were repreſented games, and combats of men and wild beaſts; but there are now little remaining of either of them, time and war having reduced them to ruins.

COLITES, in natural hiſtory, a name given by ſome writers to a kind of pebble, found in the ſhape of the human penis and teſtes, and that either ſeparately or both together.

COLLAERT (Adrian), an eminent engraver who flouriſhed about 1550, was born at Antwerp. After having learned in his own country the firſt principles of engraving, he went to Italy, where he reſided ſome time to perfect himſelf in drawing. He worked entirely with the graver, in a firm neat ſtyle, but rather ſtiff and dry. The vaſt number of plates executed by his hand ſufficiently evince the facility with which he engraved; and though exceedingly neat, yet they are ſeldom highly finiſhed.

COLLAERT (Hans or John), ſon to the foregoing, was alſo an excellent artiſt. He drew and engraved exactly in the ſtyle of his father; and was in every reſpect equal to him in merit. He muſt have been very old when he died; for his prints are dated from 1555 to 1622. He aſſiſted his father in all his great works, and engraved beſides a prodigious number of plates of various ſubjects. One of his beſt prints is *Moſes ſtriking the rock*, a large print, lengthwiſe, from Lambert Lombard. A great number of ſmall figures are introduced into this print; and they are admirably well executed: the heads are fine, and the drawing very correct.

COLLAR, in Roman antiquity, a ſort of chain put generally round the neck of ſlaves that had run away, after they were taken, with an inſcription round it, intimating their being deſerters, and requiring their being reſtored to their proper owners, &c.

COLLAR, in a more modern ſenſe, an ornament conſiſting of a chain of gold, enamelled, frequently ſet with ciphers or other devices, with the badge of the order hanging at the bottom, worn by the knights of ſeveral military orders over their ſhoulders, on the mantle, and its figure drawn round their armories.

Thus, the collar of the order of the garter conſiſts of S. S. with roſes enamelled red, within a garter enamelled blue, and the George at the bottom.

Lord Mayor's COLLAR is more uſually called chain. See CHAIN.

Knights of the COLLAR, a military order in the republic of Venice, called alſo the order of St Mark, or the medal. It is the doge and the ſenate that confer this order; the knights bear no particular habit, only the collar, which the doge puts around their neck, with a medal, wherein is repreſented the winged lion of the republic.

COLLAR *of a Draught-horſe*, a part of harneſs made of leather and canvas, and ſtuffed with ſtraw or wool, to be put about the horſe's neck.

COLLARAGE, a tax or fine laid for the collars of wine-drawing horſes.

COLLATERAL, any thing, place, country, &c. ſituated by the ſide of another.

COLLATERAL, in genealogy, thoſe relations which proceed from the ſame ſtock, but not in the ſame line of aſcendents or deſcendents, but being, as it were, aſide of each other. Thus, uncles, aunts, nephews, nieces, and couſins, are collaterals, or in the ſame collateral line: thoſe in a higher degree, and nearer the common root, repreſent a kind of paternity with regard to thoſe more remote. See CONSANGUINITY.

COLLATERAL *Succeſſion*. When a defunct, for want of heirs deſcended of himſelf, is ſucceeded in his eſtate by a brother or ſiſter, or their deſcendents, the eſtate is ſaid to have gone to *callateral heirs*.

COLLATIA (anc. geog.), a town of the Sabines; thought to be diſtant between four or five miles out of Rome to the eaſt; ſituated on an eminence (Virgil). Of this place was Tarquinius Collatinus, married to Lucretia, raviſhed by Sextus Tarquinius (Livy); ſituated on this or on the left ſide of the Anio (Pliny). Extant in Cicero's time, but in Strabo's day only a village; now no trace remains of it.—Another ſuppoſed *Collatia* of Apulia, near mount Garganus; becauſe Pliny mentions the *Colatini* in Apulia, and Frontinus the *Ager Collatinus*.

COLLATINA PORTA, a gate of Rome, at the Collis Hortulorum, afterwards called *Pinciana*, from the Pincii, a noble family. Its name *Collatina* is from *Collatia*, to the right of which was the Via Collatina, which led to that town.

COLLINA, a gate of Rome at the Collis Quirinalis, not far from the temple of Venus Erycina (Ovid;) called alſo *Salaria*, becauſe the Sabines carried their ſalt through it (Tacitus). Now *Salara*.

COLLATION, in the canon law, the giving or beſtowing of a benefice on a clergyman by a biſhop, who has it in his own gift or patronage. It differs from inſtitution in this, that inſtitution is performed by the biſhop, upon the preſentation of another; and collation is his own act of preſentation: and it differeth from a common preſentation, as it is the giving of the church to the perſon, and preſentation, is the giving or offering of the perſon to the church. But collation ſupplies the place of preſentation and inſtitution; and amounts to the ſame as inſtitution where the biſhop is both patron and ordinary. Anciently the right of preſentation to all churches was in the biſhop; and now if the patron neglects to preſent to a church, then this right returns to the biſhop by collation: if the biſhop neglects to collate within ſix months after the elapſe of the patron, then the archbiſhop hath a right to do it; and if the archbiſhop neglects, then it devolves to the king; the one as ſuperior, to ſupply the defects of biſhops, the other as ſupreme, to ſupply all defects of government.

Collation, in common law, the compariſon or preſentation of a copy to its original, to ſee whether or not it be conformable; or the report or act of the officer who made the compariſon. A collated act is equivalent to its original, provided all the parties concerned were preſent at the collation.

Collation, in Scots law, that right which an heir has of throwing the whole heritable and moveable eſtates of the deceaſed into one maſs, and ſharing it equally with the others in the ſame degree of kindred, when he thinks ſuch ſhare will be more than the value of the heritage to which he had an excluſive title.

Collation is alſo uſed among the Romaniſts for the meal or repaſt made on a faſt-day, in lieu of a ſupper. Only fruits are allowed in a collation: F. Lobineau obſerves, that anciently there was not allowed even bread in the collations in Lent, nor any thing beſide a few comfits and dried herbs and fruits; which cuſtom, he adds, obtained till the year 1453. Cardinal Humbert obſerves further, that in the middle of the 11th century there were no collations at all allowed in the Latin church in the time of Lent; and that the cuſtom of collations was borrowed from the Greeks, who themſelves did not take it up till about the 11th century.

Collation is alſo propularly uſed for a repaſt between meals, particularly between dinner and ſupper. The word collation, in this ſenſe, Du Cange derives from *collocutio*, "conference;" and maintains, that originally collation was only a conference, or converſation on ſubjects of piety, held on faſt-days in monaſteries; but that, by degrees, the cuſtom was introduced of bringing in a few refreſhments; and that by the exceſſes to which thoſe ſober repaſts were at length carried, the name of the abuſe was retained, but that of the thing loſt.

Collation of Seals, denotes one ſeal ſet on the ſame label, on the reverſe of another.

COLLEAGUE, a partner or aſſociate in the ſame office or magiſtrature. See Adjunct.

COLLECT, collection, a voluntary gathering of money, for ſome pious or charitable purpoſe. Some ſay, the name *collect*, or *collection*, was uſed, by reaſon thoſe gatherings were anciently made on the days of *collects*, and in *collects*, *i. e.* in aſſemblies of Chriſtians; but, more probably, *quia colligebatur pecunia*.

Collect is ſometimes alſo uſed for a tax, or impoſition, raiſed by a prince for any pious deſign. Thus, hiſtories ſay, that in 1166, the king of England, coming into Normandy, appointed a collect for the relief of the holy land, at the deſire and after the example of the king of France. See Croisade.

Collect, in the liturgy of the church of England, and the maſs of the Romaniſts, denotes a prayer accommodated to any particular day, occaſion, or the like. See Liturgy, and Mass.

In the general, all the prayers in each office are called *collects*; either becauſe the prieſt ſpeaks in the name of the whole aſſembly, whoſe ſentiments and deſires he ſums up by the word *oremus*, "let us pray." as is obſerved by pope Innocent III. or, becauſe thoſe prayers are offered when the people are aſſembled together, which is the opinion of Pamelius on Tertullian. The congregation itſelf is in ſome ancient authors called *collect*. The popes Gelaſius and Gregory are ſaid to have been the firſt who eſtabliſhed *collects*. Deſpence, a doctor of the faculty of Paris, has an expreſs treatiſe on *collects*, their origin, antiquity, authors, &c.

COLLECTIVE, among grammarians, a term applied to a noun expreſſing a multitude, though itſelf be only ſingular; as an army, company, troop, &c. called *collective nouns*.

COLLECTOR, in general, denotes a perſon who gets or brings together things formerly diſperſed and ſeparated. Hence,

Collector, in matters of civil polity, is a perſon appointed by the commiſſioners of any duty, the inhabitants of a pariſh, &c. to raiſe or gather any kind of tax.

Collector, among botaniſts, one who gets together as many plants as he can, without ſtudying botany in a ſcientifical manner.

COLLEGATORY, in the civil law, a perſon who has a legacy left him in common with one or more other perſons.

COLLEGE, an aſſemblage of ſeveral bodies or ſocieties, or of ſeveral perſons into one ſociety.

College, among the Romans, ſerved indifferently for thoſe employed in the offices of religion, of government, the liberal and even mechanical arts and trades; ſo that, with them, the word ſignified what we call a corporation or company.

In the Roman empire, there were not only the *college of augurs*, and the *college of capitolini*, i. e. of thoſe who had the ſuperintendence of the capitoline games; but alſo colleges of artificers, *collegia artificum*; college of carpenters, *fabricorum*, or *fabrorum tignariorum*; of potters, *figulorum*; of founders, *ærariorum*; the college of lockſmiths, *fabrorum ferrariorum*; of engineers of the army, *tignariorum*; of butchers, *laniorum*; of dendrophori, *dendrophororum*; of centonaries, *centonariorum*; of makers of military caſques, *ſagariorum*; of tent-makers, *tabernaculariorum*; of bakers, *piſtorum*; of muſicians, *tibicinum*, &c. Plutarch obſerves, that it was Numa who firſt divided the people into colleges; which he did to the end that each conſulting the intereſts of their college, whereby they were divided from the citizens of the other colleges, they might not enter into any general conſpiracy againſt the public repoſe.

Each of theſe colleges had diſtinct meeting-places or halls; and likewiſe, in imitation of the ſtate, a treaſury and common cheſt, a regiſter, and one to repreſent them upon public occaſions, and acts of government. Theſe colleges had the privilege of manumitting ſlaves, of being legates, and making by-laws for their own body, provided they did not claſh with thoſe of the government.

There are various colleges on foot among the moderns, founded on the model of thoſe of the ancients. Such are the three colleges of the empire, *viz.*

College of Electors, or their Deputies, aſſembled in the diet of Ratiſbon.

College of Princes; the body of princes, or their deputies, at the diet of Ratiſbon.

College of Cities, is, in like manner, the body of deputies which the imperial cities ſend to the diet.

College of Cardinals, or the *Sacred College*; a body compoſed of the three orders of cardinals. See CARDINALS.

COLLEGE is alſo uſed for a public place, endowed with certain revenues, where the ſeveral parts of learning are taught.

An aſſemblage of ſeveral of theſe colleges conſtitute an univerſity. The erection of colleges, in Britain, is part of the royal prerogative, and not to be done without the king's licence.

The eſtabliſhment of colleges or univerſities is a remarkable period in literary hiſtory. The ſchools in cathedrals and monſteries confined themſelves chiefly to the teaching of grammar. There were only one or two maſters employed in that office. But, in colleges, profeſſors are appointed to teach all the different parts of ſcience. The firſt obſcure mention of academical degrees in the univerſity of Paris (from which the other univerſities in Europe have borrowed moſt of their cuſtoms and inſtitutions), occurs A. D. 1215.

COLLEGE of Civilians, commonly called *Doctors Commons*; a college founded by Dr Harvey, dean of the arches, for the profeſſors of the civil law reſiding in London: where uſually, likewiſe, reſides the judge of the arches court of Canterbury, judge of the admiralty, of the prerogative court, &c. with other civilians; who all live, as to diet and lodging, in a collegiate manner, commoning together; whence the appellation of *Doctors Commons*. Their houſe being conſumed in the great fire, they all reſided at Exeter-houſe in the Strand till 1672; when their former houſe was rebuilt, at their own expence, in a very ſplendid manner. To this college belong 34 proctors, who make themſelves parties for their clients, manage their cauſes, &c.

COLLEGE of Phyſicians, a corporation of phyſicians in London, who, by ſeveral charters and acts of parliament of Henry VIII. and his ſucceſſors, have certain privileges, whereby no man, though a graduate in phyſic of any univerſity, may, without licence under the ſaid college-ſeal, practice phyſic in or within ſeven miles of London; with power to adminiſter oaths, fine and impriſon offenders in that and ſeveral other particulars; to ſearch the apothecaries ſhops, &c. in and about London, to ſee if their drugs, &c. be wholeſome, and their compoſitions according to the form preſcribed by the ſaid college in their diſpenſatory. By the ſaid charter they are alſo freed from all troubleſome offices, as to ſerve on juries, be conſtable, keep watch, provide arms, &c.

The ſociety had anciently a college in Knight-rider-ſtreet, the gift of Dr Linacre phyſician to king Henry VIII. Since that time they have had a houſe built them by the famous Dr Harvey in 1652, at the end of Amen-corner, which he endowed with his whole inheritance in his lifetime; but this being burnt in the great fire in 1666, a new one was erected, at the expence of the fellows, in Warwick-lane, with a noble library, given partly by the marquis of Dorcheſter, and partly by Sir Theodore Mayerne.

Of this college there are at preſent a preſident, four cenſors, eight electors, a regiſter, and a treaſurer, choſen annually in October; the cenſors have, by charter, power to ſurvey, govern, and arreſt, all phyſicians, or others practiſing phyſic, in or within ſeven miles of London; and to fine, amerce, and impriſon them, at diſcretion. The number of fellows was anciently thirty, till king Charles II. increaſed their number to forty; and king James II. giving them a new charter, allowed the number of fellows to be enlarged ſo as not to exceed fourſcore; reſerving to himſelf and ſucceſſors the power of placing and diſplacing any of them for the future.

The college is not very rigorous in aſſerting their privileges; there being a great number of phyſicians, ſome of very good abilities, who practiſe in London, &c. without their licence, and are connived at by the college: yet by law, if any perſon not expreſsly allowed to practiſe, take on him the cure of any diſeaſe, and the patient die under his hand, it is deemed felony in the practiſer. In 1696, the college made a ſubſcription, to the number of forty-two of their members, to ſet on foot a diſpenſatory for the relief of the ſick poor: ſince that they have erected two other diſpenſatories.

Edinburgh COLLEGE of Phyſicians was erected on the 29th November 1681. The deſign of this inſtitution was to prevent the abuſes daily committed by foreign and illiterate impoſtors, quacks, &c. For this reaſon, his majeſty, at the time abovementioned, granted letters patent to erect into a body corporate and politic, certain phyſicians in Edinburgh and their ſucceſſors, by the title of "the Preſident and Royal College of Phyſicians at Edinburgh," with power to chooſe annually a council of ſeven, one whereof to be preſident: theſe are to elect a treaſurer, clerk, and other officers; to have a common ſeal; to ſue and be ſued; to make laws for promoting the art of phyſic, and regulating the practice thereof, within the city of Edinburgh, town of Leith, and diſtricts of the Canongate, Weſt-port, Pleaſance, and Potter-row; through all which the juriſdiction of the college extends. Throughout this juriſdiction, no perſon is allowed to practiſe phyſic, without a warrant from the college, under the penalty of L. 5 Sterling the firſt month, to be doubled monthly afterwards while the offence is continued; one-half the money ariſing from ſuch fines to go to the poor, the other to the uſe of the college. They are alſo empowered to puniſh all licentiates in phyſic within the abovementioned bounds, for faults committed againſt the inſtitutions of the college; and to fine them of ſums not exceeding 40 s. On ſuch occaſions, however, they muſt have one of the bailies of the city to ſit in judgment along with them, otherwiſe their ſentence will not be valid. They are alſo empowered to ſearch and inſpect all medicines within their juriſdiction, and throw out into the ſtreet all ſuch as are bad or unwholeſome. That they may the better attend their patients, they are exempted from watching, warding, and ſerving on juries. They are, however, reſtrained from erecting ſchools for teaching the art of phyſic, or conferring degrees on any perſon qualified for the office of a phyſician; but are obliged to licenſe all ſuch as have taken their degrees in any other univerſity, and to admit as honorary members all the profeſſors of phyſic in the reſt of the univerſities of Scotland. Theſe privileges and immunities are not, however, to interfere with the rights and privileges of the apothecary ſurgeons, in their practice of curing wounds, contuſions, fractures, and other external operations.

Edinburgh COLLEGE of Surgeons. This is but a very late inſtitution, by which the ſurgeons of Edinburgh are incorporated into a *Royal College*, and authoriſed to carry into execution a ſcheme for making proviſion for their widows and children, &c. They have alſo the privilege of examining, and licenſing, if found qualified, all practitioners in ſurgery within certain bounds.

College of Juſtice, the ſupreme civil court of Scotland; otherwiſe called *Court of Seſſion*, or, *of Council and Seſſion*. See Law, Part III. N° clvii. 4.

Sion College, or the college of the London clergy; which has been a religious houſe time out of mind, ſometimes under the denomination of a priory, ſometimes under that of a ſpital or hoſpital: at its diſſolution under 31ſt Henry VIII. it was called *Elſyn's Spital*, from the name of its founder, a mercer, in 1329. At preſent it is a compoſition of both, viz. a college for the clergy of London, who were incorporated in 1630, in purſuance to the will of Dr White, under the name of the *Preſident and Fellows of Sion College*; and an hoſpital for ten poor men and as many women. The officers of the corporation are the preſident, two deans, and four aſſiſtants; who are annually choſen from among the rectors and vicars of London; and are ſubject to the viſitation of the biſhop. They have a good library, built and ſtocked by Mr Simpſon, and furniſhed by ſeveral other benefactors, chiefly for the clergy of the city, without excluding other ſtudents on certain terms; and a hall, with chambers for ſtudents, generally occupied by the miniſters of the neighbouring pariſhes.

Greſham College, or *College of Philoſophy*; a college founded by Sir Thomas Greſham, and endowed with the revenue of the Royal Exchange: one moiety of this endowment the founder bequeathed to the mayor and aldermen of London and their ſucceſſors, in truſt, that they ſhould find four able perſons to read, within the college, divinity, geometry, aſtronomy, and muſic: who are choſen by a committee of the common council, conſiſting of the lord mayor and three aldermen and eight commoners, and allowed each, beſides lodging, L. 50 *per annum*. The other moiety he left to the company of mercers, to find three more able perſons, choſen by a committee of that company, conſiſting of the maſter and three wardens, during their office, and eight of the court of aſſiſtants, to read law, phyſic, and rhetoric, on the ſame terms; with this limitation, that the ſeveral lecturers ſhould read in term-time, every day in the week except Sundays; in the morning in Latin, in the afternoon the ſame in Engliſh: but that in muſic to be read only in Engliſh. By 8th George III. cap. 32. the building appropriated to this college was taken down, and the exciſe-office erected in its room. Each of the profeſſors is allowed L.50 *per annum*, in lieu of the apartments, &c. relinquiſhed by them in the college, and is permitted to marry, notwithſtanding the reſtriction of Sir Thomas Greſham's will. The lectures are now read in a room over the Royal Exchange; and the city and mercers company are required to provide a proper place for this purpoſe.

In this college formerly met the Royal Society, that noble academy, inſtituted by king Charles II. and celebrated throughout the world for their improvements in natural knowledge. See their hiſtory and policy under Society.

College de Propaganda Fide, was founded at Rome in 1622 by Gregory XV. and enriched with ample revenues. It conſiſts of thirteen cardinals, two prieſts, and a ſecretary; and was deſigned for the propagation and maintenance of the Romiſh religion in all parts of the world. The funds of this college have been very conſiderably augmented by Urban VIII. and many private donations. Miſſionaries are ſupplied by this inſtitution, together with a variety of books ſuited to their ſeveral appointments. Seminaries for their inſtruction are ſupported by it, and a number of charitable eſtabliſhments connected with and conducive to the main object of its inſtitution.

Another college of the ſame denomination was eſtabliſhed by Urban VIII. in 1627, in conſequence of the liberality of John Baptiſt Viles, a Spaniſh nobleman. This is ſet apart for the inſtruction of thoſe who are deſigned for the foreign miſſions. It was at firſt committed to the care of three canons of the patriarchal churches; but ever ſince the year 1641 it is under the ſame government with the former inſtitution.

College of Heralds, commonly called the *Heralds Office*; a corporation founded by charter of king Richard III. who granted them ſeveral privileges, as to be free from ſubſidies, tolls, offices, &c. They had a ſecond charter from king Henry VI.; and a houſe built near Doctors-commons, by the earl of Derby, in the reign of king Henry VII. was given them by the duke of Norfolk, in the reign of queen Mary, which houſe is now rebuilt.

This college is ſubordinate to the earl-marſhal of England. They are aſſiſtants to him in his court of chivalry, uſually held in the common-hall of the college, where they ſit in their rich coats of his majeſty's arms. See Herald.

College of Heralds in Scotland, conſiſts of Lyon king at arms, ſix heralds, and ſix purſuivants, and a number of meſſengers. See Lyon.

COLLEGIANS, Collegiani, Collegiants, a religious ſect formed among the Arminians and Anabaptiſts in Holland, about the beginning of the ſeventeenth century; ſo called becauſe of their colleges, or meeting, twice every week; where every one, females excepted, has the ſame liberty of expounding the ſcripture, praying, &c. They are ſaid to be all either Arians or Socinians: they never communicate in the college, but meet twice a-year from all parts of Holland at Rhinſbergh, whence they are alſo called *Rhinſberghers*, a village two miles from Leyden, where they communicate together; admitting every one that preſents himſelf, profeſſing his faith in the divinity of the holy ſcriptures, and reſolution to live ſuitably to their precepts and doctrines, without regard to his ſect or opinion. They have no particular miniſters, but each officiates as he is diſpoſed. They never baptize without dipping.

COLLEGIATE, or Collegial, churches, are thoſe which have no biſhop's ſee, yet have the ancient retinue of the biſhop, the *canons and prebends*. Such are Weſtminſter, Rippon, Windſor, *&c*, governed by deans and chapters.

Of theſe collegiate churches there are two kinds: ſome of royal, and others of eccleſiaſtial foundation; each of them, in matters of divine ſervice, regulated in the ſame manner as the cathedrals. There are even ſome collegiate churches that have the epiſcopal rights. Some of theſe churches were anciently abbeys, which in time were ſecularized. The church of St Peter's, Weſtminſter, was anciently a cathedral; but the revenues of the monaſtery being by act of parliament, 1 Elizabeth, veſted in the dean and chapter, it commenced a collegiate church. In ſeveral cauſes the ſtyling it *cathedral*, inſtead of *collegiate, church* of Weſtminſter, has occaſioned error in the pleadings.

COLLET, among jewellers, denotes the horizontal face or plane at the bottom of brilliants. See BRILLIANT.

COLLET, in glaſs-making, is that part of glaſs veſſels which ſticks to the iron inſtrument wherewith the metal was taken out of the melting-pot: theſe are afterwards uſed for making green glaſs.

COLLETICS, in pharmacy, denote much the ſame with AGGLUTINANTS or VULNERARIES.

COLLIER (Jeremy), a learned Engliſh non-juring divine, born in 1650, and educated in Caius college Cambridge. He had firſt the ſmall rectory of Ampton, near St Edmund's Bury in Suffolk; which in ſix years he reſigned, to come to London, in 1685, where he was made lecturer of Gray's Inn: but the change of government that followed, ſoon rendered the public exerciſe of his function impracticable. He was committed to Newgate for writing againſt the revolution; and again, for carrying on a correſpondence which that change of events made treaſonable; but was releaſed both times, without trial, by the intervention of friends. It is obſervable that he carried his ſcruples ſo far, as to prefer confinement to the tacit acknowledgment of the juriſdiction of the court by accepting his liberty upon bail. Suitable to theſe principles, he next acted a very extraordinary part with two other clergymen of his own way of thinking, at the execution of Sir John Friend and Sir William Perkins for the aſſaſſination plot; by giving them ſolemn abſolution, and by impoſition of hands: abſconding for which, he continued under an outlawry to the day of his death in 1726. Theſe proceedings having put a ſtop to his activity, he employed his retired hours rather more uſefully in literary works. In 1698, he attempted to reform our theatrical entertainments, by publiſhing his *Short view of the immorality and profaneneſs of the Engliſh ſtage*; which engaged him in a controverſy with the wits of the time: but as Mr Collier defended his cenſures not only with wit, but with learning and reaſon, it is allowed that the decorum obſerved, for the moſt part, by ſucceeding dramatic writers, has been owing to his animadverſions. He next undertook a tranſlation of Morreri's great Hiſtorical and Geographical Dictionary; a work of extraordinary labour, and which appeared in 4 vols. folio. After this he publiſhed "An Eccleſiaſtical Hiſtory of Great Britain, chiefly of England," in 2 vols. folio; which is allowed to be written with great judgment, and even with impartiality. He was beſides engaged in ſeveral controverſies, which his conduct and writings gave riſe to, not material to mention. In queen Anne's reign, Mr Collier was tempted, by offers of conſiderable preferment, to a ſubmiſſion; but as he was a non-juror upon principle, he could not be brought to liſten to any terms.

COLLIER, or COALLIER. See COALLIER.

COLLIERY, COALERY, or COALLIERY. See COALERY.

COLLINS (Anthony), a polemical writer, born at Heſten near Hounſlow in the country of Middleſex in 1676, was the ſon of Henry Collins, a gentleman of about L. 1500 a-year. He was firſt bred at Eton college, and then went to king's-college Cambridge, where he had for his tutor Mr Francis Hare, afterwards biſhop of Chicheſter. He was afterwards a ſtudent of the Temple; but not reliſhing the law, ſoon abandoned that ſtudy. He was an ingenious man, and author of ſeveral curious books. His firſt remarkable piece was publiſhed in 1707, "An Eſſay concerning the uſe of reaſon in propoſitions, the evidence whereof depends on human teſtimony." In 1702, he entered into the controverſy between Mr Clark and Dr Dodwell, concerning the immortality of the ſoul. In 1713, he publiſhed his diſcourſe on free-thinking; which made a prodigious noiſe. In 1715, he retired into the county of Eſſex, and acted as a juſtice of peace and deputy lieutenant for the ſame county, as he had done before for that of Middleſex and liberty of Weſtminſter. The ſame year, he publiſhed a "Philoſophical Eſſay concerning human liberty." In 1718, he was choſen treaſurer of the county of Eſſex; and this office he diſcharged with great honour. In 1724, he publiſhed his "Hiſtorical and critical Eſſay on the 39 articles." Soon after, he publiſhed his "Diſcourſe of the grounds and reaſons of the Chriſtian religion;" to which is prefixed, "An Apology for free debate and liberty of writing;" which piece was immediately attacked by a great number of writings. In 1726, appeared his "Scheme of literary prophecy conſidered, in a view of the controverſy occaſioned by a late book entitled, A diſcourſe of the grounds, *&c.*" In this diſcourſe, he mentions a *MS.* diſſertation of his to ſhow the Sibylline oracles to be a forgery made in the times of the primitive Chriſtians, who, for that reaſon, were called *Sibylliſts* by the Pagans; but it never appeared in print. His ſcheme of literary prophecy was replied to by ſeveral writers; and particularly by Dr John Rogers in his "Neceſſity of divine revelation aſſerted." In anſwer to which, our author wrote "A letter to the Reverend Dr Rogers, on occaſion, *&c.*" His health began to decline ſome years before his death, and he was very much afflicted with the ſtone, which at laſt put an end to his life at his houſe in Harley-ſquare in 1729. He was interred in Oxford chapel, where a monument was erected to him, with an epitaph in Latin. His curious library was open to all men of letters, to whom he readily communicated all the aſſiſtance in his power; he even furniſhed his antagoniſts with books to confute himſelf, and directed them how to give their arguments all the force of which they were capable. He was remarkably averſe to all indecency and obſcenity of diſcourſe; and was, independent of his ſcepticiſm, a ſincerely good man.

COLLINS (John), an eminent accountant and mathematician, born in 1624, and bred a bookſeller at Oxford. Beſides ſeveral treatiſes on practical ſubjects, he communicated ſome curious papers to the Royal Society, of which he was a member, which are to be found in the early numbers of the Philoſophical Tranſ-

Collins Collinſon.

Collinſon.

actions: and was the chief promoter of many other ſcientifical publications in his time. He died in 1683: and about 25 years after, all his papers coming into the hands of the learned William Jones, Eſq; F. R. S. it appeared that Mr Collins held a conſtant correſpondence for many years with all the eminent mathematicians; and that many of the late diſcoveries in phyſical knowledge, if not actually made by him, were yet brought forth by his endeavours.

COLLINS (William), an admirable poet, was born at Chicheſter, about the year 1724. He received his claſſical education at Wincheſter; after which he ſtudied at New college, in Oxford, was admitted a commoner of King's college in the ſame univerſity, and was at length elected a demy of Magdalene college. While at Oxford, he applied himſelf to the ſtudy of poetry, and publiſhed his Oriental Eclogues; after which he came to London. He was naturally poſſeſſed of an ear for all the varieties of harmony and modulation; his heart was ſuſceptible of the fineſt feelings of tenderneſs and humanity, and was particularly carried away by that high enthuſiaſm which gives to imagination its ſtrongeſt colouring; and he was at once capable of ſoothing the ear with the melody of his numbers, of influencing the paſſions by the force of the pathos, and of gratifying the fancy by the luxury of deſcription. With theſe powers, he attempted lyric poetry; and in 1746, publiſhed his Odes, deſcriptive and allegorical: but the ſale of this work being not at all anſwerable to its merit, he burnt the remaining copies in indignation. Being a man of a liberal ſpirit and a ſmall fortune, his pecuniary reſources were unhappily ſoon exhauſted; and his life became a miſerable example of neceſſity, indolence, and diſſipation. He projected books which he was well able to execute; and became in idea an hiſtorian, a critic, and a dramatic poet; but wanted the means and encouragement to carry theſe ideas into execution. Day ſucceeded day, for the ſupport of which he had made no proviſion; and he was obliged to ſubſiſt, either by the repeated contributions of a friend, or the generoſity of a caſual acquaintance. His ſpirits became oppreſſed, and he ſunk into a ſullen deſpondence. While in this gloomy ſtate of mind, his uncle colonel Martin died, and left him a conſiderable fortune. But this came too late for enjoyment; he had been ſo long haraſſed by anxiety and diſtreſs, that he fell into a nervous diſorder, which at length reduced the fineſt underſtanding to the moſt deplorable childiſhneſs. In the firſt ſtages of this diſorder, he endeavoured to relieve himſelf by travelling, and paſſed into France; but the growing malady obliged him to return; and having continued, with ſhort intervals, in this pitiable ſtate till the year 1756, he died in the arms of his ſiſter. The ingenious Mr Langhorne has publiſhed his poetical works, with memoirs of the author, in one volume duodecimo.

COLLINSON (Peter), an eminent naturaliſt and antiquarian, deſcended of an ancient family, was born on the paternal eſtate called *Hugal-Hall*, or, *Height of Hugal*, near Windermere lake, in the pariſh of Stavely, about ten miles from Kendal in Weſtmoreland. Whilſt a youth he diſcovered his attachment to natural hiſtory. He began early to make a collection of dried ſpecimens of plants, and had acceſs to the beſt gardens at that time in the neighbourhood of London. He became early acquainted with the moſt eminent naturaliſts of his time; the Drs Derham, Woodward, Dale, Lloyd, and Sloane, were amongſt his friends. Among the great variety of articles which form that ſuperb collection, now (by the wiſe diſpoſition of Sir Hans and the munificence of parliament) the Britiſh Muſeum, ſmall was the number of thoſe with whoſe hiſtory Mr Collinſon was not well acquainted; he being one of thoſe few who viſited Sir Hans at all times familiarly; their inclination and purſuits in reſpect to natural hiſtory being the ſame, a firm friendſhip had early been eſtabliſhed between them. Peter Collinſon was elected a fellow of the Royal Society on the 12th of December 1728; and perhaps was one of the moſt diligent and uſeful members, not only in ſupplying them with many curious obſervations himſelf, but in promoting and preſerving a moſt extenſive correſpondence with learned and ingenious foreigners, in all countries on every uſeful ſubject. Beſides his attention to natural hiſtory, he minuted every ſtriking hint that occurred either in reading or converſation; and from this ſource he derived much information, as there were very few men of learning and ingenuity who were not of his acquaintance at home; and moſt foreigners of eminence in natural hiſtory, or in arts and ſciences, were recommended to his notice and friendſhip. His diligence and œconomy of time was ſuch, that though he never appeared to be in a hurry, he maintained an extenſive correſpondence with great punctuality; acquainting the learned and ingenious in diſtant parts of the globe with the diſcoveries and improvements in natural hiſtory in that country, and receiving the like information from the moſt eminent perſons in almoſt every other. His correſpondence with the ingenious Cadwallader Colden, Eſq; of New York, and the juſtly celebrated Dr Franklin of Philadelphia, furniſh inſtances of the benefit reſulting from his attention to all improvements. The latter of theſe gentlemen communicated his firſt eſſays on electricity to Mr Collinſon, in a ſeries of letters, which were then publiſhed, and have been reprinted in a late edition of the Doctor's ingenious diſcoveries and improvements. Perhaps, in ſome future period, the account procured of the management of ſheep in Spain, publiſhed in the Gentleman's Magazine for May and June 1764, may not be conſidered among the leaſt of the benefits accruing from his extenſive and inquiſitive correſpondence. His converſation, cheerful and uſefully entertaining, rendered his acquaintance much deſired by thoſe who had a reliſh for natural hiſtory, or were ſtudious in cultivating rural improvements; and ſecured him the intimate friendſhip of ſome of the moſt eminent perſonages in Britain, as diſtinguiſhed by their taſte in planting and horticulture, as by their rank and dignity. He was the firſt who introduced the great variety of ſeeds and ſhrubs which are now the principal ornament of every garden; and it was owing to his indefatigable induſtry, that ſo many perſons of the firſt diſtinction are now enabled to behold groves tranſplanted from the weſtern continent flouriſhing as luxuriantly in their ſeveral domains as if they were already become indigenous to Britain. He had ſome correſpondents in almoſt every nation in Europe, ſome in Aſia, and even at Pekin; who all tranſmitted to him the moſt valuable ſeeds they could collect, in return for the treaſures of America. The great Linnæus, during his reſidence in England, contracted an intimate friendſhip with Mr Collinſon, which was reciprocally increaſed by a multitude of good offices, and continued to the laſt. Beſides his attachment to natural hiſtory, he was very converſant in the antiquities of Great Britain, having been elected a member of the Society of Antiquaries April 7, 1737; and he ſupplied them often with many curious articles of intelligence and obſervations, reſpecting both his own and other countries. He died in 1768, leaving behind him many materials for the improvement of natural hiſtory.

COLLINSONIA, in botany: A genus of the monogynia order, belonging to the decandria claſs of plants; and in the natural method ranking under the 40th order, *Perſonatæ*. The corolla is unequal, with its under lip multifid, and the ſegments capillary. There is only one perfect ſeed. There is but one ſpecies, a native of North America, but poſſeſſed of no remarkable properties.

COLLIQUAMENTUM, in natural hiſtory, an extreme tranſparent fluid in an egg, obſervable after two or three days incubation, containing the firſt rudiments of the chick. It is included in one of its own proper membranes; diſtinct from the albumen. Harvey calls it the *oculus*.

COLLIQUATION, in chemiſtry, is applied to animal, vegetable, and mineral ſubſtances, tending towards fuſion. See FUSION.

COLLIQUATION, in phyſic, a term applied to the blood, when it loſes its craſis or balſamic texture; and to the ſolid parts, when they waſte away, by means of the animal fluids flowing off through the ſeveral glands, and particularly thoſe of the ſkin, faſter than they ought: which occaſions fluxes of many kinds, but moſtly profuſe, greaſy, and clammy ſweats.

COLLIQUATIVE FEVER, in phyſic, a fever attended with a diarrhœa, or with profuſe ſweats.

COLLISION, the ſtriking of one hard body againſt another; or the friction or percuſſion of bodies moving violently with different directions, and daſhing againſt each other.

COLLUM, the ſame with the NECK.

COLLUSION, in law, a ſecret underſtanding between two parties, who plead or proceed fraudulently againſt each, to the prejudice of a third perſon.

COLLUTHIANS, a religious ſect, who roſe about the beginning of the fourth century; on occaſion of the indulgence ſhown to Arius by Alexander patriarch of Alexandria. Several people being ſcandalized at ſo much condeſcenſion; and, among the reſt, Colluthus, a prieſt of the ſame city; he hence took a pretence for holding ſeparate aſſemblies, and by degrees proceeded to the ordination of prieſts, as if he had been a biſhop; pretending a neceſſity for this authority, in order to oppoſe Arius. To his ſchiſm he added hereſy; teaching, that God did not create the wicked; that he was not author of the evils that befal men, &c. He was condemned by a council held at Alexandria by Oſius, in the year 330.

COLLYBUS (Κολλυϐος), in antiquity, the ſame with what is now called *the rate of exchange*.

COLLYRÆ, or COLLYRIDES, in antiquity, a certain ornament of hair, worn by the women on their necks. It was made up in the form of the ſmall roundiſh cakes called κολλυραι, *collyræ*.

COLLYRIDIANS, in church hiſtory, a ſect, towards the cloſe of the 4th century, denominated from a little cake, called by the Greeks κολλυριδιαι, *collyridia*, which they offered to the Virgin Mary.

This ſect, it ſeems, conſiſted chiefly of Arabian women, who, out of an extravagance of devotion to the Virgin, met on a certain day in the year, to celebrate a ſolemn feaſt, and to render divine honours to Mary as to a goddeſs; eating the cake which they offered in her name. St Epiphanius, who relates the hiſtory of this ſuperſtitious ceremony, ridicules it. They ſprung up in oppoſition to the ANTIDICO-MARIANITES.

COLLYRIUM, in pharmacy, a topical remedy for a diſorder of the eyes; deſigned to cool and repel hot ſharp tumors.

COLMAR, a conſiderable town of France, in Upper Alſace, of which it is the capital. It has great privileges, and the Proteſtants have liberty of conſcience. It is ſeated near the river Ill, in E. Long. 7. 16. N. Lat. 48. 5.

COLMARS, a town of France in Provence, and the dioceſe of Sens. It is ſeated near the Alps, in E. Long. 6. 25. N. Lat. 44. 17.

COLMOGOROD, a town of the empire of Ruſſia, with an archbiſhop's ſee, ſeated in an iſland formed by the river Divina, in E. Long. 23. 30. N. Lat. 36. 32.

COLNBROOK, a town of Buckinghamſhire in England, ſeated on the river Coln, which ſeparates this county from Middleſex. It is a great thoroughfare on the weſtern road, and has ſeveral good inns. W. Long. 0. 19. N. Lat. 51. 30.

COLNE, a town of Lancaſhire in England, ſeated on a ſmall hill near the confines of the county. W. Long. 2. 2. N. Lat. 53. 45.

COLOCHINA, an ancient town of the Morea in Turkey in Europe. E. Long. 23. 2. N. Lat. 36. 32.

COLOCYNTHIS, in botany, a ſpecies of CUCUMIS.

COLOCZA, a town of Hungary, ſeated on the Danube, and capital of the county of Bath, with an archbiſhop's ſee. It was taken by the Turks in 1686, but afterwards retaken by the Imperialiſts. E. Long. 19 42. N. Lat. 46. 33.

COLOGNA, a town of Italy in Padua, and in the territory of Venice. E. Long. 11. 43. N. Lat. 45. 39.

COLOGNE (the archbiſhopric or dioceſe of) is one of the ſtates that compoſe the electoral circle of the Rhine, in Germany. It is bounded on the north by the duchy of Cleves and Gueldres, on the weſt by that of Juliers, on the ſouth by the archbiſhopric of Cleves, and on the eaſt by the duchy of Berg, from which it is almoſt wholly ſeparated by the Rhine. This country is very fruitful in corn and wine, which the inhabitants diſpoſe of by embarking it on the Rhine, it extending about ſeventy miles along that river. It is divided into the Higher and Lower Dioceſe; the Higher Dioceſe contains that part which lies above Cologne, wherein is Bonne, the capital town of this electorate, and where the elector reſides; beſides which there are Leichnich, Andernach, Bruyl, Zulich, and Kerpen. The Lower Dioceſe is on the other ſide of Cologne, and contains the towns of Zonz, Neuys, Heizarwart, Kempen, Rhynberg, and Alpen. The city of Cologne and county of Meurs, though within the dioceſe of Cologne, do not belong to it; for Cologne is a free city, and Meurs belongs to the houſe of Naſſau-Orange; but by way of recompence, the elector has conſiderable poſſeſſions in Weſtphalia, which they call the *Domain*. It contains the duchy of Weſtphalia and the county of Rechlinchuſen. This prelate is one of the electors of the empire, and holds alternately with that of Treves the ſecond or third rank in the electoral college. He is arch-chancellor of the empire in Italy; which dignity was very important when the emperors were maſters of Italy, but now it is next to nothing. When the emperors were crowned at Aix la Chapelle, the archbiſhop of Cologne performed the ceremony, which cauſed him to pretend to the ſame right elſewhere; but he was oppoſed by the archbiſhop of Mentz. This occaſioned an order, that they ſhould each of them have that honour in their own dioceſe, but if it was done elſewhere, they ſhould perform it alternately. The archbiſhop of Cologne is elected by the chapter in that city, which is the moſt illuſtrious in all Germany. They are all princes or counts, except eight doctors, who have no occaſion to prove their nobility.

COLOGNE, an ancient and celebrated town of Germany, in the dioceſe of that name, with an archbiſhop's ſee, and a famous univerſity, ſeated on the river Rhine, in E. Long. 6. 38. N. Lat. 50. 50. In the times of the Romans, this city was called *Colonia Agrippina*, and *Ubiorum*, becauſe it was built by Agrippina the wife of Claudius I. and mother of Nero; and becauſe the Ubii inhabited this country on the Lower Rhine. In 755, it was an archbiſhopric, and in 1260 entered into the Hanſeatic league. The univerſity was eſtabliſhed in 1388 by Pope Urban VI. The city is fortified with ſtrong walls, flanked with 83 large towers, and ſurrounded with three ditches; but theſe fortifications, being executed after the ancient manner, could make but a poor defence at preſent. It lies in the ſhape of a half-moon, and is ſaid to have 20 gates, 19 pariſhes, 37 monaſteries, and 365 churches and chapels; but the ſtreets in general are dirty and badly paved, the windows of the houſes compoſed of ſmall bits of round glaſs, and the inhabitants are but few for ſo large a place. It is inhabited moſtly by Papiſts; but there are alſo many Proteſtants, who repair to the neighbouring town of Mulheim, in the duchy of Berg, for public worſhip. Its trade, which is conſiderable, eſpecially in Rheniſh wine, is chiefly in the hands of the Proteſtants, and carried on by the Rhine. The ſhips with which they trade to the Netherlands are of a particular form, and conſiderable burden. The clergy here are very numerous, and have large revenues. That of the archbiſhop is L.130,000. Baron Polnitz ſays, that though Cologne is one of the greateſt cities, it is one of the moſt melancholy in all Europe; there being nothing to be ſeen but prieſts, friars, and ſtudents, many of whom beg alms with a ſong; and nothing to be heard but the ringing of bells; that there are very few families of quality; that the vulgar are very clowniſh; and that the noblemen of the chapter ſtay no longer in town than their duty obliges them. Mr Wright, in his travels, ſays, that the women go veiled; and that the beſt gin is that diſtilled from the juniper berries which grow in this neighbourhood. This city is perhaps the moſt remarkable of any in the world for the great number of precious relics it contains; of which the Popiſh clergy, no doubt, make their advantage. In the church of St Urſula, they pretend to ſhow her tomb, and the bones of the 11,000 pretended virgin martyrs, though that ſtory is entirely owing to a miſtaken inſcription. The heads of ſome of theſe imaginary martyrs are kept in caſes of ſilver, others are covered with ſtuffs of gold, and ſome have caps of cloth of gold and velvet. Brevat ſays, he ſaw between 4 and 5000 ſkulls, decked with garlands, and coronets, ranged on ſhelves. The canoneſſes of St Urſula, who muſt be all counteſſes, have a handſome income. In their church they pretend to ſhow three of the thorns of our Saviour's crown, and one of the veſſels which contained the water that he converted into wine at the marriage of Cana. In the church of St Gereon are 900 heads of Mooriſh Cavaliers, ſaid to have been in the army of Conſtantine before it was converted, and to have been beheaded for refuſing to ſacrifice to idols. Every one of the heads has a cap of ſcarlet, adorned with pearls. In the magnificent cathedral of St Peter, the three wiſe men who came from the eaſt to viſit our Saviour, are ſaid to be interred. They lie in a large purple ſhrine ſpangled with gold, ſet upon a pedeſtal of braſs, in the midſt of a ſquare mauſoleum, faced within and without with marble and jaſper. It is opened every morning at nine o'clock, if two of the canons of the cathedral are preſent, when theſe kings or wiſe men are ſeen lying at full length, with their heads bedecked with a crown of gold garniſhed with precious ſtones. Their names, which are *Gaſpar*, *Melchior*, and *Balthaſar*, are in purple characters on a little grate, which is adorned with an infinite number of large rich pearls and precious ſtones, particularly an oriental topaz as big as a pigeon's egg, and valued at above 30,000 crowns. Over againſt them are ſix large branches of ſilver, with wax candles, which burn night and day. The bones of theſe men, we are told, were brought to Conſtantinople by Helena mother to Conſtantine, from thence to Milan by Euſtorpius biſhop of that ſee, and afterwards hither by archbiſhop Rainold. In the Jeſuits college are the portraits of the firſt 13 generals of that order, with Ignatius Loyola at their head; and in the church, which is the fineſt in Cologne, are many rich ſtatues, with an amazing quantity of fine ſilver plate; and the utenſils for maſs are all of gold enriched with precious ſtones. In the Cordeliers church, is the tomb of the famous Duns Scotus, ſurnamed *Doctor Subtilis*, with this epitaph, "Scotia me genuit, Anglia me ſuſcepit, Gallia me docuit, Colognia me tenet." Cologne is a free imperial city, and as ſuch has a ſeat and voice at the diets of the empire, and circle of the Lower Rhine. In thoſe of the empire, it has the firſt place on the Rheniſh bench. Towards the defence of the empire, its aſſeſſment is 825 florins; and towards the maintenance of the chamber-court, 405 rix-dollars, 72½ kruitzers each term. Its militia conſiſts of four companies of foot, who keep guard at the gates. It is governed by its own ſenate, in reſpect to civil matters and cauſes; but the criminal juriſdiction belongs to the elector and his chapter; and ſo jealous are the inhabitants of him, that they will not permit him to ſtay in the city above three days at a time, nor to come into it with a large retinue. For this reaſon the elector reſides commonly at Bonn.

Cologne-Earth, a kind of very light baſtard ochre, of a deep brown colour.

COLOMBO, a handſome, pleaſant, and ſtrong town of Aſia, ſeated on the eaſtern ſide of the iſland of Ceylon in the Eaſt Indies. It was built by the Portugueſe in 1638; and in 1658 they were driven from it by the natives, aſſiſted by the Dutch, who are now in poſſeſſion of it. It is about three quarters of a mile long, and as much in breadth. The natives live in the old town, without the walls of the new; the ſtreets of this laſt are wide and ſpacious; and the buildings are in the modern taſte, particularly the governor's houſe, which is a handſome ſtructure. E. Long. 80. 15. N. Lat. 7. 0.

COLOMEY, or Colomia, a town of Poland in Red Ruſſia, ſeated on the river Pruth, in E. Long. 25. 9. N. Lat. 48. 45.

COLOMNA (Fabio), a very learned botaniſt, born at Naples about the year 1567. He became ſkilled in the languages, in muſic, deſigning, painting, and the mathematics; and died about the middle of the 17th century. He wrote, 1. Φυτοβασανος, ſeu Plantarum aliquot (ac piſcium) hiſtoria. 2. Minus cognitarum rariorumque ſtirpium εκφρασις; itemque de aquatilibus, aliiſque nonnullis animalibus, libellus; and other works.

COLON, in anatomy, the firſt and moſt conſiderable of the large inteſtines. See Anatomy, under n° 93.

Colon, in grammar, a point, or character formed thus [:], ſerving to mark a pauſe, and to divide the members of a period. See Pointing: ſee alſo Period, Comma, and Semicolon. Grammarians generally aſſign the uſe of a colon to be, to mark the middle of a period; or to conclude a ſenſe leſs perfect than the dot or period:—but, a ſenſe leſs perfect than the period, is an expreſſion extremely vague and indeterminate. See Period.

Others ſay, a colon is to be uſed when the ſenſe is perfect, but the ſentence not concluded: but neither is this over clear and expreſs.

A late author, in an ingenious diſcourſe, *De ratione interpungendi*, marks the office of the colon, and wherein it differs from the ſemicolon, &c. more preciſely. A colon, on his principles, ſerves to diſtinguiſh thoſe conjunct members of a ſentence, which are capable of being divided into other members; whereof one, at leaſt, is conjunct. Thus, in the ſentence, *As we cannot diſcern the ſhadow moving along the dial-plate, ſo the advances we make in knowledge are only perceived by the diſtance gone over;* the two members being both ſimple, are only ſeparated by a comma. In this, *As we perceive the ſhadow to have moved, but did not perceive it moving; ſo our advances in underſtanding, in that that they conſiſt of ſuch minute ſteps, are only perceivable by the diſtance;*—the ſentence being divided into two equal parts, and thoſe conjunct ones, ſince they include others; we ſeparate the former by a ſemicolon, and the latter by commas. But in this, *As we perceive the ſhadow to have moved along the dial, but did not perceive it moving; and it appears the graſs has grown, though no body ever ſaw it grow: ſo the advances we make in knowledge, as they conſiſt of ſuch minute ſteps, are only perceivable by the diſtance*—the advancement in knowledge is compared to the motion of a ſhadow, and the growth of graſs; which compariſon divides the ſentence into two principal parts: but ſince what is ſaid of the movement of the ſhadow, and likewiſe of the growth of graſs, contains two ſimple members, they are to be ſeparated by a ſemicolon; conſequently a higher pointing is required to ſeparate them from the other part of the ſentence, which they are oppoſed to: and this is a colon. See Punctuation.

COLONEL, in military matters, the commander in chief of a regiment, whether horſe, foot, or dragoons.

Skinner derives the word from colony; being of opinion, the chiefs of colonies, called *coloniales*, might give the name to chiefs of forces. In the French and Spaniſh armies, colonel, is confined to the infantry and dragoons: the commanding officer of a regiment of horſe they uſually call *meſtre de camp*. Fomerly, inſtead of colonel, the French uſed the word coronel; and this old ſpelling comes nearer to our common way of pronouncing the word *colonel*.

A colonel may lay any officer of his regiment in arreſt, but muſt acquaint the general with it; he is not allowed a guard, only a century from the quarter-guard.

Colonel-*Lieutenant*, he who commands a regiment of guards, whereof the king, prince, or other perſon of the firſt eminence, is colonel. Theſe colonel-lieutenants have always a colonel's commiſſion, and are uſually general-officers.

Lieutenant-Colonel, the ſecond officer in a regiment, who is at the head of the captains, and commands in the abſence of the colonel.

COLONIA, (anc. geog.) a town of the Trinobantes, a little above Camelodunum. Now Colcheſter in Eſſex, according to Cambden, who ſuppoſes it to take its name from the river Colne, and not that it was a colony. Though others think Antonine's diſtances agree with Sudbury.

Colonia *Equeſtris*, an ancient and noble colony on the Lacus Lemanus. It appears to be the work of Julius Cæſar, who ſettled there *Equites Limitanei*: and to this Lucan is thought to refer. By the Itinerary it is ſuppoſed to have ſtood between Lauſane and Geneva, 12 miles from the laſt place by Peutinger's map; which directs to Nyon, placed in Cavo Lemano, according to Lucan's expreſſion, that is, a bay or cove of the lake. Its ancient name was *Neviodunum*, (Notitia Galliae): hence its modern name.

Colonia *Metallina*, or *Metallinenſis*, a town of Luſitania, ſituated on the right or weſt ſide of the Anas, or Guadiana: but now on the left or eaſt ſide, from the river's ſhifting its bed or channel, and called Medelin a town in Eſtremadura. W. Long. 6. 12. Lat. 38° 45′.

Colonia *Morinorum*, a town of Belgica, thought to be Tarvenna, the capital of the Morini. Now Terrouen, a town of Artois. E. Long. 2° 15′, Lat. 50° 37′.

Colonia *Norbenſis*, or *Norba Cæſarea*, a town of Luſitania, to the ſouth of Trajan's bridge on the Tagus. Now *Alcantara*, in Eſtremadura. W. Long. 7. 10. N. Lat. 39. 10.

Colonia Trajana, (Antonine, Peutinger); a town of Belgica, ſurnamed alſo *Ulpia*, (Antonine); and *Triceſima*, from being the ſtation of the thirtieth legion, (Ammian). Now Kellen, a village of the duchy of Cleves, a mile from the Rhine.

Colonia Valentia, (Ptolemny, Livy); a town of the Hither Spain, on the Turias; deſtroyed by Pompey, (Salluſt); reſtored by Julius Cæſar. Still called Valencia, on the river Guadalaviar, in Valencia. W. Long. 35. Lat. 39 20.

COLONNA, a town of Italy, in the Campagna of Rome, 18 miles eaſtward of that city. E. Long. 13. 15. N. Lat. 42. 0.

Colonna (Pompey), cardinal archbiſhop of Montreal in Sicily, and biſhop of a very great number of places, made a conſpicuous figure in the world. He was equally qualified to wear the cardinal's hat and the helmet, and experienced more than once the reverſes of fortune. Julius II. removed him from all his dignities; but Leo I. reſtored him, created him cardinal, and ſent him on ſeveral embaſſies. Clement VII. diveſted him of the purple, and again reſtored him to it. It was pretended he was obliged to him for his exaltation to the papal throne. The pope refuſing him ſome requeſt, he reproached him, ſaying, "That it was by his intereſt he had arrived at his dignity." The pope replied, "It is true, but let me be pope, and do not endeavour to be ſo yourſelf; for by acting as you do, you endeavour to diſpoſſeſs me of that you have raiſed me to." He died viceroy of Naples in 1532. He wrote ſome poems in praiſe of Iſabella Filamarini, in which he proteſts the chaſtity of his wiſhes. He wrote another work, *De laudibus mulierum*.

COLONNADE, in architecture, a periſtyle of a circular figure; or a ſeries of columns diſpoſed in a circle, and inſulated within ſide.

A Polyſtyle Colonnade, is that whoſe numbers of columns is too great to be taken in by the eye at a ſingle view. Such is the colonnade of the palace of St Peter's at Rome, conſiſting of 284 columns of the Doric order, each above four feet and an half diameter, all in Tiburtine marble.

COLONOS, (anc. geog.) an eminence near Athens, whither Œdipus, after his baniſhment from Thebes, is ſaid to have retired: and hence it is that Sophocles calls the tragedy on the ſubject, *Oedipus Coloneus*. A place ſacred to Neptune, and where ſtood an equeſtrian ſtatue of him. Here alſo ſtood Timon's tower; who, for his love of ſolitude, and hatred to mankind, was called *Miſanthropos*, (Pauſanias).

COLONSAY, one of the Hebrides or Weſtern Iſlands belonging to Scotland. It comprehends that of Oronſay, from which it is only ſeparated in time of flood, and both belong to the ſame proprietor *viz.* Mr M'Neil. See Oronsay.

COLONUS, an huſbandman, or villager, who was bound to pay yearly a certain tribute, or at certain times of the year to plough ſome part of the lord's land; and from hence comes the word *clown*, who is called by the Dutch *boor*.

COLONY, a company of people tranſplanted into a remote province in order to cultivate and inhabit it.

We may diſtinguiſh three kinds of colonies. Firſt, thoſe ſerving to eaſe or diſcharge the inhabitants of a country, where the people are become too numerous, ſo that they cannot any longer conveniently ſubſiſt.

The ſecond are thoſe eſtabliſhed by victorious princes and people in the middle of vanquiſhed nations, to keep them in awe and obedience.

The third may be called *colonies of commerce*; becauſe, in effect, it is trade that is the ſole occaſion and object thereof.

It was by means of the firſt kind of colonies that, ſome ages after the deluge, the eaſt firſt, and ſucceſſively all the other parts of the earth, became inhabited: and without mentioning any thing of the Phoenician and Grecian colonies, ſo famous in ancient hiſtory, it is notorious that it was for the eſtabliſhment of ſuch colonies, that, during the declenſion of the empire, thoſe torrents of barbarous nations, iſſuing, for the generality, out of the north, over-run the Gauls, Italy, and the other ſourthern parts of Europe; and, after ſeveral bloody battles, divided it with the ancient inhabitants.

For the ſecond kind of colonies, the Romans uſed them more than any other people: and that to ſecure the conqueſts they had made from the weſt to the eaſt. Every one knows how many cities in Gaul, Germany, Spain, and even England, value themſelves on their having been of the number of Roman colonies.

There were two kinds of colonies among the Romans: thoſe ſent by the ſenate; and the military ones, conſiſting of old ſoldiers, broken and diſabled with the fatigues of war, who were thus provided with lands as the reward of their ſervices. See Benefice. The colonies ſent by the ſenate were either Roman or Latin, *i. e.* compoſed either of Roman citizens or Latins. The Coloniæ Latinæ were ſuch as enjoyed the *jus Latii*; ſaid to conſiſt in thoſe two things: one, that whoever was edile or pretor in a town of Latium, became for that reaſon a Roman citizen; the other, that the Latins were ſubject to the edicts of their own, and not to thoſe of the Roman magiſtrates: in the year of the city ſix hundred and ſixty two, after the ſocial war, the freedom of the city was granted to all Latium by the *lex Julia*. The coloniæ Romanæ, were ſuch as had the jus Romanum, but not in its full extent; namely, in the right of ſuffrage, putting up for honours, magiſtracies, command in the army, *&c.*; but the jus Quiritium only, or private right; as right of liberty, of gentility, or dignity of family, ſacrifice, marriage, *&c.* For it was long a rule, never to grant the liberty of the city in full to colonies: nor is there any inſtance to the contrary, till after the ſocial war, in the year of the city ſix hundred and ſixty-two. According to Ulpian (*l.* 1. *D. de Cenſ.*), there were other colonies, which had little more than the name; only enjoying what they called *jus Italicum*, i. e. they were free from the tributes and taxes paid by the provinces. Such were the colonies of Tyre, Berytus, Heliopolis, Palmyra, *&c.* M. Vaillant has filled a volume in folio with medals ſtruck by the ſeveral colonies, in honour of the emperors who founded them.

The ordinary ſymbol they engraved on their medals, was either an eagle; as when the veteran legions were diſtributed in the colonies: or a labourer, holding a plough drawn by a pair of oxen; as when the colony conſiſted of ordinary inhabitants. On all the medals are ſeen the names of the decemviri, who held the ſame rank and had the ſame authority there as the conſuls had at Rome.

Laſtly, the colonies of commerce, are thoſe eſtabliſhed by the Engliſh, French, Spaniards, Portugueſe, and other nations within theſe two laſt centuries, and which they continue ſtill to eſtabliſh, in ſeveral parts of Aſia, Africa, and America; either to keep up a regular commerce with the natives, or to cultivate the ground, by planting ſugar-canes, indigo, tobacco, and other commodities. The principal of this kind of colonies, are in the one and the other America, northern and ſouthern; particularly Peru, Mexico, Canada, (lately Virginia, New-England, Carolina, *&c.*) la Louiſiana, l'Acadia, Hudſon's Bay, the Antilles Iſlands, Jamaica, Domingo, and the other iſlands.—In Africa, Madagaſcar, Cape of Good Hope, Cape Verd, and its iſlands, and all thoſe vaſt coaſts extended thence as far as to the Red Sea. Laſtly, in Aſia, the famous Batavia of the Dutch; Goa, Diu, of the Portugueſe; and ſome other leſs conſiderable places of the Engliſh, French, and Danes.

The practice of ſettling commercial colonies in diſtant countries hath been adopted by the wiſeſt nations of antiquity, who acted ſyſtematically upon maxims of ſound policy. This appears to have been the caſe with the ancient Egyptians, the Chineſe, the Phœnicians, the commercial ſtates of Greece, the Carthaginians, and even the Romans; for though the colonies of the latter were chiefly military, it could eaſily be ſhown that they were likewiſe made uſe of for the purpoſes of trade. The ſavage nations who ruined the Roman empire, ſought nothing but to extirpate or hold in vaſſalage thoſe whom they overcame; and therefore, whenever princes enlarged their dominions at the expence of their neighbours, they had recourſe to ſtrong forts and garriſons to keep the conquered in awe. For this they have been blamed by the famous Machiavel; who labours to ſhow, that the ſettling of colonies would have been a cheaper and better method of bridling conquered countries, than building fortreſſes in them. John de Witt, who was one of the ableſt and beſt ſtateſmen that ever appeared, ſtrongly recommended colonies; as affording a refuge to ſuch as had been unfortunate in trade; as opening a field for ſuch men to exert their abilities, as through want of intereſt could not raiſe themſelves in their own country; and as a ſupplement to hoſpitals and other charitable foundations, which he thought in time might come to be overcharged. Some, however, have ridiculed the ſuppoſed advantages of colonies, and aſſerted that they muſt always do miſchief by depopulating the mother-country.

The hiſtory of the Britiſh colonies undoubtedly ſhows, that when coloniſts become numerous and opulent, it is very difficult to retain them in ſubjection to the parent ſtate. It becomes then a queſtion of importance how far they are entitled to the rights they had as inhabitants of the mother-country, or how far they are bound by its laws? On this ſubject Mr Blackſtone hath the following obſervations.

"Plantations, or colonies in diſtant countries, are either ſuch where the lands are claimed by the right of occupancy only, by finding them deſert and uncultivated, and peopling them from the mother-country; or where, when already cultivated, they have either been gained by conqueſt, or ceded to us by treaties. And both the rights are founded upon the law of nature, or at leaſt on that of nations. But there is a difference between theſe two ſpecies of colonies with reſpect to the laws by which they are bound. For it hath been held, that if any uninhabited country be diſcovered and planted by Engliſh ſubjects, all the Engliſh laws then in being, which are the birthright of every ſubject, are immediately there in force. But this muſt be underſtood with many and very great reſtrictions. Such coloniſts carry with them only ſo much of the Engliſh law as is applicable to their own ſituation, and the condition of an infant colony; ſuch, for inſtance, as the general rules of inheritance, and of protection from perſonal injuries. The artificial refinements and diſtinctions incident to the property of a great and commercial people, the laws of policy and revenue (ſuch eſpecially as are enforced by penalties), the mode of maintenance for the eſtabliſhed clergy, the juriſdiction of ſpiritual courts, and a multitude of other proviſions, are neither neceſſary nor convenient for them, and therefore are not in force. What ſhall be admitted, and what rejected, at what times, and under what reſtrictions, muſt, in caſes of diſpute, be decided in the firſt inſtance by their own provincial judicature, ſubject to the reviſion and controul of the king in council; the whole of their conſtitution being alſo liable to be new-modelled and reformed by the general ſuperintending power of the legiſlature in the mother-country. But in conquered or ceded countries, that have already laws of their own, the king may indeed alter and change thoſe laws; but, till he does actually change them, the ancient laws of the country remain, unleſs ſuch as are againſt the law of God, as in an infidel country. Our American plantations are principally of this latter ſort, being obtained in the laſt century, either by right of conqueſt and driving out the natives (with what natural juſtice I ſhall not at preſent inquire), or by treaties. And therefore, the common law of England, as ſuch, has no allowance or authority there; they being no part of the mother country, but diſtinct (though dependent) dominions. They are ſubject, however, to the controul of the parliament; though (like Ireland, Mann, and the reſt) not bound by any acts of parliament, unleſs particularly named."

With reſpect to their interior polity, the Britiſh colonies, whether thoſe they formerly poſſeſſed or ſtill poſſeſs, may be diſtinguiſhed into three ſorts. 1. Provincial eſtabliſhments, the conſtitutions of which depend on the reſpective commiſſions iſſued by the crown to the governors, and the inſtructions which uſually accompany thoſe commiſſions; under the authority of which provincial aſſemblies are conſtituted, with the power of making local ordinances not repugnant to the laws of Britain. 2. Proprietary governments, granted out by the crown to individuals, in the nature of feudatory principalities, with all the inferior regalities,

galities, and ſubordinate powers of legiſlation, which formerly belonged to the owners of counties palatine: yet ſtill with theſe expreſs conditions, that the ends for which the grant was made be ſubſtantially purſued, and that nothing be attempted which may derogate from the ſovereignty of the mother-country. 3. Charter governments, in the nature of civil corporations; with the power of making bye-laws for their own interior regulation, not contrary to the laws of Britain: and with ſuch rights and authorities as are eſpecially given them in their ſeveral charters of incorporation. The form of government, in moſt of them, is borrowed from that of England. They have a governor named by the king (or, in ſome proprietary colonies, by the proprietor), who is repreſentative or deputy. They have courts of juſtice of their own, from whoſe deciſions an appeal lies to the king in council in England. Their general aſſemblies, which are their houſe of commons, together with their council of ſtate, being their upper houſe, with the concurrence of the king, or his repreſentative the governor, make laws ſuited to their own emergencies. But it is particularly declared, by ſtat. 7 and 8 W. III. *c.* 22. that all laws, bye-laws, uſages, and cuſtoms, which ſhall be in practice in any of the plantations, repugnant to any law made or to be made in Britain relative to the ſaid plantations, ſhall be utterly void and of none effect. And, becauſe ſeveral of the colonies had claimed the ſole and excluſive right of impoſing taxes upon themſelves, the ſtatute 6 Geo. III. *c.* 12. expreſsly declares, that all his Majeſty's colonies in America, have been, are, and of right ought to be, ſubordinate to and dependent upon the imperial crown and parliament of Great Britain; who have full power and authority to make laws and ſtatutes of ſufficient validity to bind the colonies and people of America, ſubjects to the crown of Great Britain in all caſes whatſoever. And the attempting to enforce this by other acts of Parliament, penalties, and at laſt by military power, gave riſe, as is well known, to the late revolt and final ſeparation of thirteeen colonies. See the article AMERICA.

COLOPHON (anc. geog.), a town of Ionia, in the Hither Aſia, on a promontory on the Egean ſea, and waſhed by the Haleſus. The ancient Colophon was deſtroyed by Lyſimachus, in his war with Antigonus, in order to enlarge Epheſus. Pauſanias ſays, it was rebuilt in the neighbourhood, in a more commodious ſcite. This was one of the cities that laid claim to Homer. *Colophonem addere*, a proverbial ſaying, explained by Strabo, to denote, that the Colophonian horſe turned the ſcales in favour of the ſide on which they fought. The Colophonians had a grove, a temple, and an oracle of Apollo Clarius (Strabo). Of this town was the poet Antimachus, remarked on for his tumid ſtyle by Catullus. He wrote a life of Homer, whom he makes a Colophonian (Plutarch).

COLOPHONY, in pharmacy, black reſin, or turpentine, boiled in water, and afterwards dried; or, which is ſtill better, the caput mortuum remaining after the diſtillation of the etherial oil, being further urged by a more intenſe and long continued fire.—It receives its name of *colophonia*, from Colophon, a city of Ionia; becauſe the beſt was formerly brought from thence. Two ſorts are mentioned in ancient writings; the one dry, the other in a liquid form. The latter ſeems to have been liquid pitch, which is the crude reſin of the pine brought from Colophon; the other was called *reſina fricta*, and conſiſted only of the former deprived of its humid parts.

COLOQUINTIDA, in botany. See CUCUMIS.

COLORATURA, in muſic, denotes all manner of variations, trillos, diminutions, &c. ſerving to make a ſong agreeable.

COLORNO, a town of Italy, in the Parmazan, near the river Po, eight miles from Parma. The duke of Parma has a pleaſure-houſe here, one of the moſt delightful ſeats in all Italy, and the gardens are very fine. E. Long. 9. 15. N. Lat. 44. 54.

COLOSSAE, or COLOSEAE (anc. geog.), a conſiderable town of Phrygia Magna, in which the Lycus falls into a gulph, and at the diſtance of five ſtadia emerges again, and runs into the Meander (Herodotus). Others ſay, the genuine name is *Colaſſae*, and the people *Colaſſenſes*, to whom St Paul wrote an epiſtle: Strabo calls them *Coloſſeni*. In Nero's time the town was deſtroyed by an earthquake (Oroſius).

COLOSSUS, a ſtatue of enormous or gigantic ſize. The moſt eminent of this kind was the Coloſſus of Rhodes; a ſtatue of Apollo, ſo high, that ſhips paſſed with full ſails betwixt its legs. It was the workmanſhip of Chares, a diſciple of Lyſippus; who ſpent 12 years in making it: it was at length overthrown by an earthquake, after having ſtood 1360 years. Its height was ſixſcore and ſix feet: there were few people could fathom its thumb, &c. When the Saracens became poſſeſſed of the iſland, the ſtatue was found proſtrate on the ground: they ſold it to a Jew, who loaded 900 camels with the braſs.

The baſis that ſupported it was a triangular figure; its extremities were ſuſtained with 60 pillars of marble. There was a winding ſtair-caſe to go up to the top of it; from whence one might diſcover Syria, and the ſhips that went into Egypt, in a great looking-glaſs, that was hung about the neck of the ſtatue. Among the antiquities of Rome, there are ſeven famous Coloſſuſes: two of Jupiter, as many of Apollo, one of Nero, one of Domitian, and one of the Sun.

COLOSTRUM, the firſt milk of any animal after bringing forth young, called *beeſtings*. It is remarkable that this milk is generally cathartic, and purges the meconium; thus ſerving both as an aliment and medicine.

An emulſion prepared with turpentine diſſolved with the yolk of an egg, is ſometimes called by this name.

COLOSWAR, a large and celebrated town of Tranſylvania, where the ſenates have their meetings. It is ſeated on the river Samos, in E. Long. 22. 45. N. Lat. 46. 53.

COLOUR, in phyſics, a property inherent in light, by which, according to the various ſizes of its parts, or from ſome other cauſe, it excites different vibrations in the optic nerve; which propagated to the ſenſorium, affect the mind with different ſenſations. See CHROMATICS and OPTICS.

COLOUR, in painting, is applied both to the drugs, and to the tints produced by thoſe drugs variouſly mixed and applied.

The principal colours uſed by painters are red and white lead, or ceruſs; yellow and red ochres; ſeveral kinds of earth, umbre, orpiment, lamp-black, burnt ivory, black lead, cinnabar or vermillion, gamboge, lacca, blue and green aſhes, verdigris, biſtre, bice, ſmalt, carmine, ultramarine: each of which, with their uſes, &c. are to be found under their proper articles.

Of theſe colours ſome are uſed tempered with gum-water: ſome ground with oil; others only in freſco; and others for miniature.

Painters reduce all the colours they uſe under theſe two claſſes, of dark and light colours: dark colours are black, and all others that are obſcure and earthy, as umbre, biſtre, &c.

Under light colours are comprehended white, and all that approach neareſt to it.

Painters alſo diſtinguiſh colours into ſimple and mineral.

Under ſimple colours they rank all thoſe which are extracted from vegetables, and which will not bear the fire; as the yellow made of ſaffron, French berries, lacca, and other tinctures extracted from flowers uſed by limners, illuminers, &c.

The mineral colours are thoſe which being drawn from metals, &c. are able to bear the fire, and therefore uſed by enamellers. Changeable and permanent colours is another diviſion, which, by ſome, is made of colours.

Changeable colours are ſuch as depend on the ſituation of the objects with reſpect to the eye, as that of a pigeon's neck, taffeties, &c. firſt, however, being attentively viewed by the microſcope, each fibre of the feathers appears compoſed of ſeveral little ſquares, alternately red and green, ſo that they are fixed colours.

Water Colours, are ſuch as are uſed in painting with gum-water or ſize, without being mixed with oil.

Incapacity of diſtinguiſhing Colours. Of this extraordinary defect in viſion, we have the following inſtances in the Philoſophical Tranſactions for 1777. One of the perſons lived at Maryport in Cumberland. The account was communicated by Mr Huddart to Dr Prieſtley, and is as follows. "His name was Harris, by trade a ſhoe-maker. I had often heard from others, that he could diſcern the form and magnitude of all objects very diſtinctly, but could not diſtinguiſh colours. This report having excited my curioſity, I converſed with him frequently on the ſubject. The account he gave was this: That he had reaſon to believe other perſons ſaw ſomething in objects which he could not ſee; that their language ſeemed to mark qualities with preciſion and confidence which he could only gueſs at with heſitation, and frequently with error. His firſt ſuſpicion of this aroſe when he was about four years old. Having by accident found in the ſtreet a child's ſtocking, he carried it to a neighbouring houſe to inquire for the owner; he obſerved the people called it a *red* ſtocking, though he did not underſtand why they gave it that denomination, as he himſelf thought it completely deſcribed by being called a *ſtocking*. This circumſtance, however, remained in his memory; and, together with ſubſequent obſervations, led him to the knowledge of his defect.

"He alſo obſerved, that when young, other children could diſcern cherries on a tree, by ſome pretended difference of colour, though he could only diſtinguiſh them from the leaves by the difference of their ſize and ſhape. He obſerved alſo, that by means of this difference of colour they could ſee the cherries at a greater diſtance than he could, though he could ſee other objects at as great diſtance as they, that is, where the ſight was not aſſiſted by the colour. Large objects he could ſee as well as other perſons; and even the ſmaller ones if they were not enveloped in other things, as in the caſe of cherries among the leaves.

"I believe he could never do more than gueſs the name of any colour; yet he could diſtinguiſh white from black, or black from any light or bright colour. Dove or ſtraw colour he called *white*, and different colours he frequently called by the ſame name; yet he could diſcern a difference between them when placed together. In general, colours of an equal degree of brightneſs, however they might otherwiſe differ, he confounded together. Yet a ſtriped ribbon he could diſtinguiſh from a plain one; but he could not tell what the colours were with any tolerable exactneſs. Dark colours, in general, he often miſtook for black; but never imagined white to be a dark colour, nor dark to be a white colour.

"He was an intelligent man, and very deſirous of underſtanding the nature of light and colours; for which end he attended a courſe of lectures in natural philoſophy.

"He had two brothers in the ſame circumſtances as to ſight: and two other brothers and ſiſters, who, as well as their parents had nothing of this defect.

"One of the firſt mentioned brothers, who is now living, I met with at Dublin, and wiſhed to try his capacity to diſtinguiſh the colours in a priſm; but not having one by me, I aſked him, whether he had ever ſeen a rain-bow? he replied, He had often, and could diſtinguiſh the different colours; meaning only, that it was compoſed of different colours, for he could not tell what they were.

"I then procured, and ſhowed him a piece of ribbon: he immediately, and without any difficulty, pronounced it a ſtriped, and not a plain, ribbon. He then attempted to name the different ſtripes; the ſeveral ſtripes of white he uniformly and without heſitation called white: the four black ſtripes he was deceived in: for three of them he thought brown, though they were exactly of the ſame ſhade with the other which he properly called black. He ſpoke, however, with diffidence, as to all thoſe ſtripes; and it muſt be owned, that the black was not very diſtinct; the light green he called yellow; but he was not very poſitive: he ſaid, "I think this is what you call yellow." The middle ſtripe, which had a ſlight tinge of red, he called a ſort of blue. But he was moſt of all deceived by the orange colour: of this he ſpoke very confidently, ſaying, This is the colour of graſs, this is green." I alſo ſhowed him a great variety of ribbons, the colour of which he ſometimes named rightly, and ſometimes as differently as poſſible from the true colour.

"I aſked him whether he imagined it poſſible for all the various colours he ſaw to be mere difference of light and ſhade; and that all colours could be compoſed of theſe two mixtures only? With ſome heſitation he replied, No, he did imagine there was ſome other difference.

"It is proper to add, that the experiment of the ſtriped ribbon was made in the day-time and in a good light."

Colours for ſtaining different kinds of Stones. See Chemistry, nº 753.

Colour, in dyeing. See Dyeing.

Colour of *Plants*, is an attribute found to be very variable. Different colours are obſerved, not only in different individuals of the ſame ſpecies, but likewiſe in different parts of the ſame individual. Thus, marvel of Peru, and ſweet-William, have frequently petals of different colours on the ſame plant. Three or four different colours are frequently found upon the ſame leaf or flower; as on the leaves of the amaranthus, tricolor, and the flowers of the tulip, auricula, three-coloured violet, and others. To produce the moſt beautiful and ſtriking variety of colours in ſuch flowers, is the principal delight and buſineſs of the floriſt.

The primitive colours, and their intermediate ſhades or gradations enumerated by botaniſts, are as follow.

Water-colours, *hyalinus*.
WHITE.
Lead-colour, *cinereus*.
BLACK, *niger*.
Brown, *fuſcus*.
Pitch-Black, *ater*.
YELLOW, *luteus*.
Straw-colour, *flavus*.
Flame-colour, *fulvus*.
Iron-colour, *gilvus*.
RED.
Fleſh-colour, *incarnatus*.
Scarlet, *coccineus*.
PURPLE.
Violet-colour, *cæruleo-purpureus*.
BLUE, *cæruleus*.
GREEN.

Theſe colours ſeem to be appropriated to particular parts of the plant. Thus, white is moſt common in roots, ſweet berries, and the petals of ſpring flowers. Water-colour, in the filaments and ſtyles. Black, in the roots and ſeeds; rarely in the ſeed-veſſel, and ſcarce ever to be found in the petals. Yellow is frequently in the antheræ or tops of the ſtamina; as likewiſe in the petals of autumnal flowers, and the compound legulated flowers of Linnæus. Red is common in the petals of ſummer flowers, and in the acid fruits. Blue and violent colour, in the petals. Green in the leaves and calyx, but rarely in the petals. In the interchanging of colours, which in plants is found to depend upon differences in heat, climate, ſoil, and culture, a ſort of elective attraction is obſerved to take place. Thus, red is more eaſily changed into white and blue; blue into white and yellow; yellow into white; and white into purple. A red colour is often changed into white, in the flowers of heath, mother of thyme, betony, pink, viſcous campion, *cucubalus*, trefoil, orchis, fox-glove, thiſtle cudweed, ſaw-wort, roſe, poppy, fumitory, and geranium. Red paſſes into blue in pimpernel. Blue is changed into white in bell-flower, green-valerian, bindweed, columbine, violet, vetch, milk-wort, goat's rue, viper's bugloſs, comfrey, borrage, hyſſop, dragon's-head, ſcabious, blue bottle, and ſuccory. Blue is changed into yellow in crocus. Yellow paſſes eaſily into white in melilot, agrimony, mullein, tulip, *blattaria*, or moth-mullein, and corn marigold. White is changed into purple in wood-ſorrel, thorn-apple, peaſe, and daiſy.

Although plants are ſometimes obſerved to change their colour upon being moiſtened with coloured juices, yet that quality in vegetables ſeems not ſo much, owing to the nature of their nouriſhment, as to the action of the internal and external air, heat, light, and the primitive organiſation of the parts. In ſupport of this opinion, we may obſerve with Dr Grew, that there is a far leſs variety in the colours of roots than of the other parts of the plant; the pulp, within the ſkin, being uſually white, ſometimes yellow, rarely red. That this effect is produced by their ſmall intercourſe with the external air appears from this circumſtance, that the upper parts of roots, when they happen to ſtand naked above the ground, are often dyed with ſeveral colours: thus the tops of ſorrel roots turn red; thoſe of turnips, mullein, and radiſhes, purple; and many others green: whilſt thoſe parts of the ſame roots which lie more under ground are commonly white. The green colour is ſo proper to leaves, that many, as thoſe of ſage, the young ſprouts of St John's wort, and others which are reddiſh when in the bud, acquire a perfect green upon being fully expanded. In like manner, the leaves of the ſea-ſide grape, *polygonum*, which when young are entirely red, become as they advance in growth, perfectly green, except the middle and tranſverſe ribs, which retain their former colour.

As flowers gradually open and are expoſed to the air, they throw off their old colour, and acquire a new one. In fact, no flower has its proper colour till it is fully expanded. Thus the purple ſtock-julyflowers are white or pale in the bud. In like manner bachelor's buttons, blue-bottle, poppy, red daiſies, and many other flowers, though of divers colours when blown, are all white in the bud. Nay, many flowers change their colours thrice ſucceſſively; thus, the very young buds of lady's looking-glaſs, bugloſs, and the like, are all white; the larger buds purple, or murrey; and the open flowers blue.

With reſpect to the colours of the juices of plants, we may obſerve, that moſt reſinous gums are tinctured; ſome however, are limpid; that which drops from the domeſtic pine is clear as rock-water. The milk of ſome plants is pale, as in burdock; of others white, as in dandelion, euphorbium, and ſcorzonera; and of others yellow, as in lovage, and greater celandine. Moſt mucilages have little colour, taſte, or ſmell. Of all the colours above enumerated, green is the moſt common to plants, black the moſt rare.

Colour being a quality in plants ſo apt to change, ought never to be employed in diſtinguiſhing their ſpecies. Theſe ought to be characteriſed from circumſtances not liable to alteration by culture or other accidents. The ſame inconſtancy of colour obſerved in the flowers, is likewiſe to be found in the other parts of plants. Berries frequently change from green to red, and from red to white. Even in ripe fruits, the colour, whether white, red, or blue, is apt to vary;

particularly in apple, pear, plum, and cherry trees. Seeds are more conſtant in point of colour than the veſſel which contains them. In the ſeeds, however, of the poppy, oats, pea, bean, and kidney-bean, variations are frequently obſerved. The root, too, although not remarkably ſubject to change, is found to vary in ſome ſpecies of carrot and radiſh. Leaves frequently become ſpotted, as in a ſpecies of orchis, hawk-weed, ranunculus, knot-graſs, and lettuce; but ſeldom relinquiſh their green colour altogether. Thoſe of ſome ſpecies of amaranthus, or flower-gentle, are beautifully coloured. The ſpots that appear on the ſurface of the leaves are of different colours, liable to vary, and not ſeldom diſappear altogether. The leaves of officinal lung-wort, and ſome ſpecies of ſow-bread, ſorrel, trefoil, and ranunculus, are covered with white ſpots. Thoſe of dog's-tooth violet, with purple and white. Thoſe of ſeveral ſpecies of ranunculus, and orchis, with black and purple. Thoſe of amaranthus, tricolor, with green, red, and yellow. Thoſe of ranunculus acris, and a ſpecies of bog bean, with red or purple. The under ſurface of the leaves of ſome ſpecies of pimpernel and the ſea-plantain is marked with a number of dots or points; a white line runs through the leaves of Indian reed, black-berried heath, and a ſpecies of Canary graſs: and the margin or brim of the leaf, in ſome ſpecies of box, honey-ſuckle, ground-ivy, and the ever-green oak, is of a ſilver-white colour. The whole plant is often found to aſſume a colour that is unnatural or foreign to it. The varieties in ſome ſpecies of eryngo, mug-wort, orrach, amaranthus, purſlane, and lettuce, furniſh examples.

Such being the inconſtancy of colour in all the parts of the plant, ſpecific names derived from that quality are, very properly, by Linnæus, deemed erroneous; whether they reſpect the colour of the flower, fruit, ſeeds, root, leaves, or expreſs in general the beauty or deformity of the entire plant, with a particular view to that circumſtance. Of this impropriety committed by former botaniſts, Linnæus himſelf is not always guiltleſs. Thus the two ſpecies of *ſarracena*, or the ſide ſaddle flower, are diſtinguiſhed by the colour of their petals into the yellow and purple ſarracena; although the ſhapes and figure of the leaves afforded much more conſtant as well as ſtriking characters. The ſame may be ſaid of his lupinus albus and luteus; reſeda alba, glauca, and lutea: angelica atro-purpurea; dictamnus albus; lamium album; ſelago coccinea: ſida alba; paſſiflora rubra, lutea, incarnata, and cœrulea; and of many others, in which the ſpecific name is derived from a character or quality that is ſo liable to vary in the ſame ſpecies.

We ſhall conclude this article with obſerving, that of all ſenſible qualities, colour is the leaſt uſeful in indicating the virtues and powers of vegetables. The following general poſitions on this ſubject are laid down by Linnæus, and ſeem ſufficiently confirmed by experiment. A yellow colour generally indicates a bitter taſte; as in gentian, aloe, celandine, turmeric, and other yellow flowers. Red indicates an acid or ſour taſte; as in cranberries, barberries, currants, raſpberries, mulberries, cherries; the fruit of the roſe, ſea-buckthorn, and ſervice tree. Herbs that turn red towards autumn, have likewiſe a ſour taſte; as ſorrel, wood-ſorrel, and bloody dock. Green indicates a crude alkaline taſte, as in leaves and unripe fruits. A pale colour denotes an inſipid taſte, as in endive, aſparagus, and lettuce. White promiſes a ſweet luſcious taſte; as in white currants and plums, ſweet apples, &c. Laſtly, black indicates a harſh, nauſeous, diſagreeable taſte; as in the berries of deadly nightſhade, myrtle-leaved ſumach, herb-chriſtopher, and others; many of which are not only unpleaſant to the taſte, but pernicious and deadly in their effects.

To be aſcertained of the acid or alkaline property of any plant, expreſs ſome of the juice, and rub it upon a piece of blue paper; which, if the plant in queſtion is of an acid nature, will turn red; if of an alkaline, green. For the methods of extracting colours from the different parts of plants, ſee the article *Colour-Making*.

Colour of the Human Species, Difference of. See Complexion.

Colour, in heraldry. The colours generally uſed in heraldry are, red, blue, black, green, and purple; which the heralds call *gules, azure, ſable, vert* or *ſinople*, and *purpure*; tenne, or tawny, and ſanguine, are not ſo common: as to yellow and white, called *or* and *argent*, they are metals, not colours.

The metals and colours are ſometimes expreſſed in blazon by the names of precious ſtones, and ſometimes by thoſe of planets or ſtars. See Blazoning.

Œnomaus is ſaid firſt to have invented the diſtinction of colours, to diſtinguiſh the gundillæ of combatants of the Circenſian games; the green for thoſe who repreſented the earth, and blue for thoſe who repreſented the ſea.

Colours, in the military art, include the banners, flags, enſigns, &c. of all kinds, borne in the army or fleet. See Flag and Standard.

Colours, in the Latin and Greek churches, are uſed to diſtinguiſh ſeveral myſteries and feaſts celebrated therein.

Five colours only are regularly admitted into the Latin church: theſe are white, green, red, violet, and black. The white is for the myſteries of our Saviour, the feaſt of the Virgin, thoſe of the angels, ſaints, and confeſſors; the red is for the myſteries and ſolemnities of the holy ſacrament, the feaſts of the apoſtles and martyrs; the green for the time between pentecoſt and advent, and from epiphany to ſeptuageſima; the violet in advent and Chriſtmas, in vigils, rogations, &c. and in votive maſſes in time of war; laſtly, the black is for the dead, and the ceremonies thereto belonging.

In the Greek church, the uſe of colours is almoſt aboliſhed, as well as among us. Red was, in the Greek church, the colour for Chriſtmas and the dead, as black among us.

To Colour Stranger's Goods, is when a freeman allows a foreigner to enter goods at the cuſtom-houſe in his name.

Colour-Making, the art of preparing the different kinds of colours uſed in painting.

This art properly belongs to chemiſtry; and is one of the moſt curious, though leaſt underſtood, parts of it. The principles on which colour-making depends are entirely different from thoſe on which the theory of other parts of chemiſtry is founded; and the practical part being in the hands of thoſe who find it their intereſt to conceal their methods as much as poſſible, it thence happens, that there is not only no diſtinct theory of this art, but ſcarce a ſingle good receipt for making any one colour hath ever appeared.

1
Diviſion of colours into opaque and tranſparent.

The firſt general diviſion of colours is into opaque and tranſparent. By the firſt are meant ſuch colours as, when laid over paper, wood, &c. cover them fully ſo as to efface any other painting or ſtain that might have been there before; the others are of ſuch a nature as to leave the ground on which they are laid viſible through them. Of the firſt kind are white-lead, red-lead, vermilion, &c.; of the latter kind are the colours uſed for illuminating maps, &c.

2
Oil and water colours.

Another diviſion is into oil-colours and water-colours; by which is meant, ſuch as are appropriated to painting in oil and in water. Moſt of thoſe which are proper for painting in water, are alſo proper for being uſed in oil. There is, however, this remarkable difference betwixt colours when mixed with water and with oil, that ſuch as are quite opaque in water will become perfectly tranſparent in oil. Thus, blue verditer, though exceedingly opaque in water, if ground with oil, ſeems totally to diſſolve, and will become very tranſparent. The ſame thing happens to ſuch colours as have for their baſis the calx of tin, alabaſter, or calcareous earth. The moſt perfectly opaque colours in oil are ſuch as have lead, mercury, or iron, for their baſis: to the latter, however, Pruſſian blue is an exception; for though the baſis of that colour is iron, it proves quite tranſparent when ground with oil. In water-colours, thoſe prepared from metals, Pruſſian blue alone excepted, are always opaque; from vegetables or animals, tranſparent. Coals, however, whether vegetable or animal, are opaque both in water and oil.

3
Simple and compound ones.

Colours again, may be conſidered as either ſimple or compound. The ſimple ones are ſuch as require nothing to be ſuperadded to them, in order to make a full ſtrong colour, without regarding whether they are formed of many or few ingredients; and in this view, white-lead, red-lead, vermilion, calces of iron, &c. are ſimple colours. The compound ones are formed by the union of two or more colouring ſubſtances; as blue and yellow united together to form a green, red and yellow to form an orange, a white earth or calx with the red colour of cochineal or brazil to form a lake, &c.; and thus carmine, lake, roſe-pink, Dutch-pink, Engliſh-pink, &c. are compound colours.

4
True and falſe colours.

The laſt and moſt important diviſion of colours is into true and falſe. By the former are meant thoſe which retain their colour under every poſſible variety of circumſtances, without fading in the leaſt: the others are ſuch as do not; but either loſe their colour altogether, or change to ſome other. What is chiefly apt to affect colours, is their being expoſed to the ſun in ſummer, and to the cold air in winter: but to this there is one exception, *viz.* white-lead; which, when ground with oil, retains its whiteneſs if expoſed to the weather, but degenerates into a browniſh or yellowiſh colour if cloſe kept. In water this ſubſtance is very apt to loſe its colour, whether expoſed to the air or not. The great deſideratum in colour-making is to produce the firſt kind of colours, *viz.* ſuch as will not fade by expoſure to the weather; and indeed it is to be regretted, that the moſt beautiful are in general the leaſt permanent. It may, for the moſt part, however, be expected, that the more ſimple any colour is, the leſs liable will it be to change upon expoſure to the air.

The great difficulty of knowing *à priori* whether a colour will fade or not, is owing to our ignorance concerning the nature of colouring ſubſtances. With all our diſadvantages, however, we may obſerve, that whatever change of colour is produced in any ſubſtance by expoſure to the ſun and air, that colour to which it changes will bid fair for being permanent, and therefore ought to be employed where it can be done.

5
Inſtances of colours produced by expoſure to the ſun and air.

Of theſe changes the inſtances are but very rare. One is in the purple of the ancients, which aſſumed its colour by expoſure to the ſun, and conſequently was exceedingly permanent. Another is in the ſolution of ſilver; which, being mixed with chalk, the precipitate turns to purpliſh black where it is expoſed to the ſun. A third is in ſolutions of indigo by alkaline ſubſtances, which conſtantly appear green till expoſed to the air by ſpreading them very thin, upon which they become almoſt inſtantaneouſly blue, and continue ſo ever after.

6
By the mixture of two vegetable juices.

Sometimes, though ſtill more rarely, a very remarkable change of colour happens, upon mixing two vegetable juices together. Almoſt the only inſtance of this we have on the authority of Mr George Forſter, who informs us, that the inhabitants of Otaheite dye their cloth of a crimſon colour, by mixing together the yellow juice of a ſmall ſpecies of fig with the greeniſh juice of a kind of fern. But the moſt remarkable alterations of colour are effected by different metallic and ſaline ſolutions mixed with certain animal or vegetable ſubſtances; and with theſe the colour-maker will be principally converſant.

7
Effects of acids and alkalies on colours.

It is a common obſervation in chemiſtry, that acids mixed with blue vegetable juices turn them red, and alkalies green. It is equally certain, though not ſo generally known, that acids of all kinds generally tend to heighten red colours, ſo as to make them approach to the ſcarlet or true crimſon; and alkalies to darken, or make them approach to blue or purple. Mixed with yellow colours, acids alſo univerſally tend to brighten the yellow; and alkalies to turn it to an orange, and make it become more dull. But though this is very generally the caſe, we are not to expect that all acids are equally powerful in this reſpect. The nitrous acid is found to heighten the moſt of any, and the marine acid the leaſt of the mineral ones. The vegetable, as might be expected, are leſs powerful than the mineral acids. Thus, if with a tincture of cochineal, either in water or ſpirit of wine, is mixed the pure nitrous acid, it will change the colour to an exceeding high orange or flame colour, which it will impart to cloth. If the vitriolic acid is uſed, a full ſcarlet, inclining to crimſon rather than orange, is produced. With marine acid a true crimſon colour, bordering on purple, is the conſequence. Alkalies, both fixed and volatile, change the colour to a purple, which is brighter with the volatile than the fixed alkalies.

8
Permanency of colours, by what determined.

Here it is obvious, that whatever colours are produced by the mixtures of different ſubſtances together, the permanency of theſe colours can only be in proportion to the ability of ſuch mixtures to reſiſt the weather. Thus, ſuppoſe a high ſcarlet or orange colour is produced by means of ſpirit of nitre, it is plain that, was ſuch a colour expoſed to the air, it could remain no longer than the ſpirit of nitre which produced it remained. In proportion, therefore, as the ſpirit of nitre was exhaled into the air, or otherwiſe deſtroyed, it behoved the colour to fade, and at laſt to be totally deſtroyed; and thus, in proportion to the deſtructibility of the ſubſtances by which colours are produced, will be the diſpoſition of ſuch colours to fade, or the contrary. In this reſpect alkalies are much more deſtructible than acids, and conſequently leſs proper for the preparation of colours. With regard to acids, the nitrous ſeems moſt deſtructible, the vitriolic leſs ſo, and the marine the leaſt of all. From the extreme fixity of the phoſphorine acid and ſedative ſalt, perhaps they might be of ſervice in preſerving colours.

9
Opaque or tranſparent colours, how formed.

As all colours, whether derived from the animal or vegetable kingdom, muſt be extracted either by pure water or ſome other liquid menſtruum, they cannot be uſed for the purpoſes of painting till the colouring ſubſtance is united with ſome earthy or ſolid matter, capable of giving it a *body*, as the workmen call it; and according to the nature of this ſubſtance, the colour will be tranſparent or otherwiſe. This baſis ought to be of the moſt fixed and durable nature; unalterable by the weather, by acids, or by alkalies. It ought alſo to be of a pure white colour, and eaſily reducible into an impalpable powder. For this reaſon all earthy ſubſtances ſhould be avoided as being acted upon by acids; and therefore, if any of theſe were added to heighten the colour, they would not fail to be deſtroyed, and their effect totally loſt. Precipitates of lead, biſmuth, &c. though exceedingly fine and white, ought alſo to be avoided, as being apt to turn black by expoſure.

10
Calx of tin, the moſt proper baſis for fine colours.

The only ſubſtance to be choſen in preference to all others, is calx of tin, prepared either by fire or the nitrous acid. This is ſo exceedingly refractory as not only to be unalterable by alkalies, acids, or the ſun and weather, but even by the focus of a very large burning mirror. It is beſides white as ſnow, and capable of being reduced to an extreme degree of fineneſs, inſomuch that it is made uſe of for poliſhing metalline ſpeculums. For theſe reaſons, it is the moſt proper baſis for all fine colours.

11
Precipitate of lead moſt proper for coarſe ones.

For coarſe ones, the white precipitate of lead, mentioned under the article CHEMISTRY, n° 703, will anſwer very well. It hath a very ſtrong body, *i. e.* is very opaque, and will cover well; may be eaſily ground fine, and is much leſs apt to turn black than white lead; it is beſides very cheap, and may be prepared at the ſmall expence of 3d. *per* pound.

12
General method of preparing colours.

If what we have juſt now obſerved is attended to, the general method of extracting colours from any vegetable or animal ſubſtance, and fixing them on a proper baſis, muſt be very eaſily underſtood. For this purpoſe, a quantity of calx of tin is to be procured in proportion to the quantity of colour deſired. This muſt be well rubbed in a glaſs mortar, with a little of the ſubſtance deſigned for brightening the colour, as alum, cream of tartar, ſpirit of nitre, &c. after which it muſt be dried, and left for ſome time, that the union between the two ſubſtances may be as perfect as poſſible. If the colour is to be a very fine one, ſuppoſe from cochineal, the colouring matter muſt be extracted with ſpirit of wine without heat. When the ſpirit is ſufficiently impregnated, it is to be poured by little and little upon the calx, rubbing it conſtantly, in order to diſtribute the colour equally through all parts of the calx. The ſpirit ſoon evaporates, and leaves the calx coloured with the cochineal. More of the tincture is then to be poured on, rubbing the mixture conſtantly as before; and thus, with proper management, may very beautiful colours, not inferior to the beſt carmine, be prepared at a moderate expence. If, inſtead of cochineal, we ſubſtitute brazil-wood, turmeric, logwood, &c. different kinds of red, yellow, and purple, will be produced. For the coarſer colours, aqueous decoctions are to be uſed in a ſimilar manner; only as theſe are much longer of evaporating than the ſpirit of wine, very little muſt be poured on at a time, and the colours ought to be made in large quantity, on account of the tedioaſneſs of the proceſs.

13
Effects of different kinds of ſalts.

Hitherto we have conſidered only the effects of the pure and ſimple ſalts, *viz.* acids and alkalies, on different colours; but by combining the acids with alkalies, earths, or metals, theſe effects may be varied almoſt *ad infinitum;* neither is there any rule yet laid down by which we can judge *à priori* of the changes of colour that will happen on the admixture of this or that particular ſalt with any colouring ſubſtance. In general, the perfect neutrals act weakly; the imperfect ones, eſpecially thoſe formed from metals, much more powerfully. Alum and ſal ammoniac conſiderably heighten the colour of cochineal, brazil, turmeric, fuſtic, madder, logwood, &c. The ſame thing is done, though in a leſs degree, by common ſalt, Glauber's ſalt, ſaltpetre, and many other neutrals. Solutions of iron in all the acids ſtrike a black with every one of the abovementioned ſubſtances; and likewiſe with ſumach, galls, and other aſtringents. Solutions of lead, or ſaccharum ſaturni, univerſally debaſe red colours to a dull purple. Solution of copper changes the purple colour of logwood to a pretty good blue; and, in general, ſolutions of this metal are friendly to blue colours. The effects of ſolutions of gold, ſilver, and mercury, are not ſo well known; they ſeem to produce dark colours of no great beauty.

14
Solution of tin the moſt powerful.

The moſt powerful ſolution, however, with regard to a great number of colours, is that of tin, made in aqua-regia. Hence we may ſee the fallacy of Mr Delaval's hypotheſis concerning colours*, that the leaſt refrangible ones are produced by the moſt denſe metals: for tin, which hath the leaſt denſity of any metal, hath yet, in a ſtate of ſolution, the moſt extraordinary effects upon the leaſt refrangible colours as well as thoſe that are moſt ſo. The colour of cochineal is changed by it into the moſt beautiful ſcarlet; a ſimilar change is made upon the colouring matter of gum-lac. Brazil-wood is made to yield a fine purpliſh crimſon; logwood, a beautiful dark purple; turmeric, fuſtic, weld, and all yellow-colouring woods and flowers, are made to communicate colours far more beautiful than can be got from them by any other method. The blue colour of the flowers of violets, eye-bright, iris, &c. are heightened ſo as to equal, if not excel, the blue produced by a ſolution of copper in volatile alkali. In ſhort, this ſolution ſeems to be of much more extenſive uſe in colour-making,

* See *Chromatics*, n° 8.

when properly applied, than any thing hitherto thought of. It is not, however, univerſally ſerviceable. The colour of madder it totally deſtoys, and likewiſe that of ſaf-flower, changing them both to a dull orange. It likewiſe ſpoils the colour of archill; and what is very remarkable, the fine red colour of tincture of roſes made with oil of vitriol, is by ſolution of tin changed to a dirty green.

15
Directions for the choice of colouring materials.

The moſt important conſideration in colour making is to make choice of ſuch materials as produce the moſt durable colours; and if theſe can be procured, an ordinary colour from them is to be preferred to a bright one from thoſe which fade ſooner. In what the difference conſiſts between the colours that fade and thoſe which do not, is not known with any degree of certainty. From ſome appearances it would ſeem, that thoſe ſubſtances which are moſt remarkable for keeping their colour, contain a viſcous glutinous matter, ſo combined with a reſinous one as to be ſoluble both in water and ſpirit of wine. The moſt durable red colour is prepared from gum-lac. This is very ſtrongly reſinous, though at the ſame time ſo far glutinous, that the colouring-matter can be extracted from it by water. Next to gum-lac are madder roots and cochineal. The madder is an exceedingly penetrating ſubſtance, inſomuch that, when given to animals along with their food, it tinges their bones of a deep red colour. Its colouring-matter is ſoluble both in water and ſpirit of wine. Along with the pure red, however, there is in madder a kind of viſcous aſtringent ſubſtance, of a dark brown colour, which ſeems to give the durability to the whole. The colouring-matter of cochineal, though ſoluble both in water and ſpirit of wine, is very tenacious and mucilaginous, in which it bears ſome reſemblauce to the *purpura* of the ancients, which kept its colour exceedingly well. When the colours are fugitive, the tinging ſubſtance ſeems to be too reſinous or too mucilaginous. Thus the colours of brazil, turmeric, &c. are very reſinous, eſpecially the latter; inſomuch that the colouring-matter of turmeric can ſcarcely be extracted by water. Both theſe are periſhable, though beautiful colours; and much more are the red, purple, and blue flowers, commonly to be met with. Theſe ſeem to be entirely mucilaginous without the leaſt quantity of reſinous matter. The yellow flowers are different, and in general keep their colour pretty well. Whether it would be poſſible, by adding occaſionally a proper quantity of gum or reſin, to make the fugitive colours more durable, hath not yet been tried, but ſeems to have ſome probability. What tends a little to confirm this, is a proceſs given by Mr Hellot for imparting durability to the colour of brazil. It conſiſts only in letting decoctions of the wood ſtand for ſome time in wooden caſks till they grow ſtale and *ropy*. Pieces of woollen cloth now dyed in the liquor acquired a colour ſo durable, that they were not in the leaſt altered by expoſure to the air during four months in the winter ſeaſon. Whether this change in the durability of the colour was effected by the ropineſs following the fermentation, or by ſome other cauſe, or whether the experiment can be at all depended upon, muſt be referred to future obſervation.

16
Mr Hellot's method of improving the durability of brazil-wood.

17
Preparation of different colours.

Having thus collected all that can as yet be depended upon for eſtabliſhing a general theory of colour-making, we ſhall now proceed to give an account of the different pigments generally to be met with in the colour-ſhops.

18
Lamp-black.

1. *Black.* Theſe are lamp-black, ivory-black, blue-black, and Indian-ink. The firſt is the fineſt of what are called the ſoot-blacks, and is more uſed than any other. Its preparation is deſcribed in the Swediſh Tranſactions for the year 1754, as a proceſs dependent on the making of common reſin: the impure reſinous juice collected from inciſions made in pine and fir trees, is boiled down with a little water, and ſtrained whilſt hot through a bag: the dregs and pieces of bark left in the ſtrainer are burnt in a low oven, from which the ſmoke is conveyed through a long paſſage into a ſquare chamber, having an opening on the top on which is a large ſack made of thin woollen ſtuff: the ſoot, or lamp-black, concretes partly in the chamber, from whence it is ſwept out once in two or three days, and partly in the ſack, which is now and then gently ſtruck upon, both for ſhaking down the ſoot, and for clearing the interſtices betwixt the threads, ſo as to procure a ſufficient draught of air through it. In this manner lamp-black is prepared at the turpentine houſes in England, from the dregs and refuſe of the reſinous matters which are there manufactured.

19
Dr Lewis's obſervations.

On this ſubject Dr Lewis hath ſome curious obſervations. “The ſoot (ſays he) ariſing in common chimneys, from the more oily or reſinous woods, as the fir and pine, is obſerved to contain more diſſoluble matter than that from the other woods: and this diſſoluble matter appears, in the former, to be more of an oily or reſinous nature than in the latter; ſpirit of wine extracting it moſt powerfully from the one, and water from the other. The oilineſs and ſolubility of the ſoot ſeeming therefore to depend on thoſe of the ſubject it is made from, it has been thought that lamp-black muſt poſſeſs theſe qualities in a greater degree than any kind of common ſoot. Nevertheleſs, on examining ſeveral parcels of lamp-black, procured from different ſhops, I could not find that it gave any tincture at all, either to ſpirit or to water.

“Suſpecting ſome miſtake or ſophiſtication, or that the lamp-black had been burnt or charred, as it is to fit it for ſome particular uſes, I prepared myſelf ſome ſoot from linſeed oil, by hanging a large copper pan over the flame of a lamp to receive its ſmoke. In this manner the more curious artiſts prepare lamp-black for the nicer purpoſes; and from this collection of it from the flame of a lamp, the pigment probably received its name. The ſoot ſo prepared gave no tincture either to water or to ſpirits, any more than the common lamp-black of the ſhops. I tried different kinds of oily and reſinous bodies with the ſame event; even the ſoots obtained from fiſh-oils and tallow did not appear to differ from thoſe of the vegetable oils and reſins. They were all of a finer colour than the lamp-black commonly ſold.

“Some ſoot was collected in like manner from fir and other woods, by burning ſmall pieces of them ſlowly under a copper-pan. All the ſoots were of a deeper black colour than thoſe obtained from the ſame kinds of woods in a common chimney; and very little, if at all, inferior to thoſe of the oils: they gave only

a

Colour-making. a juſt diſcernible tincture to water and ſpirit, while the ſoots of the chimney imparted a ſtrong deep one to both. The ſoot of mineral bitumens, in this cloſe way of burning, appears to be of the ſame qualities with thoſe of woods, oils, and reſins: in ſome parts of Germany, great quantities of good lamp-black are prepared from a kind of pit-coal.

"It appears, therefore, that the differences of ſoots do not depend altogether on the qualities of the ſubjects, but in a great meaſure on the manner in which the ſubject is burnt, or the ſoot caught. The ſoots produced in common chimneys, from different kinds of wood, reſinous and not reſinous, dry and green, do not differ near ſo much from one another, as thoſe which are produced from one kind of wood in a common chimney, and in the confined way of burning abovementioned."

20 Ivory-black. Ivory-black is prepared from ivory or bones burnt in a cloſe veſſel. This, when finely ground, forms a more beautiful and deeper colour than lamp-black; but in the common methods of manufacturing, it is ſo much adulterated with charcoal duſt, and ſo groſsly levigated, as to be unfit for uſe. An opaque deep black for water-colours, is made by grinding ivory-black with gum-water, or with the liquor which ſettles from the white of eggs after they have been ſuffered to ſtand a little. Some uſe gum-water and the whites of eggs together, and report, that a ſmall addition of the latter makes the mixture flow more freely from the pencil, and improves its gloſſineſs. It may be obſerved, however, that though ivory-black makes the deepeſt colour in water as well as in oil-painting, yet it is not on this account always to be preferred to other black pigments. A deep jet-black colour is ſeldom wanted in painting; and in the lighter ſhades, whether obtained by diluting the black with white bodies, or by applying it thin on a white ground, the particular beauty of the ivory-black is in a great meaſure loſt.

21 Blue-black. Blue-black is ſaid to be prepared from the burnt ſtalks and tendrils of the vine. Theſe, however, the colour-makers ſeldom give themſelves the trouble of procuring, but ſubſtitute in its place a mixture of ivory-black and the common blue uſed for clothes.

22 Indian-ink. Indian-ink is an excellent black for water-colours. It hath been diſcovered by Dr Lewis to conſiſt of a mixture of lamp-black and common glue. Ivory-black, or charcoal, he found to anſwer equally well, provided they were levigated to a ſufficient degree of fineneſs, which indeed requires no ſmall trouble.

23 White colours. 2. *White*. The white colours commonly to be met with are, white-flake, white lead, calcined hartſhorn, pearl-white, Spaniſh-white, egg-ſhell white, and magiſtery of biſmuth. The flake-white and white-lead are properly the ſame. The preparation of the former is kept a ſecret; the method of preparing the latter is deſcribed under CHEMISTRY, nº 875. Theſe are the only whites that can be uſed in oil, all the reſt being tranſparent unleſs they are laid on with water. Calcined hartſhorn is the moſt uſeful of the earthy whites, as being the leaſt alkaline. Spaniſh-white is only finely prepared chalk. Pearl-white is made from oyſter-ſhells; and egg-ſhell white from the ſhells of eggs. All theſe, by their attractions for acids, muſt neceſſarily deſtroy ſuch colours as have any acid or metallic ſalt in their compoſition. The magiſtery of biſmuth is apt to turn black, as are alſo flake-white and white-lead, when uſed in water. The white precipitate of lead recommended under CHEMISTRY, nº 703, is greatly ſuperior as a water-colour to all theſe; being perfectly free of any alkaline quality, and not at all apt to loſe its own colour, or to injure that of other ſubſtances.

24 Red colours. 3. *Red*. The red colours uſed in painting are of two ſorts; *viz.* thoſe which incline to the purple, and ſuch as are of a full ſcarlet and tend rather to the orange. The firſt are carmine, lake, roſe-pink, red-ochre, and Venetian-red. The ſecond are vermilion, red-lead, ſcarlet-ochre, common Indian-red, Spaniſh-brown, and terra di Sienna, burnt.

We have already (nº 12.) laid down ſome general rules for the preparation of carmine and lake. Particular receipts have been delivered with the greateſt confidence for making theſe fine colours; but all of them muſt neceſſarily prove ineffectual, becauſe an earthy baſis is recommended for ſtriking the colour upon: from the principles of chemiſtry, however, we are certain, that if aquafortis, or ſolution of tin, is made uſe of for brightening a colour made with any earthy baſis, it muſt infallibly be deſtroyed by that baſis, by reaſon of its alkaline quality. Carmine is the brighteſt and moſt beautiful red colour known at preſent; the beſt comes from France. Lake differs from it in being capable of mixture with oil; which carmine is not, unleſs with great difficulty. The former is alſo much more inclined to purple than carmine. This laſt quality, however, is reckoned a defect; and accordingly, the more that lake approaches to the ſcarlet or true crimſon, the more it is valued. On dropping ſolution of tin into an aqueous tincture of brazil-wood, a beautiful precipitate falls, of a purpliſh crimſon colour. This may be very well ſubſtituted in place of the dearer lakes on many occaſions.

Roſe-pink is a very beautiful colour, inclining more to the purple than ſcarlet. It ſeems to be made of chalk, coloured with a decoction of brazil-wood, heightened by an alkaline ſalt; for which reaſon it is exceedingly periſhable, and but little eſteemed. The colour might be made much more durable as well as better, by employing for a baſis the white precipitate of lead abovementioned, and brightening it with ſolution of tin.

Red ochre and Venetian red differ in nothing from the colcothar of vitriol well calcined. The calces of iron may be made to appear either purpliſh, or inclining to the ſcarlet, according to the manner in which the calcination is performed. If the matter is perfectly deprived of its phlogiſton, and ſubjected to an intenſe fire, it always turns out red: but the mixture of a ſmall quantity of inflammable matter gives it a purpliſh caſt. Hence various paints are kept in the ſhops under different names, which yet differ from each other only in the ſlight circumſtance abovementioned: and ſuch are the ſcarlet ochre, Spaniſh-brown, and terra di Sienna, burnt. It is remarkable, that the calces of iron never ſhow their colour till they become cold. Colcothar of vitriol, while hot, always appears of a very dark duſky purple.

Of the preparation of vermilion and red lead, an account is given under the article CHEMISTRY, nº 1213, 1404. Theſe are very durable colours; the firſt is the beſt red uſed in oil painting, but does not anſwer well in water; the other is rather an orange; and, like other preparations of lead, is in ſome caſes apt to turn black.

25 Orange colours.

4. *Orange.* The only true orange-coloured paints are red orpiment and orange lake. The firſt is a ſublimate formed of arſenic and ſulphur: the other may be prepared from turmeric infuſed in ſpirit of wine, having its colour ſtruck upon calx of tin, and brightened by a ſolution of that metal. All the ſhades of orange, however, may be extemporaneouſly prepared by mixing red and yellow colours together, in due proportions.

26 Yellow colours.

5. *Yellow.* The yellow paints moſt commonly in uſe are, king's-yellow, Naples-yellow, Dutch-pink, Engliſh-pink, maſticot, common orpiment, yellow-ochre, terra di Sienna unburnt, and turbith-mineral.

King's yellow is evidently an arſenical preparation. Its colour is exceedingly beautiful, but apt to fade; on which account, and its great price, it is ſeldom uſed.

Naples-yellow was for a long time thought to be a preparation of arſenic, but is now diſcovered to have lead for its baſis. It is therefore apt to turn black and loſe its colour, which makes it the leſs valuable. It is neverthelеſs uſed in preference to king's-yellow, on account of its inferiority in price. This colour is particularly liable to be ſpoiled by iron when moiſt, and therefore ſhould never be touched by that metal unleſs previouſly ground in oil.

Dutch-pink is ſaid to be prepared by ſtriking the colour of yellow berries upon finely levigated chalk. But of this there is great reaſon to doubt; the baſis of Dutch-pink ſeems much more hard and gritty than chalk, and its colour more durable than thoſe ſtruck upon that earth uſually are. Very good yellows may be prepared with the white precipitate of lead, formerly mentioned, by uſing either yellow berries, fuſtic, or any other ſubſtance capable of yielding that colour. Engliſh-pink is paler than the Dutch, and keeps its colour greatly worſe.

Maſticot is prepared by calcining white-lead till it aſſumes a yellowiſh colour. It is not apt to change, but the colour is ſo dull that it is ſeldom uſed either in oil or water.

Common orpiment is a pretty bright greeniſh-yellow, prepared by ſubliming arſenic with ſulphur. Its nauſeous ſmell, which is greatly increaſed by grinding in oil, makes it very diſagreeable; nor does it keep its colour for any length of time. That kind of orpiment leaſt inclined to green is to be preferred for the purpoſes of painting.

Yellow-ochre and terra di Sienna, are ferruginous earths, capable of becoming red by calcination. Green vitriol precipitated by lime may be advantageouſly ſubſtituted to either of them. See Chemistry, n° 699.

Turbith-mineral is but little uſed in painting, though its fine yellow colour ſeems greatly to recommend it. This preparation is in all probability very durable; and ſhould ſeem therefore worthy of a preference either to king's or Naples yellow. The method of preparing it is deſcribed under Chemistry, n° 705.

Gamboge is a paint that can only be uſed in water, and is the moſt common yellow made uſe of for colouring maps, &c. but for this it is not very proper, being neither quite tranſparent, nor very durable.

27 Green colours.

6. *Green.* The only ſimple green colour that hath a tolerable degree of brightneſs is verdigris, or preparations of it. This, however, though a very beautiful colour, is far from being durable. It is improved in colour, though not in durability, by diſſolution and cryſtallization in diſtilled vinegar; in which ſtate it is called *diſtilled verdigris.* A more durable water-colour is made by diſſolving the verdigris in cream of tartar, or rather the pure tartarous acid, but in oil this is found to be equally fugitive with the verdigris itſelf. For an account of theſe preparations, ſee Chemistry, n° 894.

Compound greens are either made of Pruſſian or ſome other blue, mixed with yellow; but in whatever way theſe colours can be compounded, the beauty of the green produced is greatly inferior to diſtilled, or even common, verdigris. The tartarous ſolution of verdigris, mixed with a little gamboge, is the beſt tranſparent green water-colour we have had an opportunity of trying; and a mixture of Pruſſian-blue and turbith-mineral is probably the beſt opaque one.

Sap-green is a ſimple colour, but exceedingly inferior to diſtilled verdigris, or even to the tartarous ſolution of verdigris with gamboge. It is prepared from the juice of unripe buckthorn berries evaporated to the conſiſtence of a gum. Its green colour is greatly inclined to yellow. A kind of compound green has been ſometimes uſed, called *Pruſſian-green,* which conſiſts only of Pruſſian blue and yellow-ochre. It has no beauty, nor is it durable. It is prepared as Pruſſian-blue, only not pouring on any ſpirit of ſalt to diſſolve the ochreous ſediment which falls at the ſame time.

Another green ſometimes uſed is called *terra verte.* This is a native earth, probably impregnated with copper. It is of a bluiſh green colour, much of that taint called *ſea-green.* It is gritty, and therefore muſt be well levigated before it is uſed. Its colour is durable, but not very bright.

28 Blue colours.

7. *Blue.* The blue colours are ultramarine, Pruſſian-blue, verditer, ſmalt, bice, and indigo. Of theſe the ultramarine is the fineſt, but its great price hinders its being much uſed. It is a preparation from lapis lazuli; is an exceeding bright colour, and never fades with whatever ſubſtance it is mixed. It is now, however, in a great meaſure ſupreſeded by Pruſſian blue, to the diſadvantage of painting in general; as Pruſſian blue, though very beautiful, is far from being durable. For an account of its preparations ſee the article Ultramarine.

The proceſs for making Pruſſian blue is deſcribed, and its nature fully conſidered, under Chemistry, n° 1163: ſo that it is ſufficient here to obſerve, that Pruſſian blue is to be accounted of the beſt quality when it is deep, bright, and not inclined to purple. It ought to be tried by mixture with white lead, as the brightneſs of the colour will appear much more when diluted than when concentrated in the lumps of the blue itſelf.

The preparation of blue verdites is kept a ſecret, and the beſt chemiſts have been puzzled to find out the method. The colour is exceedingly bright, and has a conſiderable tinge of green. A method of preparing a colour equally beautiful, and agreeing in all reſpects with what is ſold in the ſhops, except that of effervеſcing with acids, we have found to be as follows: Diſſolve copper in ſtrong cauſtic alkali, until the liquid has aſſumed a very deep blue colour; and the deeper this colour is, the finer will your verditer be. When the menſtruum has diſſolved as much of the metal as it can take up, it is to be poured out into a broad and well glazed earthen pan, held over a very gentle fire; and from the moment it is put on the liquor is to be continually agitated with a wooden ſpatula, ſo that the liquor may be heated as equally as poſſible. The whole ſecret conſiſts in properly regulating the degree of heat; for if it exceeds the due proportion ever ſo little, the verditer will turn out of a dirty green. The proper degree is about 90° of Fahrenheit's thermometer. In this gentle heat the alkali ſlowly evaporates; and in proportion to its doing ſo the verditer falls to the bottom. After it is once formed, freed from the alkaline liquor, and dried, it can bear the affuſion of boiling water without the leaſt injury. Dr Prieſtley, in his ſixth volume, takes notice, that ſolution of copper in volatile alkali affords a blue precipitate by heat, but without taking notice of the requiſites for its ſucceſs. In making this preparation, it is neceſſary to diſſolve copper in its metallic ſtate; for the ſolution of any calx will not yield a blue but a green colour. This colour is durable in water, but diſſolves in oil, and has then all the inconveniences of verdigris above-mentioned.

Smalt is glaſs-coloured with zaffre, a preparation from cobalt *. It is commonly ſo groſsly powdered that it cannot be uſed in painting, and its texture is ſo hard that it cannot eaſily be levigated. Its colour is exceedingly bright and durable; ſo that when finely levigated it is uſed inſtead of ultramarine. The moſt proper materials for levigating this ſubſtance ſeem to be the plates of M. Reaumur's porcelain recommended by Dr Lewis. See CHEMISTRY, n° 592, 599. For the preparation of qualities of bice, ſee the articles *ARMENUS Lapis* and BICE.

Indigo is but little uſed in painting either in oil or water, on account of the dulneſs of the colour. It requires no other preparation than being waſhed over. Its goodneſs is known by the darkneſs and brightneſs of the colour. See INDIGO

29
Purple colours.

8. *Purple*. The only ſimple colour of this kind uſed at preſent is colcothar of vitriol. A beautiful purple lake may be prepared from logwood by means of ſolution of tin; but this method of preparing colours is very little known as yet.

30
Brown colours.

31
Dr Lewis's opinion concerning biſtre.

9. *Brown*. The brown colours are, biſtre, brown-ochre, Cologne-earth, umbre, and brown-pink. Under the article BISTRE is given a proceſs for making that colour, by infuſing ſoot in water, pouring off the tincture, and then evaporating it to an extract: but Dr Lewis is of opinion, with Mr Landois in the French *Encyclopedie*, that the ſoot is either boiled in water, or ground with a little liquid of ſome kind into a ſmooth paſte; it is then diluted with more water, and after ſtanding for about half an hour till the groſſer ſubſtance of the ſoot has ſettled, the liquor is poured off into another veſſel, and ſet by for two or three days, that the finer parts may fall to the bottom, and this fine matter is the biſtre. This is a very uſeful colour in water, being exceedingly fine, durable, and not apt to ſpoil any other colours with which it is mixed. The brown pink is ſaid to conſiſt of chalk tinged with the colouring matter of fuſtic, heightened with fixed alkaline ſalts. It is therefore very periſhable, and is ſeldom uſed. The other browns are a kind of ochreous earths; for a deſcription of which ſee their proper articles.

32
Attempts to make lakes of all colours.

Having now conſidered moſt of the colouring ſubſtances uſually to be met with in the ſhops, we ſhall next take notice of ſome attempts that have been made to produce all the different colours from vegetables, after the manner of lakes; which, though the methods hitherto tried have for the moſt part failed of ſucceſs, may perhaps ſome time or other be found applicable to valuable purpoſes.

33
Black from aſtringents.

From infuſions of aſtringent vegetables mixed with green vitriol, is produced a deep black liquor of very extenſive uſe in dyeing†. The ſubſtances which produce the deepeſt blacks are galls and logwood. When a decoction or infuſion of the galls is dropped into a ſolution of the vitriol largely diluted with water, the firſt drops produce bluiſh or purpliſh red clouds which ſoon mingling with the liquor, turn it uniformly of their own colour. It ſeems to be on the quality of the water that this difference in the colour depends. With diſtilled water, or the common ſpring-waters, the mixture is always blue. If we previouſly diſſolve in the water the moſt minute quantity of any alkaline ſalt too ſmall to be diſcovered by any of the common means by which waters are uſually tried, or if the water is in the leaſt putrid, the colour of the mixture proves purple a reddiſh. Rain-water, caught as it falls from the clouds in an open field in clean glaſs-veſſels, gives a blue; but ſuch as is collected from the tops of the houſes, grows purple with the mixture of vitriol and galls: from whence it may be preſumed, that this laſt has contracted a putrid tendency, or received an alkaline impregnation, though ſo ſlight as not to be ſenſible on other ways of trial.

Both the purple and blue liquors, on adding more of the aſtringent infuſion, deepen to a black, more or leſs intenſe according to the nature of dilution: if the mixture proves of a deep opaque blackneſs, it again becomes bluiſh or purpliſh when further diluted. If ſuffered to ſtand in this diluted ſtate for two or three days, the colouring matter ſettles to the bottom in form of a fine black mud, which by ſlightly ſhaking the veſſel, is diffuſed again through the liquor, and tinges it of its former colour. When the mixture is of a full blackneſs, this ſeparation does not happen, or in a far leſs degree; for though a part of the matter precipitates in ſtanding, yet ſo much remains diſſolved, that the liquor continues black. This ſuſpenſion of the colouring ſubſtance, in the black liquid, may be attributed in part to the gummy matter of the aſtringent infuſion increaſing the conſiſtence of the watery fluid; for the ſeparation is retarded in the diluted mixture by a ſmall addition of gum Arabic. If the mixture either in its black or diluted ſtate is poured into a filter, the liquor paſſes through coloured; only a part of the black matter remaining on the filter. The filtered liquor on ſtanding for ſome time becomes turbid and full of fine black flakes: being

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* See *Zaffre* and *Smalt*.

† See *Dyeing*.

freed from theſe by a ſecond filtration, it again puts on the ſame appearance: and thus repeatedly till all the colouring parts are ſeparated, and the liquor has become colourleſs.

Dr Lewis, from whoſe Philoſophical Commerce of Arts this account is taken, further informs us, that this colouring matter, when ſeparated from the liquor and dried, appeared of a deep black, which did not ſeem to have ſuffered any change from the air by expoſure for upwards of four months. Made red-hot, it glowed and burnt, but did not flame, and became a ruſty brown powder, which was readily attracted by a magnetic bar; though in its black ſtate the magnet had no action upon it. The vitriolic acid, diluted with water and digeſted on the black powder, diſſolved the greateſt part of it, leaving only a very ſmall quantity of whitiſh matter. Solution of pure fixed alkaline ſalt diſſolved very little of it: the liquor received a reddiſh brown colour, and the powder became blackiſh brown. This reſiduum was attracted by the magnet after being red hot, though not before: the alkaline tincture, paſſed through a filter, and mixed with a ſolution of green vitriol, ſtruck a deep browniſh black colour nearly the ſame with that which reſults from mixing with the vitriolic ſolution, an alkaline tincture of galls.

34
Black from a combination of other colours.

It hath alſo been attempted to produce black from a combination of other colours; as green may be produced from a mixture of blue and yellow. Mr le Blon, in his Harmony of Colours, gives a method of forming black, by mixing together the three colours called *primative*, viz. blue, red, and yellow; and Mr Caſtel in his *Optique des Couleurs*, publiſhed in 1740, ſays that this compound black has an advantage, in painting, above the ſimple ones, of anſwering better for the darkening of other colours. Thus if blue, by the addition of black, is to be darkened into the colour called *blue-black*, the ſimple blacks, according to him, if uſed in ſufficient quantity to produce the requiſite deepneſs, conceal the blue, while the compound blacks leave it diſtinguiſhable. Le Blon does not mention the proportions of the three colours neceſſary for producing black. Caſtel directs 15 parts of blue, five of red, and three of yellow; but takes notice, that theſe proportions are rather ſpeculatively than practically juſt, and that the eye only can be the true judge; our colours being all very imperfect, and our pigments or other bodies of one denomination of colour being very unequal in their degree of intenſity. He obſerves that the pigments ſhould all be of the deepeſt and darkeſt kind: and that, inſtead of taking one pigment for each colour, it is better to take as many as can be got; for the greater diſcord there is of heterogeneous and diſcordant drugs, the more true and beautiful, he ſays, will the black be, and the more capable of uniting with all other colours, without ſuppreſſing them, and even without making them tawney.

Dr Lewis acquaints us, that by mixing different blue, red, and yellow colours, he has not been able to produce a perfect black; but has often obtained from them very dark colours, ſuch as may be called *brown-blacks*, or *grey-blacks*; ſuch as we commonly ſee in the dark parts of paintings, and ſuch as the charcoal and ſoot blacks appear when diluted a little. The ingredients being each of a dark deep colour is a very neceſſary condition; for bright blues, bright reds, and bright yellows, mixed in ſuch proportions that neither colour prevailed, produced only a grey. In effect, all compoſitions of this kind, phyſically conſidered, can be no other than greys, or ſome of the intermediate teints between whiteneſs and darkneſs; and theſe greys will be ſo much the lighter or darker as the component colours of themſelves are bright or dark.

With regard to the extraction of the colouring matter from the different kinds of vegetables commonly to be met with of all colours, this would certainly be a very valuable acquiſition, could the colours ſo procured be made durable. On this ſubject nothing hath yet appeared more ſatisfactory than what is delivered by Dr Lewis in his notes on Neuman's chemiſtry. His obſervations are curious, but promiſe very little ſucceſs to any who ſhall attempt to fix theſe vegetable colours.

35
Dr Lewis's experiments on vegetable colours.

"Among the infinite variety of colours (ſays he), which glow in the flowers of plants, there are very few which have any durability, or whoſe fugitive beauty can be arreſted by art, ſo as to be applied to any valuable purpoſes. The only permanent ones are the yellow, the red, the blue; and all the intermediate ſhades of purple, crimſon, violet, &c. are extremely periſhable. Many of theſe flowers loſe their colours on being barely dried; eſpecially if they are dried ſlowly, as has been uſually directed, in a ſhady, and not warm place. The colours of all of them periſh on keeping even in the cloſeſt veſſels. The more haſtily they are dried, and the more perfectly they are ſecured from the air, the longer they retain their beauty. The colouring matter extracted and applied on other bodies is ſtill more periſhable: oftentimes it is changed or deſtroyed in the hands of the operator.

"The colour of many blue flowers is extracted by infuſion in water; but there are ſome from which water gains only reddiſh, or purpliſh blue. Of thoſe that have been tried there is not one which gives any blue tincture to ſpirituous liquors: ſome give no colour at all, and ſome a reddiſh one. The juice preſſed out from the freſh flowers is for the moſt part blue. The blue juices and infuſions are changed red by all acids. The marine acid ſeems to ſtrike the moſt florid red. The flowers themſelves, macerated in acid liquors, impart alſo a deep red tincture. Alkalies, both fixed and volatile, and lime-water, change them to a green. Thoſe infuſions of the juices which have nothing of the native colour of the flowers, ſuffer the ſame changes from the addition of acid and alkaline liquors: even when the flowers have been kept till their colour is loſt, infuſions made from them acquire ſtill a red colour from the one, and a green from the other, though in a leſs degree than when the flowers were freſh. The red colour produced by acids is ſcarcely more durable than the original blue: applied upon other bodies and expoſed to the air, it gradually degenerates into a faintiſh purple, and at length diſappears, leaving hardly any ſtain behind. The green produced by alkalies changes to a yellow, which does not fade ſo ſoon. The green, by lime-water, is more permanent and more beautiful: green lakes, prepared from theſe flowers by lime-water, have been uſed as pigments by the painter. The flowers of cyanus have been greatly recommended, as affording elegant and durable blue pigments; but I have never been able to extract from them any blue colour at all. They retain their colour indeed, when haſtily dried, longer than ſome other blue flowers: but they communicate nothing of it to any kind of menſtruum. Infuſions of them in watery, ſpirituous, and oily liquors, are all of them more or leſs of a reddiſh caſt, without any tendency to blue. Alum, which is ſaid to heighten and preſerve their blue colour, changes it, like that of other blue flowers, to a purpliſh red; acids to a deep red; alkalies and lime-water to a green; ſolution of tin added to the watery infuſion, turns it of a fine crimſon; on ſtanding, a beautiful red fæcula ſubſides, but it loſes all its colour by the time it is dry. The watery infuſion, inſpiſſated to the conſiſtence of an extract, appears of a dark reddiſh brown: an extract made with rectified ſpirit is of a purpliſh colour. The colour of both extracts ſpread thin and expoſed to the air quickly fades. The flowers employed in theſe experiments were thoſe of the common blue-bottle of the corn-fields.

"Red flowers readily communicate their own red colour to watery menſtrua: among thoſe that have been tried, there is not one exception. Thoſe of a full red colour give to rectified ſpirit alſo a deep red tincture, brighter, though ſomewhat paler, than the watery infuſion: but the lighter red flowers, and thoſe which have a tendency to purpliſh, impart very little colour to ſpirit, and ſeem to partake more of the nature of the blue flowers than of the pure red. Infuſions of red flowers are ſuppoſed to be heightened by acids, and turned green by alkalies, like thoſe of the blue; but this is far from being univerſal. Among thoſe I have examined, the roſe-colours and purpliſh reds were changed nearly in the ſame manner as the blues; but the full deep reds were not. The deep infuſion of red poppies is changed by alkalies, not to a green, but to a duſky purple.

"The colours of yellow flowers, whether pale or deep, are in general durable. Many of them are as much ſo, perhaps, as any of the native colours of vegetables. The colour is extracted both by water and by ſpirit. The watery infuſions are the deepeſt. Neither alkalies nor acids alter the ſpecies of the colour, though both of them vary its ſhade; acids rendering it paler, and alkalies deeper: alum likewiſe conſiderably heightens it, though not ſo much as alkalies. An infuſion of the flowers, made in alkaline ley, precipitated by alum, gives a durable yellow lake. In ſome of the deep reddiſh yellow, or orange-coloured flowers, the yellow matter ſeems to be of the ſame kind with that of the pure yellow flowers, but the red to be of a different kind from the pure red ones; watery menſtrua take up only the yellow, and leave the red, which may afterwards be extracted by rectified ſpirit of wine, or by water acuated by fixed alkaline ſalt. Such particularly are the ſaffron-coloured flowers of carthamus. Theſe, after the yellow matter has been extracted by water, are ſaid to give a red tincture to ley; from which, on ſtanding at reſt for ſome time, a deep bright red fecula ſubſides; called from one of the names of the plant which produces it, *ſafflower*; and from the countries whence it is commonly brought to us, *Spaniſh-red*, and *China-lake*. This pigment impregnates ſpirit of wine with a beautiful red tincture, but communicates no colour to water. I have endeavoured to ſeparate, by the ſame treatment, the red matter of ſome of the other reddiſh yellow flowers, as thoſe of garden marigold, but without ſucceſs. Plain water extracted a yellow colour, and alkaline ley extracted afterwads only a paler yellow; though the digeſtions were continued till the flowers had loſt their colour, the tinctures were no other than yellow, and not ſo deep as thoſe obtained from the pure yellow flowers. The little yellow floſculi, which in ſome kinds of flowers are collected into a compact round diſc, as in the daiſy and corn-marigold, agree, ſo far as they have been examined, with the expanded yellow petala. Their colour is affected in the ſame manner by acids, by alkalies, and by alum; and equally extracted by water and by ſpirit. But the yellow farina, or fine duſt, lodged on the tips of the ſtamina of flowers, appears to be of a different kind. It gives a fine bright yellow to ſpirit, and a duller yellow to water; the undiſſolved part proving in both caſes of a pale yellowiſh white. Both the watery and ſpirituous tinctures were heightened by alkaline liquors, turned red by acids, and again to a deep yellow on adding more of the alkali: I know no other vegetable yellow that is turned red by acids.

"White flowers are by no means deſtitute of colouring matter. Alkaline lixivia extract from ſome of them a green tincture, and change their colourleſs expreſſed juices to the ſame colour; but I have not obſerved that they are turned red by acids. The flowers of the common wild convolvulus or bind-weed, which in all their parts are white, give a deep yellow or orange tincture to plain water; which, like the tinctures of flowers that are naturally of that colour, is renderd paler by acids, heightened a little by alum, and more conſiderably by alkaline ſalts. The vapours of the volatile vitriolic acid, or of burning ſulphur, which whiten or deſtroy the colour of the coloured flowers, make no change in the white.

36
Colours from fruits.

"The red juices of fruits, as currants, mulberries, elder-berries, morello, and black cherries, *&c.* gently inſpiſſated to dryneſs, diſſolve again almoſt totally in water, and appear nearly of the ſame red colour as at firſt. Rectified ſpirit extracts the tinging particles, leaving a conſiderable portion of mucilaginous matter undiſſolved; and hence the ſpirituous tincture proves of a brighter colour than the watery. The red ſolutions, and the juices themſelves, are ſometimes made dull, and ſometimes more florid, by acids, and generally turned purpliſh by alkalies. The colours of theſe juices are for the moſt part periſhable. They reſiſt, indeed, the power of fermentation, and continue almoſt unchanged, after the liquor has been converted into wine; but when the juice is ſpread thin upon other bodies, exſiccated, and expoſed to the air, the colour quickly alters and decays: the bright lively red changes the ſooneſt: the dark dull red ſtain from the juice of the black cherry, is of conſiderable durability. The fruit of the American opuntia or prickly pear, the plant upon which the cochineal inſect is produced, is perhaps an exception: This bright red fruit, according to Labat, gives a beautiful red dye. Some experiments, however, made upon the juice of that fruit, as brought into England, did not promiſe to be of any great advantage: but the particulars I cannot now recollect.

"The ripe berries of buckthorn ſtain paper of a green colour. From theſe is prepared the ſubſtance called *ſap-green*, a pigment ſufficiently durable, readily ſoluble in water, but not miſcible with oil. The berries dried while green, and macerated in alum-water, are ſaid to yield a yellow pigment; and when they have grown over ripe ſo as to fall off ſpontaneouſly, a purple one. It is ſaid that the berry of the heliotropium tricoccum, which grows wild about Montpelier, ſtains paper of a green colour, and that this green turns preſently to a blue: that the common blue paper receives its colour from this juice: and that the red rags called *turnſol*, employed for colouring wines and other liquors, are tinctured by the ſame juice turned red by acids. According to M. Niſſole of the French academy of ſciences (as quoted by Savary in his Dictionaire de Commerce), the colouring juice is obtained not from the berries, but from tops of the plant gathered in Auguſt, ground in mills, and then committed to the preſs. The juice is expoſed to the ſun about an hour, the rags dipt in it, dried in the ſun, moiſtened by the vapour which ariſes during the ſlaking of quicklime with urine, then dried again in the ſun, and dipped again in the juice. The Dutch and others are ſaid to prepare turnſol rags, and turnſol in the maſs, from different ingredients, among which archil is a principal one.

"In ſome plants, peony for inſtance, the ſeeds at a certain point of maturity are covered with a fine ſhining red membrane. The pellicles of the ſeeds of a certain American tree afford the red maſſes brought into Europe under the names of *annotto*, *orlean*, and *raucou*.* Mr Pott, in the Berlin Memoirs for the year 1752, mentions a very extraordinary property of this concrete. 'With the vitriolic acid it produces a blue colour, of extreme beauty; but with this capital defect, that all ſalts and liquors, and even common water, deſtroy it.' The ſpecimen of annotto, which I examined, was not ſenſibly acted upon by ſpirit of vitriol; it received no change in its own colour, and communicated none to the liquor. Nor did any viſible change enſue upon dropping the acid into tinctures of annotto made in water, or in ſpirit.

37
Colours from leaves.

"The green colour of the leaves of plants is extracted by rectified ſpirit of wine and by oils. The ſpirituous tinctures are generally of a fine deep green, even when the leaves themſelves are dull-coloured, or yellowiſh, or hoary. The colour, however, ſeldom abides long even in the liquor; much leſs when the tinging matter is ſeparated in a ſolid form, and expoſed with a large ſurface to the air. The editor of the Wirtemberg Pharmacopeia obſerves, that the leaves of acanthus, brankurſine, or bear's-breach, give a more durable green tincture to ſpirit than thoſe of any other herb. Alkalies heighten the colour both of the tinctures and green juices; acids weaken, deſtroy, or change it to a browniſh: lime-water improves both the colour and durability: by means of lime, not inelegant green lakes are procurable from the leaves of acanthus, lily of the valley, and ſeveral other plants. There are very few herbs which communicate any ſhare of their green colour to water; perhaps none that give a green of any conſiderable deepneſs. It is ſaid, however, that the leaves of ſome plants give a green dye to woollen, without the addition of any other colouring matter; particularly thoſe of the wild chervil, or cow-weed, the common ragwort, and devil's-bit. The leaves of many kinds of herbs and trees give a yellow dye to wool or woollen cloth that has been previouſly boiled with a ſolution of alum and tartar. Weld, in particular, affords a fine yellow, and is commonly made uſe of for this purpoſe by the dyers, and cultivated in large quantity in ſome parts of England. There is no colour for which we have ſuch plenty of materials as for yellow. Mr Hellot obſerves, that all leaves, barks, and roots, which on being chewed diſcover a ſlight aſtringency, as the leaves of the almond, peach, and pear-trees, aſh-bark (eſpecially that taken off after the firſt riſing of the ſap in the ſpring), the roots of wild patience, *&c.* yield durable yellows, more or leſs beautiful according to the length of time that the boiling is continued, and the proportions of alum and tartar in the preparatory liquor: that a large quantity of alum makes theſe yellows approach to the elegant yellow of weld: that if the tartar is made to prevail, it inclines then to an orange: that if the roots, barks, or leaves, be too long boiled, the yellow proves tarniſhed, and acquires ſhades of brown." See the article Dyeing.

38
Production of indigo accounted for.

The moſt capital preparations from the leaves of plants, are thoſe of indigo and weld; which are both very much uſed in dyeing, though the firſt only in painting.* Both the indigo and woad plants give out their colour, by proper management, to water, in form of a blue fecula or lake. Mr Hellot ſuſpects that a like blue fecula is procurable from many other vegetables. Blue and yellow blended together, compoſe a green. He ſuppoſes the natural greens in vegetables to be compounded in like manner of theſe two colours; and that the blue is oftentimes the moſt permanent, ſo as to remain entire after the putrefaction or deſtruction of the yellow. The theory is ſpecious, and perhaps juſt: we know of no other that accounts in any degree for the production of the indigo and woad blue. Dr Lewis, however, informs us, that he never was able to produce the leaſt appearance of either blue or yellow from any of the plants he tried by treating them in the manner uſed for the preparation of indigo.

39
Colours from moſſes.

There are ſundry moſſes, which in their natural ſtate, like the indigo and woad plants, promiſe nothing of the elegant colours that can be extracted from them by art. The moſt remarkable of theſe is archil; for the preparation of which, and the colours that may be produced from it, ſee the article. Linnæus ſuſpects that there are ſeveral other more common moſſes from which valuable colours might be extracted: a quantity of ſea-moſs, having rotted in heaps on the ſhore, he obſerved the liquor in the heaps to be as red as blood; the ſea-water, the ſun, and the putrefaction, having brought out the colour. Mr Kalm, in an appendix to Linnæus's paper, in 1745, mentions two ſorts of moſſes actually employed in Sweden for dyeing woollen red: one is the Lichenoides coralliforme apicibus coccineis of Ray's Synopſis; the other the Lichenoides tartareum, farinaceum, ſcutellarum umbone fuſco, of Dillenius. This laſt is a white ſubſtance like meal clotted together, found on the ſides and tops of hills. It is ſhaved off from the rocks after rain, purified from the ſtony matters intermixed among it by waſhing with water, then dried in the ſun, ground in mills, and again waſhed and dried; it is then put into a veſſel with urine, and ſet by for a month: a little of this tincture added to boiling water makes the dyeing colour. In the ſame Tranſactions for the year 1754, there is an account of another moſs which, prepared with urine, gives a beautiful and durable red or violet dye to wool and ſilk. This is the lichen foliaceous umbilicatus ſubtus lacunenſis, Linn. flor. Suec. It grows upon rocks, and is readily diſtinguiſhable from others of that claſs, by looking as if burnt or parched, conſiſting of leaves as thin as paper, convex all over on the upper ſide, with correſponding cavities underneath, adhering firmly to the ſtones by a little root under the leaves, and coming aſunder, when dry, as ſoon as touched. It is gathered after rain, as it then holds beſt together, and parts eaſieſt from the ſtone. In France, a cruſtaceous moſs, growing upon rocks in Auvergne, is prepared with lime and urine, and employed by the dyers as a ſuccedaneum for the Canary archil, to which it is ſaid to be very little inferior. Mr Hellot relates, that he has met with ſeveral other moſſes, which, on being prepared in the ſame manner, acquire the ſame colour. The moſt expeditious way, he ſays, of trying whether a moſs will yield an archil or not, is to moiſten a little of it with an mixture of equal parts of ſpirit of ſal ammoniac and ſtrong lime-water, and add a ſmall proportion of crude ſal ammoniac. The glaſs is then to be tied over with a piece of bladder, and ſet by for three or four days. If the moſs is of the proper kind, the little liquor which runs from it upon inclining the veſſel, will appear of a deep crimſon colour; and this afterwards evaporating, the plant itſelf acquires the ſame colour. Dr Lewis informs us that he has tried a good number of the common moſſes, many both of the cruſtaceous and foliaceous kind, and not a few of the fungi; as alſo the herbs chamomile and milfoil, which yield a blue eſſential oil; and thyme, whoſe oil becomes blue by digeſtion with volatile ſpirits; but never met with any that yielded a colour like archil. Moſt of them gave a yellow or reddiſh brown tincture. A few gave a deep red colour to the liquor: but, when diluted, it ſhowed a yellowiſh caſt, and when applied on cloth it gave only a yellowiſh red.

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* See *Annotto*.

* See *Indigo* and *Woad*.

40 Some blue flowers may probably yield permanent colours.

To theſe obſervations we ſhall only add, that though, in general, the blue colours of flowers are exceedingly periſhable, there ſeem to be at leaſt two exceptions to this rule; for the blue flowers of iris, or flower-de-luce, and thoſe of columbine, when treated with ſolution of tin, yielded a colour tolerably permanent. Indeed, when experiments are made with a view to extract the colour from any part of a vegetable, it will always be proper to try whether it can bear a mixture with this ſolution. If the colour is not deſtroyed by it, there is a very great probability that the ſolution will, by proper management, preſerve, and give a durability to it, which could ſcarce be obtained by any other method. It muſt, however, be obſerved, that there are ſeveral ſubſtances uſed in colour-making, which ſolution of tin cannot bear to be mixed with. Theſe are principally ſugar of lead and cream of tartar, as well as all the calcareous earths and alkaline ſalts. With alum it may be mixed very ſafely, and is in many caſes the better for it. The roots of plants, however, ſeem to promiſe more durability of colour than the upper parts. We have ſeen a blue colour of conſiderable durability and brightneſs prepared from the roots of common radiſhes by expreſſing the juice, combining it with tobacco pipe clay, and brightening it with a little alum. The root of the red beet is alſo ſaid to yield a durable colour of a beautiful red, inclining to ſcarlet; but this we cannot affirm from our own experience.

41 Colours from roots.

42 Colours for maps.

With regard to liquid colours for maps, &c. we apprehend there can be very little difficulty of preparing all the poſſible varieties of them, if what we have above laid down is attended to. The only colour with which there can be any difficulty is *blue*; but the common ſolutions of indigo in alkalies or acids may be made to anſwer this purpoſe, though, on account of their ſtrongly ſaline quality, they are not very proper. A very curious method of procuring a beautiful tranſparent blue colour is by extracting the colouring matter from Pruſſian blue, by means of a cauſtic alkali. This when laid upon paper appears of a dirty brown colour; but if waſhed over with a weak ſolution of green vitriol, is inſtantly changed to a moſt beautiful blue. This ſeems to afford a method of procuring blue tranſparent colours of greater beauty than they are uſually met with.—See ſpecimens of tranſparent colours prepared according to the above rules, on the *Chart* ſubjoined to HISTORY.

COLOURING, among painters, the manner of applying and conducting the colour of a picture; or the mixtures of light and ſhadows, formed by the various colours employed in painting. See PAINTING.

COLOURING of Glaſs. See GLASS.

COLOURING of Porcelain. See PORCELAIN.

COLT, in zoology, a general name for the young of the horſe-kind: the male being likewiſe, for diſtinction's ſake, called a *horſe-colt*; the female, a *filly*.

Sportſman's Dictionary.

After the colts have been foaled, you may ſuffer them to run with the mare till about Michaelmas, ſooner or later, according as the cold weather comes in; then they muſt be weaned; though ſome perſons are for having them weaned after Martinmas, or the middle of November. The author of the *Complete Horſeman* is of opinion, that the reaſon why moſt foals advance ſo ſlowly, and are not capable of ſervice till they are ſix or ſeven years old, is becauſe they have not ſucked long enough; whereas, if they had ſucked the whole winter over, they would be as good at four or five years old as they are now at eight.

They ought now to be kept in a convenient houſe, with a low rack and manger for their hay and oats, which muſt be ſweet and good; with a little wheaten bran mixed with the oats to cauſe them to drink, and to keep their bodies open. But, ſince there are ſome who allege that oats make foals become blind, or their teeth crooked; the ſame author is of opinion, that oats will wear their teeth, and make them the ſooner to change, and alſo to raze; therefore he judges it to be the beſt way to break them in a mill, becauſe that by endeavouring with their jaws to bruiſe and chew them, they ſtretch and ſwell their eye and nether-jaw veins, which ſo attract the blood and humours that they fall down upon the eyes, and frequently occaſion the loſs of them; ſo that it is not the heating quality of the oats, but the difficulty in chewing, that is the cauſe of their blindneſs.

Further, colts thus fed with grain do not grow thickiſh upon their legs, but grow broader and better knit than if they had eaten nothing but hay and bran, and will endure fatigue the better. But above all, they muſt be kept from wet and cold, which are hurtful to them, nothing being more tender than they are. For proof of this, take a Spaniſh ſtallion, and let him cover two mares, which for age, beauty, and comelineſs may admit of no difference between them; and if they produce both horſe-colts, or both fillies, which is one and the ſame thing, let one run abroad, and the other be houſed every winter, kept warm, and ordinarily attended: and that colt that has been kept abroad ſhall have large fleſhy ſhoulders, flabby and gouty legs, weak paſterns, and ill hoofs; and ſhall be a dull heavy jade, in compariſon to the other which is houſed, and orderly kept; and which will have a fine forehead, be fine ſhaped, and have good legs and hoofs, and be of good ſtrength and ſpirit: by which you may know, that to have the fineſt ſtallion, and the beautifulleſt mare, is nothing if they are ſpoiled in the breeding up. It is worth obſervation, that ſome foals, under ſix months old, though their dams yield plenty of milk, yet decay daily, and have a cough, proceeding from certain pellicles or ſkins that breed in their ſtomachs, which obſtruct their breathing, and at laſt deſtroy them entirely. To remedy this malady, take the bag wherein the colt was foaled, dry it, and give him as much of it in milk as you can take up with three fingers: but if you have not preſerved the bag, procure the lungs of a young fox, and uſe it inſtead of the aforeſaid powder.

It will be proper to let the colts play an hour or two in ſome court-yard, &c. when it is fair weather, provided you put them up again carefully, and ſee that they take no harm. When the winter is ſpent, turn them in ſome dry ſweet ground, where the graſs is ſhort and ſweet, and where there is good water, that they may drink at pleaſure: for it is not neceſſary that a colt ſhould fill his belly immediately, like a horſe that labours hard. The next winter you may take them into the houſe, and uſe them juſt as you do your other horſes; but let not your horſe-colts and fillies be kept together after the firſt year. This method may be obſerved every ſummer and winter till you break them, which you may do after they have been three years old; and it will be a very eaſy thing, if you obſerve the aforſaid method of houſing them: for ordering them the ſecond year as you do your other horſes, they will be ſo tame and gentle, that you need not fear their leaping, plunging, kicking, or the like; for they will take the ſaddle quietly. As for all thoſe ridiculous methods of beating and cowing them, they are in effect ſpoiling them, whatever they call it, in ploughed fields, or deep ways, or the like; inſtead of which, let the rider ſtrive to win them by gentle uſage, never correcting them but when it is neceſſary, and then with judgement and moderation. You will not need a caveſſon of cord, which is a head ſtrain, nor a pad of ſtraw; but only a common ſaddle, and a common caveſſon on his noſe, ſuch as other horſes are ridden with; but it ought to be well lined with double leather; and if you pleaſe you may put on his mouth a watering bit, but without reins, only the head-ſtall, and this but for a few days; and then put on ſuch a bit as he ſhould be always ridden with: and be ſure not to uſe ſpurs for ſome time after backing. Take notice, that as yearlings muſt be kept abroad together, ſo thoſe of two years old together; the like for thoſe of three yearlings: which ordering is moſt agreeable to them.

In order make him endure the ſaddle the better, the way to make it familiar to him will be by clapping the ſaddle with your hand as it ſtands upon his back, by ſtriking it, and ſwaying upon it, dangling the ſtirrups by his ſides, rubbing them againſt his ſides, and making much of them, and bringing him to be familiar with all things about him; as ſtraining the crupper, faſtening and loſing the girths, and taking up and letting out the ſtirrups. Then as to the motion of him, when he will trot with the ſaddle obediently, you may waſh a trench of a full mouth, and put the ſame in his mouth, throwing the reins over the forepart of the ſaddle, ſo that he may have a full feeling of it; then put on a martingale, buckled at ſuch a length that he may but juſt feel it when he jerks up his head; then take a broad piece of leather, and put it about his neck, and make the ends of it faſt by plaiting of it, or ſome other way, at the withers, and the middle part before his weaſand, about two handfuls below the thropple, betwixt the leather and his neck; let the martingale paſs ſo, that when at any time he offers to duck, or throw down his head, the caveſſon being placed upon the tender griſle of his noſe, may correct and puniſh him; which will make him bring his head to, and form him to an abſolute rein: trot him abroad, and if you find the reins or martingale grow ſlack, ſtraiten them, for when there is no feeling there is no virtue.

Colt-Evil, among farriers. See FARRIERY, § xxviii. 4.

Colt-Taming, is the breaking of a colt ſo as to endure a rider. Colts are moſt eaſily broke at three or four years of age; but he who will have patience to ſee his horſe at full five, will have him much more free of diſeaſes and infirmities than if he was broke ſooner.

Preparatory to their breaking for the ſaddle, they ſhould be uſed to familiar actions, as rubbing, clawing, haltering, leading to water, taking up their feet, knocking their hoofs, &c. In order to bridle and ſaddle a colt, when he is made a little gentle, take a ſweet watering trench, waſhed and anointed with honey and ſalt, which put into his maſh, and ſo place it that it may hang about his tuſh; then offer him the ſaddle, but take care not to fright him with it. Suffer him to ſmell at it, to be rubbed with it, and then to feel it: after that, fix it and gird it faſt; and make that motion the moſt familiar to him to which he ſeems moſt averſe. Being thus ſaddled and bridled, lead him out to water and bring him in again: when he has ſtood reined upon the trench an hour or more, take off the bridle and and ſaddle, and let him go to his meat till the evening, and then lead him out as before; and when you carry him in again to ſet him up, take off his ſaddle gently, clothing him for all the night.

COLTIE, a term uſed by timber-merchants, for a defect or blemiſh in ſome of the annular circles of a tree, whereby its value is much diminiſhed.

COLUBER, in zoology, a genus of ſerpents belonging to the order of amphibia. The characters are theſe: they have a number of ſcuta or hard cruſts on the belly; and ſcutellæ or ſcales on the tail. Linnæus enumerates no leſs than 97 ſpecies under this name, diſtinguiſhed ſolely by the number of ſcuta and ſcutellæ. The moſt remarkable are the following.

1. The Vipera, or common viper of the ſhops, has 118 ſcuta, and only 22 ſcutellæ. The body is very ſhort, and of a pale colour, with browniſh ſpots; and the head is gibbous, and covered with ſmall ſcales. It is a native of Egypt, and other warm countries. It has always been remarkable for its poiſonous nature; inſomuch that vipers; when numerous, have often been thought the miniſters of divine vengeance, like the plague, famine, and other national calamities. A notion alſo prevailed among the ancients, that few or none of the parts of a viper were free from poiſon; for which reaſon they made no experiments or diſcoveries concerning the nature of theſe creatures. It is now, however, proved, by undoubted experiments, that the poiſon of vipers, as well as of all other ſerpents whoſe bite is hurtful, lies in a bag at the bottom of their two greater teeth or fangs. Theſe teeth are perforated; and when the creature bites, the compreſſion of the bag forces out a little drop of the poiſon into the wound, where it produces its miſchievous effects. The purpoſe anſwered by this poiſonous liquor to the creatures themſelves, is probably the deſtruction of their prey; for as ſerpents frequently feed upon animals of very conſiderable magnitude and ſtrength, they would often undoubtedly make their eſcape, did not the poiſonous juice inſtilled into the wounds made by the ſerpent's teeth almoſt inſtantly deprive them of life, or at leaſt of all power to ſtruggle with their enemy. For an account of the ſymptoms produced by the bites of vipers and other venomous ſerpents in the human body, together with the beſt methods of cure, ſee the *Index* ſubjoined to MEDICINE. After the viper is deprived of thoſe bags which contain its poiſon, it is entirely harmleſs: nay the fleſh of it is highly nutritive, and juſtly eſteemed a great reſtorative. It hath been much recommended in ſcrophulous, leprous, and other obſtinate chronical diſorders; but, to anſwer any good purpoſe, it muſt undoubtedly be uſed for a conſiderable time as food. The dried fleſh which is brought to England, is juſtly eſteemed by Dr Lewis to be totally inſignificant. A volatile ſalt was formerly drawn from vipers, and ſold at a great price, as a ſovereign remedy againſt the bites of vipers and other poiſonous animals; but it is now found not to be materially different from the volatile alkaline ſalts procured by diſtilling other animal ſubſtances.

2. The berus, or common Britiſh viper, is found in many countries of Europe. They ſwarm in the Hebrides, or weſtern Britiſh iſles, and abound in many parts of Britain; particularly in the dry, ſtony, and chalky counties. According to Mr Pennant and other naturaliſts, they are viviparous, but proceed from an internal egg. The eggs are, as it were, chained together; and each about the ſize of the egg of a blackbird. This viper ſeldom grows longer than two feet; though Mr Pennant tells us he once ſaw a female (which is nearly a third larger than the male) almoſt three feet long. The ground colour of the male is of a dirty yellow, that of the female deeper. Its back is marked the whole length with a ſeries of rhomboidal black ſpots, touching each other at the points; the ſides with triangular ones; the belly entirely black. It hath 146 ſcuta, and 39 ſcutellæ. There is a variety wholly black; but the rhomboid marks are very conſpicuous even in this, being of a deeper and more gloſſy hue than the reſt. The head of the viper, ſays Mr Pennant, is inflated, which diſtinguiſhes it from the common ſnake. Mr Cateſby aſſures us, that the difference between the vipers and ſnakes or other ſerpents is, that the former have long hollow fangs, or tuſks, with an opening near the point; the neck is ſmall, the head broad, the cheeks extending wide, ſcales rough, the body for the moſt part flat and thick; they are ſlow of motion; ſwell the head and neck when irritated, and have a terrible and ugly aſpect. Another material difference, however, conſiſts in the production of their young: the viper hatches its eggs within itſelf, and then diſcharges the young; whereas the ſnake depoſits its eggs, which are therefore externally hatched. The tongue is forked, the teeth ſmall; the four canine teeth are placed two on each ſide the upper jaw: theſe inſtruments of poiſon are long, crooked, and moveable; capable, like thoſe of the former ſpecies, of being raiſed or depreſſed at the pleaſure of the animal, and they inſtil their poiſon in the ſame manner. The vipers are ſaid not to arrive at their full growth till they are ſix or ſeven years old; but they are capable of engendering at two or three. They copulate in May, and go about three months with their young. Mr White informs us ‡, that a viper which he opened had in it 15 young ones of the ſize of earth-worms, about 7 inches long. This little fry iſſued into the world with the true viper-ſpirit about them. They twiſted and wriggled about with great alertneſs; and when touched, they erected themſelves, and gaped very wide, ſhowing immediate tokens of menace and defiance, tho' no fangs could be perceived even with the help of glaſſes: which the author remarks as an inſtance among others of that wonderful inſtinct which impreſſes young animals with a notion of the ſituation and uſe of their natural weapons even before theſe weapons are formed. Mr Pennant tells us, that he has been aſſured of a fact mentioned by Sir Thomas Brown *, who was far from being a credulous writer (A), that the young of the viper, when terrified, will run down the throat of the parent, and ſeek for ſhelter in its belly, in the ſame manner as the young of the opoſſum retire into the ventral pouch of the old one. From this ſome have imagined that the viper is ſo unnatural as to devour its

‡ *Hiſt. of Selborne*, p. 210.

* *Vulgar Errors*, p. 114.

(A) The viper catchers, however, inſiſt, that no ſuch thing ever happens. See *White's Nat. Hiſt. of Selborne*, p. 51.

its own young: but the aſſertion deſerves no credit; it being well known that the food of theſe ſerpents is frogs, toads, lizards, mice, and, according to Dr Mead, even an animal ſo large as a mole, which they are able to ſwallow entire, their throat and neck being capable of great diſtention. It is alſo ſaid, from good authority, that vipers prey on young birds; but whether on ſuch as neſtle on the ground, or whether they climb up trees for them, as the Indian ſerpents do, is quite uncertain; the fact, however, is very far from being recent; for Horace tells us,

Ut aſſidens implumibus pullis avis
Serpentium allapſis timet. Epod. I.
Thus for its young the anxious bird
The gliding ſerpent fears.

The viper is capable of ſupporting very long abſtinence; it being known, that ſome have been kept in a box ſix months without food, and yet did not abate of their vivacity. They feed only a ſmall part of the year, but never during their confinement; for if mice, their favourite diet, ſhould at that time be thrown into their box, though they will kill, yet they never will eat them. The violence of their poiſon decreaſes in proportion to the length of their confinement, as does alſo the virtue of their fleſh whatever it is. The animals, when at liberty, remain torpid throughout the winter; but, when confined, have never been obſerved to take their annual repoſe. The method of catching them is by putting a cleft ſtick on or near their head; after which they are ſiezed by the tail, and inſtantly put into a bag. The viper-catchers are very frequently bit by them in the purſuit of their buſineſs, yet we very rarely hear of their bite being fatal. Salad oil, if applied in time, is ſaid to be a certain remedy. The fleſh of the Britiſh viper has been celebrated as a reſtorative, as well as that of other countries. Mr Keyſler relates, that Sir Kenelm Digby uſed to feed his wife, who was a moſt beautiful woman, with capons fattened with the fleſh of vipers.

3. The punctatus of Linnæus, by Mr Cateſby called the *water-viper*, is a native of Carolina. According to Linnæus it is aſh-coloured, variegated with yellow ſpots. Mr Cateſby informs us, that the head and back of this ſerpent are brown: the belly marked tranſverſely with yellow, and alſo the ſides of the neck. The neck is ſmall, the head large, and the mouth armed with the deſtructive fangs of the viper or rattle-ſnake, next to which it is reckoned the largeſt ſerpent in this country. Contrary to what is obſerved in moſt other vipers, theſe are very nimble and active, and very dexterous in catching fiſh. In ſummer, great numbers are ſeen lying on the branches of trees hanging over rivers; from which, on the approach of a boat, they drop into the water, and often into the boat on the mens heads. They lie in wait in this manner to ſurpriſe either birds or fiſh: after the latter they plunge with ſurpriſing ſwiftneſs, and catch ſome of a large ſize, which they bring aſhore and ſwallow whole. The tail of this animal is ſmall towards the end, and terminates in a blunt horny point about half an inch long. This harmleſs little horn hath been the occaſion of many terrible reports; as, that by a jerk of its tail, the animal is capable of inſtantly deſtroying both men and beaſts; that a tree ſtruck with this terrible horn, in a ſhort time grows black, withers, and dies, &c. but all theſe Mr Cateſby aſſures us have not the leaſt foundation in fact.

4. The cherſea is a native of Sweden, where it is called *aſping*. It is a ſmall reddiſh ſerpent, whoſe bite is ſaid to be mortal. Concerning this ſpecies Mr Pennant aſks, "Is it poſſible that this could be the ſpecies which has hitherto eſcaped the notice of our naturaliſts? I the rather ſuſpect it, as I have been informed that there is a ſmall ſnake that lurks in the low grounds of Galloway, which bites and often proves fatal to the inhabitants."

5. The preſter of Linnæus, or black viper of Mr Cateſby, is a native of Carolina and Virginia. It is ſhort and thick, ſlow of motion, ſpreads its head ſurpriſingly when irritated, very flat and thick, threatning with a horrid hiſs. They are very poiſonous; their bite being as deadly as that of the rattleſnake. They frequent the higher lands, and are of a ruſty black bolour.

6. The coluber luridus of Forſter, called by Mr Cateſby the *brown viper*; is a native of the ſame countries with the preceding. It is about two feet long, and large in proportion; very ſlow in its motion, even when threatened with danger: notwithſtanding which, it defends itſelf very fiercely when attacked, and its bite is as venomous as any. They prey upon efts, lizards, and other animals of that kind.

Beſides theſe ſpecies of which we have a particular deſcription, the following are alſo reckoned among the poiſonous ſerpents, *viz.* 7. The atropos, with 131 ſcuta and 22 ſcutellæ. It is a native of America, the body white, and the eyes brown, with a white iris. 8. The leberis, with 110 ſcuta and 50 ſcutellæ, is a native of Canada, and has many black linear rings. 9. The ammodites, with 142 ſcuta and 32 ſcutellæ, is a native of the Eaſt. It is about ſix inches long, and has a fleſhy protuberance on its noſe. 10. The aſpis, with 146 ſcuta and 46 ſcutellæ, is a native of France; and is of a reddiſh colour, with duſky ſpots on the back. 11. The lebetinus, with 155 ſcuta and 46 ſcutellæ, is a native of Aſia, and is of a cloudy colour, with red ſpots on the belly. 12. The ſeverus, with 170 ſcuta and 42 ſcutellæ, is likewiſe a native of Aſia, and is aſh-coloured with white belts. 13. The ſtollatus, with 143 ſcuta and 76 ſcutellæ, is a native of Aſia, and is of a greyiſh colour, with two white fillets. 14. The lacteus, with 203 ſcuta and 32 ſcutellæ, is a native of the Indies. Its colour is white, with black ſpots. 15. The naja, with 193 ſcuta and 60 ſcutellæ, is a native of the Eaſt Indies, and is reckoned the moſt poiſonous of all ſerpents. The root of the lignum colubrinum *(ophiorrhiza)* is ſaid to have been pointed out to the Indians as an antidote againſt the bite of this ſerpent by the viverra ichneumon, a creature which fights with this ſerpent, and cures itſelf by eating of this plant when wounded. The Indians, when bit, inſtantly chew it, ſwallow the juice, and apply the maſticated root to the puncture. It is killed by the ichneumon. 16. The atrox, with 169 ſcuta and 69 ſcutellæ, is a native of Aſia. It is of a hoary colour, and the head is compreſſed and covered with ſmall ſcales. 17. The niveus, with 209 ſcuta and 62 ſcutellæ, is a native of Africa. It is white, and without any ſpots. 18. The corallinus, with 193 ſcuta and 82 ſcutellæ, is a native of Aſia. It is greyiſh, with three brown fillets. 19. The dipſas, with 152 ſcuta and 135 ſcutellæ, is a native of America. It is of a bluiſh colour, with the margins of the ſcales white. 20. The mycterizans, with 192 ſcuta and 168 ſcutellæ, is a native of America. It is of a bluiſh-green colour, hath a ſtretched out triangular ſnout. Inhabits trees, and lives on inſects.

The above 20 ſpecies are all the ſerpents of the genus of coluber that are reckoned poiſonous. Of the reſt we ſhall only mention the following, which are the moſt remarkable.

21. The erythrogaſter of Forſter, called by Mr Cateſby the *copper-bellied ſnake,* is a native of Carolina, and grows ſometimes near to the ſize of a rattleſnake. It is of a brown colour in all parts of his body, except the belly, which is of a red copper colour. They frequent water, and probably prey on fiſh; but they will alſo devour birds and ſuch other animals as they are able to overcome. They are bold and active, frequently entering poultry-houſes, devouring the fowls and ſucking their eggs.

22. The conſtrictor, or black ſnake, is a native of ſeveral parts of America. They are very long, ſometimes meaſuring ſix feet, and are all over of ſhining black. This ſpecies is not only perfectly harmleſs, but extremely uſeful in clearing the houſe of rats, which it purſues with wonderful agility to the very roofs, and all parts of barns and outhouſes, for which good ſervices it is cheriſhed by the generality of Americans. It is alſo ſaid, that it will deſtroy the rattleſnake, by twiſting round it, and whipping it to death. In the time of copulation it is extremely bold and fierce, and will attack mankind; but its bite has no more effect than a ſcratch with a pin. It is ſo ſwift that there is no eſcaping its purſuit. Many ridiculous frights have happened from this innocent reptile. As every one in America is full of the dread of the rattleſnake, they are apt to fly at the ſight of any of the ſerpent kind. This purſues, ſoon overtakes, and by twiſting round the legs of the fugitive, ſoon brings him to the ground: but he happily receives no hurt, but what may reſult from this fright: all the miſchief this ſpecies does is to the houſewives, for it will ſkim their milk-pans of the cream, and rob their hen-rooſts of all the eggs.

23. The annulatus, or little brown bead-ſnake, is always ſmall, and is ſeldom found above ground, but commonly dug up, and found twiſting about the roots of ſhrubs and plants. All the back and other parts of the body have tranſverſe ſpots of brown and white ſo diſpoſed as to have ſome reſemblance to a ſtring of Engliſh beads; whence probably it takes it name. It is quite harmleſs, and is a native of Virginia and Carolina.

24. The flagellum, or coach-whip, ſnake, is of a brown colour, very long, ſlender, and active. It runs ſwiftly, and is quite inoffenſive; but the Indians imagine it is able to cut a man in two with a jerk of its tail.

25. The fulvius, or corn ſnake, is beautifully marked with red and white, reſembling a ſpecies of Indian corn, whence its name. It is harmleſs as to its bite, but frequently robs hen-rooſts.

26. The æſtivus, or green ſnake, is all over of a green colour. It inhabits Carolina; where it lives among the branches of trees on flies and other inſects. It is of a ſmall ſize, and eaſily becomes tame and familiar, inſomuch that ſome people will carry them in their boſom.

27. The faſciatus, or wampum ſnake, derives its name from its reſemblance to the Indian wampum. It ſometimes grows to the length of five feet; and like other large ſnakes, is very voracious, but its bite is not venomous. The back is of a dark blue, the belly finely clouded with ſpots of a brighter blue; the head is ſmall in proportion to the reſt of the body. See further the article SERPENT.

COLUMB-KILL. See JONA.

COLUMBA, the PIGEON, in ornithology, a genus belonging to the order of paſſeres. The characters of this genus are as follow: the bill is ſtrait, and deſcends towards the point, the noſtrils are oblong, and half covered with a ſoft tumid membrane; and the tongue is entire, *i. e.* not cloven. There are about 70 ſpecies, all natives of different countries. The following are the moſt remarkable.

1. The œnas, or domeſtic pigeon, and all its beautiful varieties, derive their origin from one ſpecies, the ſtock-dove; the Engliſh name implying its being the ſtock or ſtem from whence the other domeſtic birds ſpring. Theſe birds, as Varro obſerves, take their Latin name, *columba,* from their voice or cooing: and, had he known it, he might have added the Britiſh alſo: for *k'ommen, kylobman, kulm,* and *kolm,* ſignify the ſame bird. They were, and ſtill are, to be found in moſt parts of Britain, in a ſtate of nature; but probably the Romans firſt taught the Britons how to conſtruct pigeon-houſes, and make the birds domeſtic. The characters of the domeſtic pigeon are the following. It is of a deep bluiſh aſh colour; the breaſt daſhed with a fine changeable green and purple: the ſides of the neck with ſhining copper colour; its wings marked with two black bars, one on the coverts of the wings, the other on the quill-feathers; the black, white, and the tail barred near the end with black. They weigh 14 ounces. In the wild ſtate it breeds in holes of rocks and hollows of trees; for which reaſon ſome people ſtyle it *columba cavernalis,* in oppoſition to the ring-dove, which makes its neſt on the boughs of trees. Nature always preſerves ſome agreement in the manners, characters, and colours of birds reclaimed from their wild ſtate. This ſpecies of pigeon ſoon takes to build in artificial cavities, and from the temptation of a ready proviſion becomes eaſily domeſticated. Multitudes of theſe wild birds are obſerved to migrate into the ſouth of England: and while the beech-woods were ſuffered to cover large tracts of ground, they uſed to haunt them in myriads, reaching in ſtrings a mile in length, as they went out in the morning to feed. They viſit Britain the lateſt of any bird of paſſage, not appearing till November, and retiring in the ſpring. Mr Pennant imagines, that the ſummer haunts of theſe creatures are in Sweden, as Mr Eckmark makes their retreat thence coincide with their arrival in Britain. Numbers of them, however, breed on cliffs at the coaſt of Wales, and of the Hebrides. The varieties produced from the domeſtic are very numerous and extremely elegant; they are diſtinguiſhed by names expreſſive of their ſeveral properties, as *tumblers, carriers,*

riers, jacobines, croppers, powters, runts, turbits,, *owls, nuns*, &c. The moſt celebrated of theſe is the carrier, of which an account is already given under the article *Carrier Pigeon*. The nature of pigeons is to be gregarious; to lay only two eggs, and to breed many times in the year. So quick is their increaſe, that the author of the "Oeconomy of Nature" obſerves, that in the ſpace of four years, 14,760 pigeons may come from a ſingle pair. They bill during their courtſhip: the male and female ſit, and alſo feed their young, by turns: they caſt proviſion out of their craw into the young one's mouth; and drink, not by ſipping, like other birds, but by continual draughts like quadrupeds, and have mournful or plaintive notes.

2. The palumbus, or ring-dove, is a native of Europe and Aſia. It is the largeſt pigeon we have, and might be diſtinguiſhed from all others by its ſize alone. Its weight is about 20 ounces; its length 18, the breadth 30, inches. The head, back, and covers of the wings, are of a bluiſh aſh colour: the lower ſide of the neck and breaſt are of a purpliſh red, daſhed with aſh colour: on the hind part of the neck is a ſemicircular line of white: above and beneath that, the feathers are gloſſy, and of changeable colours as oppoſed to the light. This ſpecies forms its neſt of a few dry ſticks in the boughs of trees. Attempts have been made to domeſticate them by hatching their eggs under the common pigeon in dove-houſes; but as ſoon as they could fly, they always took to their proper haunts. In the beginning of winter they aſſemble in great flocks, and leave off cooing, which they begin in March when they pair.

3. The turtur, or turtle-dove, is a native of India. The length is 12 inches and a half; its breadth 21; the weight four ounces. The irides are of a fine yellow, and the eye-lids encompaſſed with a beautiful crimſon circle. The chin and forehead are whitiſh; the top of the head aſh-coloured, mixed with olive. On each ſide of the neck is a ſpot of black feathers prettily tipt with white: the back aſh-coloured, bordered with olive brown: the ſcapulars and coverts of a reddiſh brown ſpotted with black: the breaſt of a light purpliſh red, having the verge of each feather yellow: the belly white. The tail is three inches and a half long; the two middle feathers of a duſky brown: the others black, with white tips; the end and exterior ſide of the outmoſt feathers wholly white. In the breeding ſeaſon theſe birds are found in Buckinghamſhire, Glouceſterſhire, Shropſhire, and the weſt of England. They are very ſhy and retired, breeding in thick woods, generally of oak; in autumn they migrate into other countries.

4. The paſſerina, or ground-dove of Carolina, is about the ſize of a lark. The bill is yellow, and black at the end: the iris red; the breaſt and whole front of a changeable purple, with dark purple ſpots; the large quill-feathers are of a ruddy purple: the legs and feet of a dirty yellow; but the whole bird has ſuch a compoſition of colours in it, that a very particular deſcription is impoſſible. They fly many of them together, and make ſhort flights from place to place, generally lighting on the ground.

5. The migratoria, or pigeon of paſſage, is about the ſize of an Engliſh wood-pigeon; the bill black; iris red; the head of a duſky blue; the breaſt and belly of a faint red; above the ſhoulder of the wing there is a patch of feathers ſhining like gold; the wing is coloured like the head, having ſome few ſpots of black (except that the larger feathers of it are dark brown), with ſome white on the exterior vanes; the tail is very long, and covered with a black feather, under which the reſt are white; the legs and feet are red. They come in prodigious numbers from the north, to winter in Virginia and Carolina. In theſe countries they rooſt upon one another's backs in ſuch quantities that they often break down the limbs of oaks which ſupport them, and leave their dung ſome inches thick below the trees. In Virginia Mr Cateſby has ſeen them fly in ſuch continual trains for three days ſucceſſively, that they were not loſt ſight of for the leaſt interval of time, but ſomewhere in the air they were ſeen continuing their flight ſouthward. They breed in rocks by the ſides of rivers and lakes far north of St Lawrence. They fly to the ſouth only in hard winters, and are never known to return.

6. The coronata, or great crowned pigeon, a very large ſpecies, the ſize of a turkey. The bill is black, and two inches long; the irides are red; the head neck, breaſt, belly, ſides, thighs, and under tail coverts, cinereous blue; the head is creſted; the back, rump, ſcapulars, and upper tail covers, are of a deep aſh-colour, with a mixture of purpliſh cheſnut on the upper part of the back and ſcapulars; the wing-coverts are aſh-coloured within, and purpliſh cheſnut on the outſide and tip; quills deep blackiſh aſh-colour; tail the ſame, but of a light aſh-colour at the tip; the legs are blackiſh. This ſpecies inhabits the Mollucca iſles and New Guinea, and has been brought to England alive. Buffon mentions five having been at once alive in France. In ſize it far exceeds any of the pigeon tribe; but its form and manners tell us that it can belong to no other. Indeed Briſſon has placed it with the pheaſants; and the *planches enluminées* have copied that name; but whoever has obſerved it cannot doubt in the leaſt to which it belongs. Its note is cooing and plaintive, like that of other pigeons, only more loud in proportion. The mournful notes of theſe birds alarmed the crew of Bougainville much, when in the neighbourhood of them, thinking they were the cries of the human ſpecies. In France they were never obſerved to lay eggs, nor in Holland, though they were kept for ſome time; but Scopoli aſſures us, that the male approaches the female with the head bent into the breaſt, making a noiſe more like lowing than cooing; and that they not only made a neſt on trees, in the menagery where they were kept, but laid eggs. The neſt was compoſed of hay and ſtalks. The female never ſat, but ſtood upon the eggs; and he ſuppoſed it was from this cauſe alone that there was no produce. They are ſaid to be kept by ſome, in the Eaſt Indies, in their court-yards, as domeſtic poultry. The Dutch at the Molluccas call them *crown-vogel.* M. Sonnerat, as well as Dampier, found theſe in plenty at New Guinea; and it is probable that they were originally tranſported from that place into Banda, from whence the Dutch chiefly now procure them.

Among the great number of other ſpecies of columba, there are ſome very ſmall, not larger than a woodlark. The Malacca pigeon deſcribed by Sonnerat is little bigger than the houſe-ſparrow. It is a moſt beautiful ſpecies, and the fleſh ſaid to be extremely delicate. It has been tranſported into the iſle of France, where it has multiplied exceedingly.

Pigeons, beſides being eſteemed as a delicacy for the table, are of value on other accounts. Their dung is thought to be ſo good amendment for ſome kinds of land, that it has been fetched 16 miles, and a load of coals has been given for a load of it: it is alſo uſed for tanning the upper-leathers of ſhoes, as well as applied as a cataplaſm to this day. Indeed formerly ſaltpetre was collected from it. The greateſt uſe of pigeons is at Iſpahan in Perſia, where there are recorded to be above 3000 pigeon-houſes, and theſe kept by the Turks alone, as Chriſtians are not allowed to keep any. Dr Pococke mentions the frequency of pigeon-houſes in Egypt: adding, that the pigeon-houſe is reckoned a great part of the eſtate of the huſbandman; and the common proverb in thoſe parts is, that a man who has a pigeon-houſe need not be careful about the diſpoſal of his daughter. Tavernier ſays that their dung is uſed to ſmoke melons. The uſual way taken to entice pigeons to remain where they are intended, is to place what is called a *ſalt-cat* near them; this is compoſed of loam, old rubbiſh, and ſalt, and will ſo effectually anſwer the purpoſe as to decoy them from other places, and is therefore held illegal.

COLUMBA (St), in alluſion to whoſe name the iſland of Jona (one of the Hebrides) received its name; *Jona* being derived from a Hebrew word ſignifying a dove. This holy man, inſtigated by his zeal, left his native country, Ireland, in the year 565, with the pious deſign of preaching the goſpel to the Picts. It appears that he left his native ſoil with warm reſentment, vowing never to make a ſettlement within ſight of that hated iſland. He made his firſt trial at Oranſay; and finding that place too near to Ireland, ſucceeded to his wiſh at *Hy*, for that was the name of Jona at the time of his arrival. He repeated here the experiment on ſeveral hills, erecting on each a heap of ſtones; and that which he laſt aſcended is to this day called *Carnan-chul-reh-Eiriun*, or "The eminence of the back turned to Ireland."

Columba was ſoon diſtinguiſhed by the ſanctity of his manners: a miracle that he wrought ſo operated on the Pictiſh king Bradeus, that he immediately made a preſent of the little iſle to the ſaint. It ſeems that his majeſty had refuſed Columba an audience; and even proceeded ſo far as to order the palace-gates to be ſhut againſt him: but the ſaint, by the power of his word, inſtantly cauſed them to fly open. As ſoon as he was in poſſeſſion of Jona, he founded a cell of monks, borrowing his inſtitutions from a certain oriental monaſtic order. It is ſaid that the firſt religious were canons regular, of whom the founder was the firſt abbot; and that his monks, till the year 716, differed from thoſe of the church of Rome, both in the obſervation of Eaſter and in the clerical tonſure. Columba led here an exemplary life, and was highly reſpected for the ſanctity of his manners for a conſiderable number of years. He is the firſt on record who had the faculty of *ſecond ſight*, for he told the victory of Aidan over the Picts and Saxons on the very inſtant it happened. He had the honour of burying in his iſland, Convallius and Kinnatil, two kings of Scotland, and of crowning a third. At length, worn out with age, he died in Jona in the arms of his diſciples; was interred there, but (as the Iriſh pretend) in after times tranſlated to Down; where, according to the epitaph, his remains were depoſited with thoſe of St Bridget and St Patrick.

Hi tres in *Duno* tumulo tumulantur in uno;
Brigida, *Patricius*, atque *Columba* pius.

But this is totally denied by the Scots; who affirm, that the contrary is ſhown in a life of the ſaint, extracted out of the pope's library, and tranſlated out of the Latin into Erſe, by Father *Cail o horan*; which decides in favour of Jona the momentous diſpute.

COLUMBANUS, a ſaint and a poet, was born in Ireland, and brought up to a religious life among the diſciples of St Columba. He made uncommon progreſs in learning; and very early in life diſtinguiſhed himſelf for poetical abilities, by the compoſition of a book of pſalms, and a number of moral poems, intended alſo to be ſet to muſic. Jonas, a writer of eccleſiaſtical hiſtory, mentions, that Columbanus belonged originally to a monaſtery of the name of *Benchor*. The ſame monaſtery is mentioned by St Bernard in his life of his friend St Malachi; and he relates that it ſent out a great number of monks, who ſpread over Europe. Columbanus paſſed from Britain into France, and founded the monaſtery of Luxeville near Beſançon. He had been kindly received and patroniſed by king Childebert; but he was afterwards expelled out of France by the wicked queen Brunichild. He retired to Lombardy in Italy, and was well received by king Argulphus. In Lombardy he again founded the monaſtery of Bobio. The *Regula Cœnobialis* and *Penitentialis*, which he eſtabliſhed in that monaſtery, have been publiſhed in the *Codex Regularum* compiled by the learned Holſtenius. He was cotemporary with St Benedict. It was in the year 589 he went into France.

COLUMBARIA (anc. geog.), an iſland like a rock on the weſt of Sicily, oppoſite to Drepanum; ſaid by Zonaras to have been taken from the Carthaginians by Numerius Fabius the conſul. Now *Columbara*, with a very ſtrong and almoſt impregnable citadel (Cluverius).

COLUMBINE, in botany. See AQUILEGIA.

COLUMBO-ROOT, an article lately introduced into the materia medica, the natural hiſtory of which is not yet well known. According to Dr Percival's account it grew originally on the continent of America; from whence it was tranſplanted to Columbo, a town in Ceylon, which gives name to it, and ſupplies all India with it. The inhabitants of theſe countries have for a long time uſed it in diſorders of the ſtomach and bowels. They carry it about with them, and take it ſliced or ſcraped in Madeira wine. This root comes to us in circular pieces, which are from half an inch or an inch to three inches in diameter; and divided into *fruſta*, which meaſure from two inches to one quarter of an inch. The ſides are covered with a thick corrugated bark, of a dark brown hue on its external ſurface, but internally of a light yellow colour. The ſurfaces of the tranſverſe ſections appear very unequal, higheſt at the edges, and forming a concavity towards the centre. On ſeparating this ſurface, the root is obſerved to conſiſt of three lamina, viz. the cortical, which, in the larger roots, is a quarter of an inch thick; the ligneous, about half an inch; and the medullary, which forms the centre, and is near an inch in diameter. This laſt is much ſofter than the other parts, and, when chewed, ſeems mucilaginous; a number of ſmall fibres run longitudinally through it, and appear on the ſurface. The cortical and ligneous parts are divided by a black circular line. All the thicker pieces have ſmall holes drilled through them, for the convenience of drying. Columbo-root has an aromatic ſmell; but is diſagreeably bitter, and ſlightly pungent to the taſte, ſomewhat reſembling muſtard-ſeed, when it has loſt, by long keeping, part of its eſſential oil. Yet, though ungrateful to the taſte, when received into the ſtomach, it appears to be corroborant, antiſeptic, ſedative, and powerfully antiemetic. In the cholera morbus it alleviates the violent *tormina*, checks the purging and vomiting, corrects the putrid tendency of the bile, quiets the inordinate motions of the bowels, and ſpeedily recruits the exhauſted ſtrength of the patient. It was adminiſtered to a great number of patients, ſometimes upwards of 20 in a day, afflicted with the cholera morbus, by Mr Johnſon of Cheſter, in 1756. He generally found that it ſoon ſtopped the vomiting, which was the moſt fatal ſymptom, and that the purging and remaining complaints quickly yielded to the ſame remedy. The doſe he gave was from half a drachm to two drachms of the powder, every three or four hours, more or leſs according to the urgency of the ſymptoms. Though this medicine poſſeſſes little or no aſtringency, it has been obſerved to be of great ſervice in diarrhœas, and even in the dyſentery. In the firſt ſtage of theſe diſorders, where aſtringents would be hurtful, Columbo-root may be preſcribed with ſafety; as, by its antiſpaſmodic powers, the irregular actions of the primæ viæ are corrected. But as a cordial, tonic, and antiſeptic remedy, it anſwers better when given towards their decline. Its efficacy has alſo been obſerved in the vomitings which attend the bilious cholic; and in ſuch caſes, where an emetic is thought neceſſary, after adminiſtering a ſmall doſe of ipecacuan, the ſtomach may be waſhed with an infuſion of Columbo-root. This will tend to prevent thoſe violent and convulſive reachings which in irritable habits abounding with bile are ſometimes excited by the mildeſt emetic. In bilious fevers, 15 or 20 grains of this root, with an equal or double quantity of vitriolated tartar, given every four, five, or ſix hours, produce very beneficial effects. From its efficacy in theſe bilious diſeaſes of this country, it is probable that it may be uſeful in the yellow fever of the Weſt Indies, which is always attended with great ſickneſs, violent reachings, and a copious diſcharge of bile. The vomiting recurs at ſhort intervals, often becomes almoſt inceſſant, and an incredible quantity of bile is ſometimes evacuated in a few hours. Children during dentition are often ſubject to ſevere vomitings and diarrhœas. In theſe caſes the Columbo-root is an uſeful remedy, and hath often procured almoſt inſtant relief, when other efficacious remedies have been tried in vain. This root is alſo extremely beneficial in a languid ſtate of the ſtomach, attended with want of appetite, indigeſtion, nauſea, and flatulence. It may be given either in ſubſtance, with ſome grateful aromatic, or infuſed in Madeira wine. Habitual vomiting, when it proceeds from a weakneſs or irritability of the ſtomach, from an irregular gout, acidities, acrimonious bile, or an increaſed and depraved ſecretion of the pancreatic juice, is greatly relieved by the uſe of Columbo-root, in conjunction with aromatics, chalybeates, or the teſtaceous powders. In the nauſea and vomiting occaſioned by pregnancy, an infuſion of Columbo-root ſucceeds better than any other medicine that hath been tried.

From Dr Percival's experiments on this root, it appears, that rectified ſpirit of wine extracts its virtues in the greateſt perfection. The watery infuſion is more periſhable than that of other bitters. In 24 hours a copious precipitation takes place; and in two days it becomes ropy, and even muſty. The addition of orange-peel renders the infuſion of Columbo-root leſs ungrateful to the palate. An ounce of the powdered root, half an ounce of orange-peel, two ounces of French brandy, and 14 ounces of water, macerated 12 hours without heat, and then filtered through paper, afford a ſufficiently ſtrong and tolerably pleaſant infuſion. The extract made firſt by ſpirit and then with water, and reduced by evaporation to a pilular conſiſtence, is found to be equal if not ſuperior in efficacy to the powder. As an antiſeptic, Columbo-root is inferior to the bark; but as a corrector of putrid gall, it is much ſuperior to the bark; whence alſo it is probable that it would be of ſervice in the Weſt India yellow fever. It alſo reſtrains alimentary fermentation, without impairing digeſtion; in which property it reſembles muſtard. Hence its great ſervice in preventing acidities. It hath alſo a remarkable power of neutralizing acids already formed. It doth not appear to have the leaſt heating quality; and therefore may be uſed with propriety and advantage in the phthiſis pulmonalis and in hectical caſes, to correct acrimony and ſtrengthen digeſtion. It occaſions no diſturbance, and agrees very well with a milk diet, as it abates flatulence, and is indiſpoſed to acidity.

Columbo, a maritime town of the iſland of Ceylon in the Eaſt Indies, ſeated on the ſouth-weſt part of its coaſt, and ſubject to the Dutch. E. Long. 68. 10. N. Lat. 7. 5.

COLUMBUS, or *Congregation of St Columbus*, a ſociety of regular canons, who formerly had 100 abbeys or monaſteries in the Britiſh iſles.

Columbus, (Chriſtopher) a Genoeſe, the celebrated navigator, and firſt diſcoverer of the iſlands of America, was a ſubject of the republic of Genoa. Neither the time nor the place of his birth, however, are known with certainty; only he was deſcended of an honourable family, who, by various misfortunes, had been reduced to indigence. His parents were ſea-faring people; and Columbus having diſcovered, in his early youth, a capacity and inclination for that way of life, was encouraged by them to follow the ſame profeſſion. He went to ſea at the age of 14: his firſt voyages were to thoſe ports in the Mediterranean frequented by the Genoeſe; after which he took a voyage to Iceland; and proceeding ſtill further north, advanced ſeveral degrees within the polar circle. After this, Columbus entered into the ſervice of a famous ſea-captain of his own name and family. This man commanded a ſmall ſquadron, fitted out at his own expence; and by cruiſing, ſometimes againſt the Mahometans and ſometimes againſt the Venetians, the rivals of his country in trade, had acquired both wealth and reputation. With him Columbus continued for ſeveral years, no leſs diſtinguiſhed for his courage than his experience as a ſailor. At length, in an obſtinate engagement off the coaſt of Portugal, with ſome Venetian caravals returning richly laden from the Low Countries, the veſſel on board which he ſerved took fire, together with one of the enemies ſhips to which it was faſt grappled. Columbus threw himſelf into the ſea; laid hold of a floating oar; and by the ſupport of it, and his dexterity in ſwimming, he reached the ſhore, though above two leagues diſtant.

After this diſaſter, Columbus repaired to Liſbon, where he married a daughter of Bartholomew Pereſtrello, one of the captains employed by Prince Henry in his early navigations, and who had diſcovered and planted the iſlands of Porto Santo and Madeira. Having got poſſeſſion of the journals and charts of this experienced navigator, Columbus was ſeized with an irreſiſtible deſire of viſiting unknown countries. In order to indulge it, he made a voyage to Madeira, and continued during ſeveral years to trade with that iſland, the Canaries, Azores, the ſettlements in Guinea, and all the other places which the Portugueſe had diſcovered on the continent of Africa.

By the experience acquired in ſuch a number of voyages, Columbus now became one of the moſt ſkilful navigators in Europe. At this time, the great object of diſcovery was a paſſage by ſea to the Eaſt Indies. This was attempted, and at laſt accompliſhed by the Portugueſe, by doubling the Cape of Good Hope. The danger and tediouſneſs of the paſſage, however, ſuppoſing it to be really accompliſhed, which as yet it was not, ſet Columbus on conſidering whether a ſhorter and more direct paſſage to theſe regions might not be found out; and, after long conſideration, he became thoroughly convinced, that, by ſailing acroſs the Atlantic Ocean, directly towards the weſt, new countries, which probably formed a part of the vaſt continent of India, muſt infallibly be diſcovered. His reaſons for this were, in the firſt place, a knowledge he had acquired of the true figure of the earth. The continents of Europe, Aſia, and Africa, as far as then known, form but a ſmall part of the globe. It was ſuitable to our ideas, concerning the wiſdom and beneficence of the Author of nature, to believe, that the vaſt ſpace, ſtill unexplored, was not entirely covered by a waſte and barren ocean, but occupied by countries fit for the habitation of man. It appeared likewiſe extremely probable, that the continent on this ſide the globe was balanced by a proportional quantity of land in the other hemiſphere. Theſe conjectures were confirmed by the obſervations of modern navigators. A Portugueſe pilot having ſtretched farther to the weſt than was uſual at that time, took up a piece of timber, artificially carved, floating upon the ſea; and as it was driven towards him by a weſterly wind, he concluded that it came from ſome unknown land ſituated in that quarter. Columbus's brother-in-law had found to the weſt of the Madeira iſles a piece of timber faſhioned in the ſame manner, and brought by the ſame wind; and had ſeen alſo canes of an enormous ſize floating upon the waves, which reſembled thoſe deſcribed by Ptolemy, as productions peculiar to the Eaſt Indies. After a courſe of weſterly winds, trees torn up by the roots were often driven upon the coaſt of the Azores; and at one time the dead bodies of two men, with ſingular features, which reſembled neither the inhabitants of Europe nor Africa, were caſt aſhore there. The moſt cogent reaſon, however, was a miſtaken notion of the ancient geographers concerning the immenſe extent of the continent of India. Though hardly any of them had penetrated beyond the river Ganges, ſome Greek writers had ventured to deſcribe the provinces beyond that river, which they repreſented as regions of an immenſe extent. Cteſias affirmed that India was as large as all the reſt of Aſia. Oneſicritus, whom Pliny the naturaliſt follows, contended that it was equal to a third part of the habitable earth. Nearchus aſſerted that it would take four months to march from one extremity of it to the other in a ſtraight line. The journal of Marco Polo, who travelled into Aſia in the 13th century, and who had proceeded towards the eaſt far beyond the limits to which any European had ever advanced, ſeemed alſo ſo much to confirm theſe accounts, that Colombus was perſuaded, that the diſtance from the moſt weſterly part of Europe to the moſt eaſterly part of Aſia was not very conſiderable; and that the ſhorteſt, as well as moſt direct courſe to the remote regions of the eaſt, was to be found by ſailing due weſt.

In 1474, Columbus communicated his ideas on this ſubject to one Paul a phyſician in Florence, a man eminent for his knowledge in coſmography. He approved of the plan, ſuggeſted ſeveral facts in confirmation of it, and warmly encouraged Columbus to perſevere in an undertaking ſo laudable, and which muſt redound ſo much to the honour of his country and the benefit of Europe. Columbus, fully ſatisfied of the truth of his ſyſtem, was impatient to ſet out on a voyage of diſcovery. The firſt ſtep towards this was to ſecure the patronage of ſome of the conſiderable powers of Europe capable of undertaking ſuch an enterpriſe. He applied firſt to the republic of Genoa; but his countrymen, ſtrangers to his abilities, inconſiderately rejected his propoſal as the dream of a chimerical projector, and thus loſt for ever the opportunity of reſtoring their commonwealth to its ancient luſtre. His next application was to the court of Portugal, where King John II. liſtened to him in the moſt gracious manner, and referred the conſideration of his plan to Diego Ortiz, biſhop of Ceuta, and two Jewiſh phyſicians, eminent coſmographers, whom he was accuſtomed to conſult in matters of this kind. Unhappily theſe were the perſons who had been the chief directors of the Portugueſe navigations, and had adviſed to ſearch for a paſſage to India by ſteering a courſe directly oppoſite to that which Columbus had recommended as ſhorter and more certain. They could not therefore approve of his propoſal, without ſubmitting to the double mortification of condemning their own theory, and of acknowledging his ſuperiority. The reſult of their conferences was, that they adviſed the king to fit out a veſſel privately, in order to attempt the propoſed diſcovery, by following exactly the courſe which Columbus ſeemed to point out. John, forgetting on this occaſion the ſentiments of a monarch, meanly adopted this perfidious counſel. But the pilot choſen to execute Columbus's plan had neither the genius nor fortitude of its author. Contrary winds aroſe; no ſign of approaching land appeared; his courage failed; and he returned to Liſbon, execrating the project as equally extravagant and dangerous.

On diſcovering this diſhonourable tranſaction, Columbus immediately quitted Portugal, and applied to the king of Spain; but leſt he ſhould be here again diſappointed, he ſent his brother Bartholomew into England, to whom he had fully communicated his ideas, in order that he might negociate at the ſame time with Henry VII, who was reckoned one of the moſt ſagacious as well as opulent princes of Europe. Bartholomew was very unfortunate in his voyage: he fell into the hands of pirates, who ſtripped him of every thing, and detained him a priſoner for ſeveral years. At laſt he made his eſcape, and arrived in London, but in ſuch extreme indigence, that he was obliged to employ himſelf, during a conſiderable time, in drawing and ſelling maps, in order to pick up as much money as would purchaſe him a decent dreſs in which he might venture to appear at court. The propoſals were received by Henry with more approbation than by any monarch to whom they had hitherto been preſented.

Columbus himſelf made his propoſals to the king of Spain, not without many doubts of ſucceſs, which ſoon appeared to be well founded. True ſcience had as yet made ſo little progreſs in the kingdom of Spain, that moſt of thoſe to whom the conſideration of his plan was referred were utterly ignorant of the firſt principles on which he founded his hopes. Some, from miſtaken notions concerning the dimenſions of the globe, contended that a voyage to thoſe remote regions of the Eaſt which Columbus expected to diſcover, could not be performed in leſs than three years. Others concluded, that either he would find the ocean of infinite extent, according to the opinion of ſome ancient philoſophers; or that if he ſhould perſiſt in ſteering weſtwards beyond a certain point, the convex figure of the globe muſt infallibly prevent his return, and he muſt periſh in the vain attempt to unite the two oppoſite hemiſpheres, which nature had for ever disjoined. Even without deigning to enter into any particular diſcuſſion, ſome rejected the ſcheme in general, upon the credit of a maxim made uſe of by the ignorant in all ages, "That it is preſumptuous in any perſon to ſuppoſe that he alone poſſeſſes knowledge ſuperior to all the reſt of mankind united." By continual diſappointments and delays, he was at laſt wearied out, and reſolved to repair to the court of England in perſon, in hopes of meeting with a favourable reception there. He had already made preparations for this purpoſe, and taken meaſures for the diſpoſal of his children during his abſence, when Juan Perez, the prior of the monaſtery of Rabida near Palos, in which they and been educated, earneſtly ſolicited him to defer his journey for a ſhort time. Perez was a man of conſiderable learning, and ſome credit with Queen Iſabella. To her therefore he applied; and the conſequence of his application was a gracious invitation of Columbus back to court, accompanied with the preſent of a ſmall ſum to equip him for the journey. Ferdinand, however, ſtill regarded the project as chimerical; and had the addreſs to employ, in this new negociation with him, ſome of the perſons who had formerly pronounced his ſcheme to be impracticable. To their aſtoniſhment, Columbus appeared before them with the ſame confident hopes of ſucceſs as formerly, and inſiſted on the ſame high recompence. He propoſed that a ſmall fleet ſhould be fitted out, under his command, to attempt the diſcovery: and demanded to be appointed perpetual and hereditary admiral and viceroy of all the ſeas and lands which he ſhould diſcover; and to have the tenth of the profits ariſing from them ſettled irrevocably upon him and his deſcendents for ever. At the ſame time he offered to advance the eighth part of the ſum neceſſary for accompliſhing his deſign, on condition that he ſhould be intitled to a proportional ſhare in the adventure. If the enterpriſe ſhould totally miſcarry, he made no ſtipulation for any reward or emolument whatever. Theſe demands were thought unreaſonable; Iſabella broke off the treaty ſhe had begun, and Columbus was once more diſappointed. He now reſolved finally to leave Spain; and had actually proceeded ſome leagues on his journey, when he was overtaken by a meſſenger from Iſabella, who had been prevailed upon by the arguments of Quintanilla and Santangel, two of Columbus's patrons, again to favour his undertakings. The negociation now went forward with all manner of facility and diſpatch; and a treaty with Columbus was ſigned on the 17th of April 1492. The chief articles of it were, that Columbus ſhould be conſtituted high admiral in all the ſeas, iſlands, and continents he ſhould diſcover, with the ſame powers and prerogatives that belonged to the high admiral of Caſtile within the limits of his juriſdiction. He was alſo appointed viceroy in all thoſe countries to be diſcovered; and a tenth of the products accruing from their productions and commerce was granted to him for ever. All controverſies or law-ſuits with reſpect to mercantile tranſactions were to be determined by the ſole authority of Columbus, or of judges to be appointed by him. He was alſo permitted to advance one-eighth part of the expence of the expedition, and of carrying on commerce with the new countries; and was intitled, in return, to an eighth part of the profit. But, though the name of Ferdinand was joined with Iſabella in this tranſaction, his diſtruſt of Columbus was ſtill ſo violent, that he refuſed to take any part in the enterpriſe as king of Arragon: and as the whole expence of the expedition was to be defrayed by the crown of Caſtile, Iſabella reſerved for her ſubjects of that kingdom an excluſive right to all the benefits which might accrue from its ſucceſs.

At laſt our adventurer ſet ſail with three ſmall ſhips, the whole expence of which did not exceed L.4000, During his voyage he met with many difficulties from the mutinous and timid diſpoſition of his men. He was the firſt who obſerved the variation of the compaſs, which threw the ſailors into the utmoſt terror. For this phenomenon Columbus was obliged to invent a reaſon, which, though it did not ſatisfy himſelf, yet ſerved to diſpel their fears, or ſilence their murmurs. At laſt, however, the ſailors loſt all patience; and the admiral was obliged to promiſe ſolemnly, that in caſe land was not diſcovered in three days he ſhould return to Europe. That very night, however, the iſland of San Salvador was diſcovered, which quickly put an end to all their fears. The ſailors were then as extravagant in the praiſe of Columbus as they had before been inſolent in reviling and threatening him. They threw themſelves at his feet, implored his pardon, and pronounced him to be a perſon inſpired by heaven with more than human ſagacity and fortitude, in order to accompliſh a deſign ſo far beyond the ideas and conception of all former ages. Having viſited ſeveral of the Weſt India iſlands, and ſettled a colony in Hiſpaniola*, he again ſet ſail for Spain; and after eſcaping great dangers from violent tempeſts, arrived at the port of Palos on the 15th of March 1493.

As ſoon as Columbus's ſhip was diſcovered approaching, all the inhabitants of Palos ran eagerly to the ſhore, where they received the admiral with royal honours. The court was then at Barcelona, and Columbus took care immediately to acquaint the king and queen of his arrival. They were no leſs delighted than aſtoniſhed with this unexpected event. They gave orders for conducting him into the city with all imaginable pomp. They received him clad in their royal robes, and ſeated on a throne under a magnificent canopy. When he approached, they ſtood up; and, raiſing him as he kneeled to kiſs their hands, commanded him to take his ſeat upon a chair prepared for him, and to give a circumſtantial account of his voyage. When he had finiſhed his oration, which he delivered with much modeſty and ſimplicity, the king and queen, kneeling down, offered up ſolemn thanks to God for the diſcovery. Every poſſible mark of honour that could be ſuggeſted by gratitude or admiration was conferred on Columbus; the former capitulation was confirmed, his family was ennobled, and a fleet was ordered to be equipped, to enable him to go in queſt of thoſe more opulent countries which he ſtill confidently expected to find.

Notwithſtanding all this reſpect, however, Columbus was no longer regarded than he was ſucceſsful. The coloniſts he carried over with him were to the laſt degree unreaſonable and unmanageable; ſo that he was obliged to uſe ſome ſeverities with them; and complaints were made to the court of Spain againſt him for cruelty. On this, Francis de Bovadilla, a knight of Calatrava, was appointed to inquire into the conduct of Columbus; with orders, in caſe he found the charge of maladminiſtration proved, to ſuperſede him, and aſſume the office of governor of Hiſpaniola. The conſequence of this was, that Columbus was ſent to Spain in chains. From theſe, however, he was freed immediately on his arrival, and had an opportunity granted him of vindicating his innocence. He was, however, deprived of all power; and notwithſtanding his great ſervices, and the ſolemnity of the agreement between him and Ferdinand, Columbus never could obtain the fulfilment of any part of that treaty. At laſt, diſguſted with the ingratitude of a monarch whom he had ſerved with ſuch fidelity and ſucceſs, and exhauſted with fatigues, he ended his life on the 29th of May 1506.

COLUMBUS (Bartholomew), brother to Chriſtopher, famous for his marine charts and ſpheres, which he preſented to Henry VII. of England. He died in 1514.

COLUMBUS (Don Ferdinand), ſon of Chriſtopher, and writer of his life. He entered into the eccleſiaſtical ſtate; and founded a library; which he bequeathed to the church of Seville, to this day called the *Columbine library*. He died in 1560.

COLUMELLA (Lucius Junius Moderatus), a Roman philoſopher, was a native of Cadiz, and lived under the emperor Claudius about the year 42. He wrote a book on agriculture intitled *De Re Ruſtica*, and another *De Arboribus*.

COLUMEY, a town of Red Ruſſia in Poland, ſeated on the river Pruth, towards the confines of Moldavia, about 38 miles from Haliez, and 63 ſouth of Leopol. This town has been very ill treated by the Coſſacks, inſomuch that it is now inconſiderable, tho' there are ſeveral mines of ſalt in its diſtrict. E. Long. 16. 25. N. Lat 48. 45.

COLUMN, in architecture, a round pillar made to ſupport and adorn a building, and compoſed of a baſe, a ſhaft, and capital. See ARCHITECTURE, nº 33.

COLUMNS, *denominated from their uſe*.—Aſtronomical column is a kind of obſervatory, in form of a very high tower built hollow, and with a ſpiral aſcent to an armillary ſphere placed a-top for obſerving the motions of the heavenly bodies. Such is that of the Doric order erected at the Hotel de Soiſſons at Paris by Catharine de Medicis for the obſervations of Orontius Fineus, a celebrated aſtronomer of that time.

Chronological COLUMN, that which bears ſome hiſtorical inſcription digeſted according to the order of time; as by luſtres, olympiads, faſti, epochas, annals, &c. At Athens, there were columns of this kind, whereon were inſcribed the whole hiſtory of Greece digeſted into olympiads.

Funeral COLUMN, that which bears an urn, wherein are ſuppoſed to be incloſed the aſhes of ſome deceaſed hero; and whoſe ſhaft is ſometimes overſpread with tears and flames, which are ſymbols of grief and of immortality.

Gnomonic COLUMN, a cylinder whereon the hour of the day is repreſented by a ſhadow of a ſtile. See DIAL.

Hiſtorical COLUMN, is that whoſe ſhaft is adorned with a baſſo-relievo, running in a ſpiral line its whole length, and containing the hiſtory of ſome great perſonage: ſuch are the Trajan and Antonine columns at Rome.

Hollow COLUMN, that which has a ſpiral ſtair-caſe withinſide for the convenience of aſcending to the top; as the Trajan column, the ſtair-caſe whereof conſiſts of 185 ſteps, and is illuminated by 43 little windows, each of which is divided by tambours of white marble. The monument, or fire-column, at London, has alſo a ſtair-caſe; but it does not reach to the top. Theſe kinds of columns are alſo called *columnæ coclideæ*, or *cochlideæ*.

Indicative COLUMN, that which ſerves to ſhow the tides, &c. along the ſea-coaſts. Of this kind there is one at Grand Cairo of marble, whereon the overflowings of the Nile are expreſſed: by this they form a judgement of the ſucceeding ſeaſon; when the water, for inſtance, aſcends to 23 feet, it is a ſign of great fertility in Egypt. See NILOMETER.

Inſtructive COLUMN, that raiſed, according to Joſephus, lib. i. cap. 3. by the ſons of Adam, whereon were engraved the principles of arts and ſciences.

Ban-

* See *Hiſpaniola.*

Baudelot tells us, that the ſon of Piſiſtratus raiſed another of this kind of ſtone, containing the rules and precepts of agriculture.

Itinerary Column, a column with ſeveral faces, placed in the croſs ways in large roads; ſerving to ſhow the different routs by inſcriptions thereon.

Lactary Column, at Rome, according to Feſtus, was a column erected in the herb-market, now the place *Montanara*, which had a cavity in its pedeſtal, wherein young children abandoned by their parents, out of poverty or inhumanity, were expoſed, to be brought up at the public expence.

Legal Column. Among the Lacedemonians there were columns raiſed in public places, whereon were engraven the fundamental laws of the ſtate.

Limitrophous or *Boundary* Column, that which ſhows the limits of a kingdom or country conquered. Such was that which Pliny ſays Alexander the Great erected at the extremities of the Indies.

Manubiary Column, from the Latin *manubiæ*, "ſpoils of the enemy;" a column adorned with trophies built in imitation of trees, whereon the ſpoils of enemies were anciently hung. See Trophy.

Memorial Column, that raiſed on occaſion of any remarkable event; as the monument of London, built to perpetuate the memory of the burning of that city in 1666. It is of the Doric order, fluted, hollow, with a winding ſtair-caſe; and terminated a-top with waving flames. There is alſo another of the kind, in form of an obeliſk, on the banks of the Rhine in the Palatinate, in memory of the famous paſſage of that river by the great Guſtavus Adolphus and his army.

Menian Column, any Column which ſupports a balcony or meniana. The origin of this kind of column, Suetonius and Aſcanius refer to one Menias; who having ſold his houſe to Cato and Flaccus, conſuls, to be converted in a public edifice, reſerved to himſelf the right of raiſing a column withoutſide, to bear a balcony, whence he might ſee the ſhews.

Milliary Column, was a column of marble raiſed by order of Auguſtus in the middle of the Roman forum; from whence, as a centre, the diſtances of the ſeveral cities, &c. of the empire were reckoned, by other milliary columns diſpoſed at equal diſtances on all the grand roads. This column was of white marble, the ſame with that which is now ſeen on the baluſtrade of the perron of the capital at Rome. Its proportion is maſſive, being a ſhort cylinder, the ſymbol of the globe of the earth. It was called *milliarium aureum*, as having been gilt, at leaſt the ball, by order of Auguſtus. It was reſtored by the emperors Veſpaſian and Adrian, as appears by the inſcriptions.

Military Column, among the Romans, a column whereon was engraven a liſt of the forces in the Roman army, ranged by legions, in their proper order; with deſign to preſerve the memory of the number of ſoldiers, and of the order preſerved in any military expedition. They had another kind of military column, which they called *columna bellica*, ſtanding before the temple of Janus; at the foot whereof the conſul declared war, by throwing a javelin towards the enemies countries.

Sepulchral Column, anciently was a column erected on a tomb or ſepulchre, with an inſcription on its baſe. Thoſe over the tombs of perſons of diſtinction were very large; thoſe for the common people ſmall; theſe laſt are called *ſtelæ* and *cippi*.

Statuary Column, that which ſupports a ſtatue. Such was that erected by Pope Paul V. on a pedeſtal before the church of St Maria at Rome; to ſupport a ſtatue of the Virgin, which is of gilt braſs. This column was dug up in the temple of peace; its ſhaft is a ſingle block of white marble 49½ feet high, and five feet eight inches diameter, of the Corinthian order.

The term *ſtatuary column* may likewiſe be applied to Caryatides, perſians, termini, and other human figures, which do the office of columns; and which Vitruvius calls *telomones* and *atlantes*. See Architecture, n° 54.

Triumphal Column, a column erected among the ancients in honour of an hero; the joints of the ſtones, or courſes whereof, were covered with as many crowns as he had made different military expeditions. Each crown had its particular name, as *vallaris*, which was beſet with ſpikes, in memory of having forced a paliſade. *Muralis*, adorned with little turrets or battlements, for having mounted an aſſault. *Navalis*, of prows and beaks of veſſels; for having overcome at ſea. *Obſidionales*, or *graminales*, of graſs; for having raiſed a ſiege. *Ovans*, of myrtle; which expreſſed an ovation, or little triumph; and *triumphalis*, of laurel, for a grand triumph. See Crown.

COLUMNARIUM, in Roman antiquity, a heavy tribute, demanded for every pillar of a houſe. It was firſt laid on by Julius Caeſar, in order to put a ſtop to the extravagant expences laid out on ſumptuous buildings.

COLUMNEA, in botany: A genus of the angioſpermia order, belonging to the didynamia claſs of plants; and in the natural method ranking under the 40th order, *Perſonatæ*. The calyx is quinquepartite; the upper lip of the corolla arched and entire; gibbous above the baſe; the antherae convex; the capſule bilocular. There is but one ſpecies, a native of Martinico, of which we have no particular deſcription.

COLUMNIFERI, in botany, an order of plants in the *fragmenta methodi naturalis* of Linnæus, in which are the following genera, *viz.* bixa, corchorus, heliocarpus, kiggelaria, microcos, muntingia, thea, tilea, turnera, triumfetta, ayenia, grevia, helicteres, kleinhovia, adanſonia, alcaea, althaea, bombax, camellia, goſypium, hermannia, hibiſcus, lavatera, malope, malva, melochia, napaea, pentapetes, ſida, ſtewartia, theobroma, urena, waltharia.

COLURES, in aſtronomy and geography, two great circles ſuppoſed to interſect each other at right angles in the poles of the world, and to paſs through the ſolſtitial and equinoctial points of the ecliptic. See Geography.

COLURI, a little iſland in the gulf of Engia, in the Archipelago, formerly called *Salamis*. The principal town is of the ſame name, and ſeated on the ſouth ſide, at the bottom of the harbour, which is one of the fineſt in the world. The famous Grecian hero, Ajax, who makes ſuch a figure in Homer's Iliad, was king of this iſland. It is now, however, but a poor place; its commodities conſiſt of wheat, barley, tar, roſin, pit-coal, ſponges, and pot-aſhes, which they carry to

Athens. It is ſeven miles ſouth from Athens, and is ſeparated from the continent by a ſtrait about a mile over.

COLUTEA, BASTARD-SENA, in botany: A genus of the decandria order, belonging to the diadelphia claſs of plants; and in the natural method ranking under the 32d order, *Papilionaceæ*. The calyx is quinquefid; the legumen inflated, opening at the upper part of the baſe. There are three ſpecies, all of them deciduous flowering ſhrubs, adorned with many-lobed leaves, and butterfly-ſhaped flowers, of a deep yellow or red colour. They are propagated both by ſeeds and layers, and are hardy enough, though they ſometimes require a little ſhelter when the weather is very cold.

COLYBA, or COLYBUS; a term in the Greek liturgy, ſignifying an offering of corn and boiled pulſe, made in honour of the ſaints, and for the ſake of the dead.

Balſamon, P. Goar, Leo, Allatius, and others, have written on the ſubject of *colybæ*: the ſubſtance of what they have ſaid is as follows: The Greeks boil a quantity of wheat, and lay it in little heaps on a plate; adding beaten peas, nuts cut ſmall, and grape-ſtones, which they divide into ſeveral compartments, ſeparated from each other by leaves of parſley. A little heap of wheat, thus ſeaſoned, they call κολυϐα. They have a particular formula for the benediction of the *colybæ*: wherein, praying that the children of Babylon may be fed with pulſe, and that they may be in better condition than other people, they deſire God to bleſs thoſe fruits, and thoſe who eat them, becauſe offered to his glory, to the honour of ſuch a ſaint, and in memory of the faithful deceaſed. Balſamon refers the inſtitution of this ceremony to St Athanaſius; but the Greek Synaxary to the time of Julian the apoſtate.

COLYMBUS, in ornithology, a genus belonging to the order of anſeres. The bill has no teeth, is ſubulated, ſtraight, and ſharp-pointed; the teeth are in the throat; the noſtrils are linear, and at the baſe of the bill; and the legs are unfit for walking. This genus includes the divers, guillemots, and grebes; of which the following are the moſt remarkable ſpecies.

1. The grylle, or black guillemot, is in length 14 inches, in breadth 22; the bill is an inch and an half long, ſtraight, ſlender, and black; the inſide of the mouth red; on each wing is a large bed of white, which in young birds is ſpotted; the tips of the leſſer quill-feathers, and the coverts of the wings, are white: except thoſe, the whole plumage is black. In winter it is ſaid to change to white; and a variety ſpotted with black and white is not uncommon in Scotland. The tail conſiſts of 12 feathers; the legs are red. Theſe birds are found on the Baſs Iſle in Scotland; in the iſland of St Kilda; and, as Mr Ray imagines, in the Farm Iſlands off the coaſt of Northumberland. It has alſo been ſeen on the rocks of Llandidno, in Caernarvonſhire, in Wales. Except in breeding-time it keeps always at ſea; and is very difficult to be ſhot, diving at the flaſh of the pan. The Welſh call this bird *caſcan longur*, or "the ſailor's hatred," from a notion that its appearance forebodes a ſtorm. It viſits St Kilda's in march; makes its neſt far under ground; and lays a grey egg, or, as Steller ſays, whitiſh and ſpotted with ruſt, and ſpeckled with aſh-colour.

2. The troile, or fooliſh guillemot, weighs 24 ounces: its length is 17 inches, the breadth 27½; the bill is three inches long, black, ſtraight, and ſharp-pointed; near the end of the lower mandible is a ſmall proceſs; the inſide of the mouth yellow; the feathers on the upper part of the bill are ſhort and ſoft like velvet; from the eye to the hind part of the head is a ſmall diviſion of the feathers. The head, neck, back, wings, and tail, are of a deep mouſe-colour; the tips of the leſſer quill-feathers white; the whole under part of the body is of a pure white; the ſides under the wings marked with duſky lines. Immediately above the thighs are ſome long feathers that curl over them. The legs are duſky. They are found in amazing numbers on the high cliffs of ſeveral of the Britiſh coaſts, and appear at the ſame time with the auk. They are very ſimple birds: for notwithſtanding they are ſhot at, and ſee their companions killed by them, they will not quit the rock. Like the auk they lay only one egg, which is very large; ſome are of a fine pale blue; others white, ſpotted, or moſt elegantly ſtreaked with lines croſſing each other in all directions. They continue about the Orkneys the whole winter. The chief places they are known to breed in are the uninhabited iſle of Prieſtholm, near the iſle of Angleſy; on a rock called *Godreve*, not far from St Ives in Cornwall; the Farm iſles near the coaſt of Northumberland; and the cliffs about Scarborough in Yorkſhire. They are alſo found in moſt of the Northern parts of Europe, to Spitſbergen, the coaſt of Lapmark, and along the white and icy ſea quite to Kamptſchatka. Is frequently met with on the coaſts of Italy in the winter. It is alſo known in Newfoundland, and in a few parts of the continent of North America, but has not hitherto been talked of as common. The laſt Britiſh voyagers met with it on the coaſt north of Nootka Sound. It is known by ſeveral names; by the Welch, *guillem*; at Northumberland and Durham, *guillemot* or *ſea-hen*; in Yorkſhire, a *ſcout*; by the Corniſh, *kiddah*; in the ſouthern parts, *willock*; and in Kamtſchatka, *aru* or *kara*. The inhabitants of the laſt kill them in numbers for the ſake of their fleſh, though it is certainly very tough and ill taſted; but more eſpecially for their ſkins, of which, as of other fowls, they make garments: the eggs are alſo accounted a great delicacy.

3. The ſeptentrionalis, or red-throated diver, is more elegantly ſhaped than the others. It weighs three pounds. The length to the end of the tail is two feet; to the toes two feet four inches: the breadth three feet five inches. The head is ſmall and taper, the bill ſtraight; the head and chin are of a fine uniform grey; the hind part of the neck marked with duſky and white lines pointing downwards; the throat is of a dull red; the whole upper part of the body, tail, and wings, of a deep grey, almoſt duſky; but the coverts of the wings and the back are marked with a few white ſpots; the under ſide of the body is white; the legs duſky. This ſpecies breeds in the northern parts of Scotland, on the borders of the lakes. It is found alſo in Ruſſia, Siberia, and Kamtſchatka; but does not haunt the inland lakes. It is common in Ice-

land and Greenland, where it breeds in June, and lays two aſh-coloured eggs, marked with a few black ſpots; it makes its neſt in the graſs on the ſhores, compoſed of moſs and graſs, and placed contiguous to the water. It ſwims and dives well, and flies admirably, and while flying is very noiſy. It feeds on ſmall fiſh, crabs, and ſea inſects. In the ſummer, it inhabits the rivers of Hudſon's bay, appearing as ſoon as the rivers are open. Here it lays in June, and lines the neſt with a little down from its own breaſt; the young fly before the end of Auguſt, and they all depart in September. They are called by the natives *aſſee-moqua*. They prey much on the fiſh entangled in the nets; but are often thereby caught themſelves.

4. The arcticus, or black throated diver, is ſomewhat larger than the laſt: the bill is black, and alſo the front; the hind part of the head and neck cinereous; the ſides of the neck marked with black and white lines pointing downwards; the fore-part of a gloſſy variable black, purple, and green. The back, ſcapulars, and coverts of the wings, are black, marked, the two firſt with ſquare, the laſt with round ſpots of white; the quill-feathers duſky; the breaſt and belly white; the tail ſhort and black; legs partly duſky, and partly reddiſh. This ſpecies is now and then found in England, but is not common. It is ſufficiently plenty in the northern parts of Europe, Norway, Sweden, and Denmark. Frequent in the inland lakes of Siberia, eſpecially thoſe of the arctic regions; in Iceland, Greenland, and the Ferroe Iſles; and in America at Hudſon's bay. It is ſuppoſed to cry and be very reſtleſs before rain, making a great noiſe: hence the Norwegians think it impious to deſtroy this ſpecies; but the Swedes, leſs ſuperſtitious, dreſs their ſkins, which, like all of this genus, are exceedingly tough, and uſe them for gun-caſes and facings for winter caps.

5. The glacialis, or northern diver, is three feet five inches in length; the breadth four feet eight; the bill to the corners of the mouth four inches long, black and ſtrongly made. The head and neck are of a deep black; the hind part of the latter is marked with a large ſemilunar white band; immediately under the throat is another; both marked with black oblong ſtrokes pointing down: the lower part of the neck is of a deep black; gloſſed with a rich purple; the whole under ſide of the body is white; the ſides of the breaſt marked with black lines; the back, coverts of the wings, and ſcapulars, are black marked with white ſpots; thoſe on the ſcapulars are very large, and of a ſquare ſhape; two at the end of each feather. The tail is very ſhort, and almoſt concealed by the coverts, which are duſky, ſpotted with white; the legs are black. This ſpecies inhabits ſeveral parts of the north of Europe, but is not very frequent on the Britiſh ſhores; nor ever ſeen ſouthward except in very ſevere winters. It is ſeldom met with on land, being for the moſt part on the open ſea, where it is continually diving for fiſh, which it does with great agility, and flies high and well. It is common in Iceland and Greenland, where it breeds, and at that time frequents the freſh waters. It is ſufficiently plentiful in Norway, and all along the arctic coaſts, as far as the river Ob, in the Ruſſian dominions. The Barabinzians, a nation ſituated between that river and the Irtiſch, tan the breaſts of this and other water-fowl; whoſe ſkins they prepare in ſuch a manner as to preſerve the down upon them; and ſewing a number of them together, their huſbands ſell them, to make pellices, caps, &c. Garments made of theſe are very warm, never imbibing the leaſt moiſture; and are more laſting than could be imagined. It is alſo met with among the lakes of Hudſon's bay. The natives of Greenland uſe the ſkins for clothing; and the Indians about Hudſon's bay adorn their heads with circlets of their feathers. At the laſt place it is known by the name of *athinue-moqua*. As they are ſeldom ſeen on the ſea-coaſts, but chiefly among the lakes, they are called by the Indians *inland loons*.

6. The immer, or ember-gooſe, is ſuperior in ſize to a common gooſe. The head is duſky; the back, coverts of the wings, and tail, clouded with lighter and darker ſhades of the ſame. The primaries and tail are black; the under ſide of the neck ſpotted with duſky; the breaſt and belly ſilvery: the legs black. They inhabit the ſeas about the Orkney iſlands; but in ſevere winters viſit the ſouthern parts of Great Britain. They are found alſo in Iceland, and moſt parts of northern Europe; likewiſe in Kamtſchatka; but not in any parts of Siberia or Ruſſia. It likewiſe inhabits Switzerland, particularly on the lake Conſtance, where it is known by the name of *fluder*. It is ſaid to dive wonderfully well, and to riſe at an amazing diſtance from the place where it plunged. The female makes its neſt among the reeds and flags, and places it in the water; ſo that it is continually wet, as in ſome of the grebe genus. It is difficult to be taken, either on land or ſwimming on the water; but is not unfrequently caught under the water by a hook baited with a ſmall fiſh, its uſual food.

7. The Chineſe diver, deſcribed by Mr Latham; the ſize uncertain, but in the drawing the length was 14 inches. The bill duſky: irides aſh-colour: the upper parts of the head, neck, body, wings, and tail, duſky greeniſh brown; the middle of the feathers much darker: the fore part of the neck the ſame, but conſiderably paler: chin pale rufous: breaſt and under parts of the body pale rufous white, marked with duſky rufous ſpots: the quills and tail are plain brown, the laſt ſhort: legs aſh-colour. Suppoſed to inhabit China, as Mr Latham ſaw it among other well painted drawings at Sir Joſeph Banks's; it was in the attitude of fiſhing, with a braſs ring round the middle of the neck, in the manner of the figure, Plate CXXVI. From the various and uncertain accounts of authors, we are not clear what birds the Chineſe uſe for catching fiſh; the cuſtom, however, of doing it is manifeſt, from the relations of many travellers. The bird uſed for this purpoſe has a ring faſtened round the middle of the neck, in order to prevent its ſwallowing; beſides this it has a ſlender long ſtring faſtened to it; and, thus accoutred, is taken by its maſter into his fiſhing boat, from the edge of which it is taught to plunge after the fiſh as they paſs by; and as the ring prevents their paſſing further downwards, they are taken from the mouth of the bird as faſt as they are caught. In this manner ſometimes a great many are procured in the courſe of a few hours. When the keeper of the bird has taken ſufficient for himſelf, the ring is taken off, and the poor ſlave ſuffered to ſatiſfy its own hunger. We do not here give this bird as the one moſt commonly uſed for the above purpoſe; but

have thought right to figure it, as a ſpecies, if not new, at leaſt as not generally known; and probably, from the circumſtance of its ſituation in the painting, may prove one of the birds uſed on this occaſion.

8. The ſtellatus, or ſpeckled diver, a ſpecies leſs than the former, weighs two pounds and a half: and is 27 inches in length and three feet nine in breadth. The bill is three inches long, bending a trifle upwards; and is of a pale horn colour, the top of the upper mandible duſky: the head is duſky, dotted with grey; hind part of the neck plain duſky; the ſides under the eye, the chin, and throat, white; fore part of the neck very pale aſh-colour; back duſky, marked with oval ſpots of white; ſides of the breaſt and body the ſame but ſmaller; the ſpots on the rump and tail minute; breaſt and under parts white; quills duſky; legs brown; webs and claws pale. This bird is pretty frequent in England; ſufficiently ſo on the river Thames, where it is called by the fiſhermen *ſprat loon*, being often ſeen in vaſt numbers among the ſhoals of that fiſh, diving after them, and frequently approaching very near the boats while fiſhing. It is common about the Baltic and the White Sea, but not obſerved in other parts of Ruſſia, yet is a native of Kamtſchatka. It lays two eggs in the graſs, on the borders of lakes not far from the ſea; they are exactly oval, the ſize of thoſe of a gooſe, duſky, marked with a few black ſpots. Theſe are alſo frequent about the fiſh ponds in France, except they are frozen, when they betake themſelves to the rivers. This and the two laſt viſit New York in winter, but return very far north to breed.

9. The cryſtatus, creſted diver, or cargooſe, weighs two pounds and an half. Its length is 21 inches the breadth 30; the bill is two inches and a quarter long, red at the baſe, and black at the point; between the bill and the eyes is a ſtripe of black naked ſkin; the irides are of a fine pale red; the tongue is a third part ſhorter than the bill, ſlender, hard at the end, and a little divided; on the head is a large duſky creſt, ſeparated in the middle. The cheeks and throat are ſurrounded with a long pendent ruff, of a bright tawney colour, edged with black; the chin is white; from the bill to the eye is a black line, and above that a white one; the hind part of the neck and the back are of a ſooty hue; the rump, for it wants a tail, is covered with long ſoft down. The covert-feathers on the ſecond and third joints of the wing, and the under coverts, are white; all the other wing-feathers, except the ſecondaries, are duſky, thoſe being white; the breaſt and belly are of a moſt beautiful ſilvery white, gloſſy as ſattin: the outſide of the legs and the bottom of the feet are duſky; the inſide of the legs and the toes of a pale green. Theſe birds frequent the meres of Shropſhire and Cheſhire, where they breed; and the great fen of Lincolnſhire, where they are called *gaunt*. Their ſkins are made into tippets, and ſold at as high a price as thoſe which come from Geneva. This ſpecies lays four eggs of a white colour, and the ſame ſize with thoſe of a pigeon. The neſt is formed of the roots of bugbane, ſtalks of water-lily, pond-weed and water-violet, floating independent among the reeds and flags; the water penetrates it, and the bird ſits and hatches the eggs in that wet condition; the neſt is ſometimes blown from among the flags into the middle of the water: in theſe circumſtances the fable of the halcyon's neſt may, in ſome meaſure, be vindicated. It is a careful nurſe of its young; being obſerved to feed them moſt aſſiduouſly, commonly with ſmall eels; and when the infant brood are tired, the parent will carry them either on its back or under its wings. It preys on fiſh, and is almoſt perpetually diving; it does not ſhow much more than the head above water; and is very difficult to be ſhot, as it darts down on the leaſt appearance of danger. It is never ſeen on land; and, though diſturbed ever ſo often, will not fly farther than the end of the lake. Its ſkin is out of ſeaſon about February, loſing then its bright colour; and in the breeding time its breaſt is almoſt bare. The fleſh is exceſſively rank.

10. The urinator, or tippet-grebe, thought by Mr Latham not to be a different ſpecies from the former, being only ſomewhat leſs, and wanting the creſt and ruff. The ſides of the neck are ſtriped downwards from the head with narrow lines of black and white: in other reſpects the colours and marks agree with that bird. This ſpecies has been ſhot on Roſtern Mere in Cheſhire. It is rather ſcarce in England, but is common in the winter time on the lake of Geneva. They appear there in flocks of 10 or 12; and are killed for the ſake of their beautiful ſkins. The under ſide of them being dreſſed with the feathers on, are made into muffs and tippets: each bird ſells for about 14 ſhillings.

11. The auritus, eared grebe, or dob-chick, is in length one foot to the rump; the extent is 22 inches; the bill black, ſlender and ſlightly recurvated; the irides crimſon; the head and neck are black; the throat ſpotted with white; the whole upper ſide of a blackiſh brown, except the ridge of the wing about the firſt joint, and the ſecondary feathers, which are white; the breaſt, belly, and inner coverts of the wings are white; the ſubaxillary feathers, and ſome on the ſide of the rump, ferruginous. Behind the eyes, on each ſide, is a tuft of long, looſe, ruſt coloured feathers hanging backwards; the legs are of a duſky green. They inhabit the fens near Spalding, England, where they breed. No external difference is to be obſerved between the male and the female of this ſpecies. They make their neſt not unlike that of the former; and lay four or five ſmall eggs.

12. The horned grebe, is about the ſize of a teal; weight one pound; length, one foot; breadth, 16 inches. Bill one inch, duſky; head very full of feathers, and of a gloſſy deep green, nearly black: thro' each eye is a ſtreak of yellow feathers, elongated into a tuft as it paſſes to the hind head: the upper part of the neck and back is a duſky brown; the fore part of the neck and breaſt, dark orange red: the leſſer wing coverts, cinerous; the greater end quills, black; middle ones, white: belly, a gloſſy white; legs, cinerous, blue before, pale behind.—It inhabits Hudſon's bay; and firſt appears in May, about the freſh waters. It lays from two to four white eggs in June, among the aquatic plants; and is ſaid to cover them when abroad. It retires ſouth in autumn; appears then at New York, ſtaying till ſpring, when it returns to the north. For its vaſt quickneſs in diving, it is called the *water-witch*. At Hudſon's bay, it is known by the name of *ſeekeep*. See Plate CXLIII.

COM, a town of Aſia in the empire of Perſia, and province of Iracagemi. It is a large populous place, but has ſuffered greatly by the civil wars. E. Long. 49. 1. N. Lat. 34. 0.

COMA, or Coma-vigil, a preternatural propenſity to ſleep, when, nevertheleſs, the patient does not ſleep, or if he does, awakes immediately without any relief. See Medicine-*Index*.

Coma Berenices, Berenice's hair, in aſtronomy, a modern conſtellation of the northern hemiſphere, compoſed of unformed ſtars between the Lion's tail and Bootes. This conſtellation is ſaid to have been formed by Conon, an aſtronomer, in order to conſole the queen of Ptolemy Evergetes for the loſs of a lock of her hair, which was ſtolen out of the temple of Venus, where ſhe had dedicated it on account of a victory obtained by her huſband. The ſtars of this conſtellation, in Tycho's Catalogue, are fourteen; in Hevelius's twenty-one; and in the Britannic Catalogue, forty-three.

Coma Somnolentum, is when the patient continues in a profound ſleep; and, when awakened, immediately relapſes, without being able to keep open his eyes.

COMARUM, marsh-cinquefoil: A genus of the polygynia order, belonging to the icoſandria claſs of plants; and in the natural method ranking under the 35th order, *Senticoſæ*. The calyx is decemfid; the petals five, leſs than the calyx; the receptacle of the ſeeds ovate, ſpongy, and perſiſting. There is but one ſpecies, a native of Britain. It riſes about two feet high, and bears fruit ſomewhat like that of the ſtrawberry. It grows naturally in bogs, ſo is not eaſily preſerved in gardens. The root dyes a dirty red. The Iriſh rub their milking pails with it, and it makes the milk appear thicker and richer. Goats eat the herb; cows and ſheep are not fond of it; horſes and ſwine refuſe it.

COMB, an inſtrument to clean, untangle, and dreſs flax, wool, hair, &c.

Combs for wool are prohibited to be imported into England.

Comb is alſo the creſt, or red fleſhy tuft, growing upon a cock's head.

COMBAT, in a general ſenſe, denotes an engagement, or a difference decided by arms. See Battle.

Combat, in ancient law, was a formal trial of ſome doubtful cauſe or quarrel by the ſwords or baſtons of two champions. This form of proceeding was very frequent, not only in criminal but in civil cauſes; being built on a ſuppoſition that God would never grant the victory but to him who had the beſt right. The laſt trial of this kind in England was between Donald lord Ray appellant, and David Ramſay, eſq; defendant, when, after many formalities, the matter was referred to the King's pleaſure. See the article Battle.

COMBER, or Cumber (Thomas), an eminent divine born at Weſtram in Kent, in 1645, was educated at Cambridge; created doctor of divinity; and, after ſeveral preferments in the church, was made dean of Durham. He was chaplain to Anne princeſs of Denmark, and to king William and queen Mary. He was author of ſeveral works, viz. 1. A ſcholaſtical hiſtory of the primitive and general uſe of Liturgies. 2. A Companion to the Alter. 3. A brief diſcourſe upon the offices of baptiſm, catechiſm, and confirmation. He died in 1699, aged 55.

COMBINATION, properly denotes an aſſemblage of ſeveral things, two by two.

Combination, in mathematics, is the variation or alteration of any numbers of quantities, letters, or the like in all the different manners poſſible. See Changes.

Aphoriſms. I. In all combinations, if from an arithmetic decreaſing ſeries, whoſe firſt term is the number out of which the combinations are to be formed, and whoſe common difference is 1, there be taken as many terms as there are quantities to be combined, and theſe terms be multiplied into each other; and if from the ſeries 1, 2, 3, 4, &c. there may be taken the ſame number of terms, and they be multiplied into each other; and the firſt product be divided by the ſecond; the quotient will be the number of the combinations required. Therefore, if you would know how many ways four quantities can be combined in ſeven, multiply the firſt four terms of the ſeries, 7, 6, 5, 4, &c. together, and divide the product, which will be 840, by the product, of the firſt four terms of the ſeries, 1, 2, 3, 4, &c. which is 24, and the quotient 35 will be the combinations of 4 in 7. II. In all permutations, if the ſeries 1, 2, 3, 4, &c. be continued to as many terms as their are quantities to be changed, and thoſe terms be multiplied into each other; the product will be the number of permutations ſought. Thus, if you would know how many permutations can be formed with five quantities, multiply the terms 1, 2, 3, 4, 5, together, and the product 120 will be the number of all the permutations.

Problems. I. To find the number of changes that may be rung on 12 bells. It appears by the ſecond aphoriſm, that nothing more is neceſſary here than to multiply the numbers from 1 to 12 continually into each other, in the following manner, and the laſt product will be the number ſought.

```
          1
          2
        ---
          2
          3
        ---
          6
          4
        ---
         24
          5
        ---
        120
          6
        ---
        720
          7
        ---
       5040
          8
        ---
      40320
          9
     ------
     362880
         10
     ------
    3628800
         11
   --------
   39916800
         12
   --------
479,001,600
```

II. Suppoſe the letters of the alphabet to be wrote ſo ſmall that no one of them ſhall take up more ſpace than the hundredth part of a ſquare inch: to find how many ſquare yards it would require to write all the permutations of the 24 letters in that ſize. By following the ſame method as in the laſt problem, the number of permutations of the 24 letters will be found to be 62,044,840,173,323,943,936,000. Now the inches in a ſquare yard being 1296, that number multiplied by 100 gives 129,600, which is the number of letters each ſquare yard will contain; therefore if we divide 62,044,840,173,323,943,936,000 by 129600 the quotient, which is 478,741,050,720,092,160, will be the number of yards required, to contain the abovementioned number of permutations. But as all the 24 letters are contained in every permutation, it will require a ſpace 24 times as large; that is, 11,489,785,217,282,211,840. Now the number of ſquare yards contained on the ſurface of the whole earth is but 617,197,435,008,000, therefore it would require a ſurface 18620 times as large as that of the earth to write all the permutations of the 24 letters in the ſize abovementioned.

III. To find how many different ways the eldeſt hand at piquet may take in his five cards. The eldeſt hand having 12 cards dealt him, there remain 20 cards, any five of which may be in thoſe he takes in; conſequently we are here to find how many ways five cards may be taken out of 20. Therefore, by aphoriſm I. if we multiply 20, 19, 18, 17, 16, into each other, which will make 1860480, and that number be divided by 1, 2, 3, 4, 5, multiplied into each other, which make 120, the quotient, which is 15504, will be the number of ways five cards may be taken out of 20. From hence it follows, that it is 15503 to 1, that the eldeſt hand does not take any five certain cards.

IV. To find the number of deals a perſon may play at the game of whiſt, without ever holding the ſame cards twice. The number of cards played with at whiſt being 52, and the number dealt to each perſon being 13, it follows, that by taking the ſame method as in the laſt experiment, that is, by multiplying 52 by 51, 50, &c. ſo on to 41, which will make 3,954,242,643,911,239,680,000, and then dividing that ſum by 1, 2, 3, &c. to 13, which will make 6,227,020,800, the quotient, which is 635,013,559,600 will be the number of different ways 13 cards may be taken out of 52, and conſequently the number ſought.

The ARITHMETIC TRIANGLE; *or* TABLE *for* COMBINATIONS.

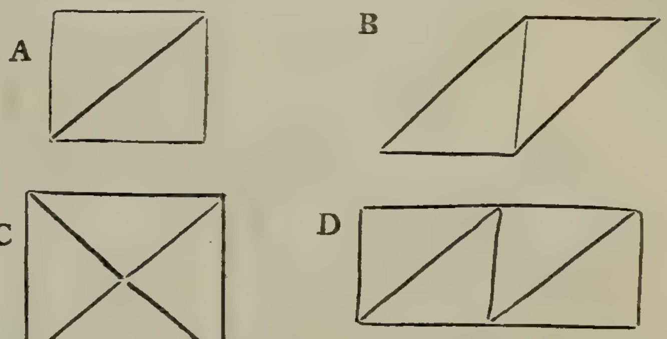
A
1 Rank 1 B
2 2. 1
3 3. 3. 1
4 4. 6. 4. 1
5 5. 10. 10. 5. 1
6 6. 15. 20. 15. 6. 1
7 7. 21. 35. 35. 21. 7. 1
8 8. 28. 56. 70. 56. 28. 8. 1
9 9. 36. 84. 126. 126. 84. 36. 9. 1
10 10. 45. 120. 210. 252. 210. 120. 45. 10. 1
11 11. 55. 165. 330. 462. 462. 330. 165. 55. 11. 1
12 *a* 12. 66. 220. 495. 792. 924. 792. 495. 220. 66. 12. 1 *b*
c

The conſtruction of this table is very ſimple. The line A *a* conſiſts of the firſt 12 numbers. The line A *b* conſiſts every where of units; and ſecond term 3, of the line B *c*, is compoſed of the two terms 1 and 2 in the preceding rank: the third term 6, in that line, is formed of the two terms 3 and 3 in the preceding rank: and ſo of the reſt; every term, after the firſt, being compoſed of the two next terms in the preceding rank: and by the ſame method it may be continued to any number of ranks. To find by this table how often any number of things can be combined in another number, under 13, as ſuppoſe 5 cards out of 8; in the eighth rank look for the fifth term, which is 56, and that is the number required.

Though we have ſhown in the foregoing problems the manner of finding the combination of all numbers whatever, yet as this table anſwers the ſame purpoſe, for ſmall numbers, by inſpection only, it will be found uſeful on many occaſions; as will appear by the following examples.

V. To find how many different ſounds may be produced by ſtriking on a harpſichord two or more of the ſeven natural notes at the ſame time. 1. The combinations of two in ſeven, by the foregoing triangle are - - - 21
2. The combinations of 3 in 7, are - 35
3. The combinations of 4 in 7, are - 35
4. The combinations of 5, are - 21
5. The combinations of 6, are - 7
6. The ſeven notes all together once - 1
Therefore the number of all the ſounds will be 120

VI. Take four ſquare pieces of paſteboard, of the ſame dimenſion, and divide them diagonally, that is by drawing a line from two oppoſite angles, as in the figures, into 8 triangles; paint 7 of theſe triangles with the primitive colours, red, orange, yellow, green blue, indigo, violet, and let the eighth be white. To find how many chequers or regular four-ſided figures, different either in form or colour, may be made out of thoſe eight triangles. Firſt, by combining two of theſe triangles, there may be formed either the triangular ſquare A, or the inclined ſquare B, called a *rhomb*. Secondly, by combining four of the triangles, the large ſquare C may be formed; or the long ſquare D, called a *parallelogram*.



Now the firſt two ſquares, conſiſting of two parts out of 8, they may each of them, by the eighth rank of the triangle be taken 28 different ways, which makes 56. And the laſt two ſquares, conſiſting of four parts, may each be taken by the ſame rank of the triangle 70 times, which makes - 140
To which add the foregoing number - 56
And the number of the different ſquares that may be formed of the 8 triangles, will be 196

VII.

VII. A man has 12 different ſorts of flowers, and a large number of each ſort. He is deſirous of ſetting them in beds or flouriſhes in his parterre: Six flowers in ſome, 7 in others, and 8 in others; ſo as to have the greateſt variety poſſible; the flowers in no two beds to be the ſame. To find how many beds he muſt have. 1. The combinations of 6 in 12 by the laſt rank of the triangle, are 924
2. The combinations of 7 in 12, are 792
3. The combinations of 8 in 12, are 495
Therefore the number of beds muſt be 2211

VIII. To find the number of chances that may be thrown on two dice. As each die has 6 faces, and as every face of one die may be combined with all the faces of the other, it follows, that 6 multiplied by 6, that is 36, will be the number of all the chances; as is alſo evident from the following table:

Points.							Numb. of chances.	Numb. of points.
2	1.1						1	2
3	2.1	1.2					2	6
4	2.2	3.1	1.3				3	12
5	4.1	1.4	3.2	2.3			4	20
6	3.3	5.1	1.5	4.2	2.4		5	30
7	6.1	1.6	5.2	2.5	4.3	3.4	6	42
8	4.4	6.2	2.6	5.3	3.5		5	40
9	6.3	3.6	5.4	4.5			4	36
10	5.5	6.4	4.6				3	30
11	6.5	5.6					2	22
12	6.6						1	12
							36	252

It appears by this table, 1. That the number of chances for each point continually increaſes to the point of ſeven, and then continually decreaſes till 12: therefore if two points are propoſed to be thrown, the equality, or the advantage of one over the other, is clearly viſible (A). 2. The whole number of chances on the dice being 252, if that number be divided by 36, the number of different throws on the dice, the quotient is 7: it follows therefore, that at every throw there is an equal chance of bringing ſeven points. 3. As there are 36 chances on the dice, and only 6 of them doublets, it is 5 to 1, at any one throw, againſt throwing a doublet.

By the ſame method the number of chances upon any number of dice may be found: for if 36 be multiplied by 6, that product, which is 216, will be the chances on 3 dice; and if that number be multiplied by 6, the product will be the chances on 4 dice, &c.

Combinations of the Cards. The following experiments, founded on the doctrine of combinations, may poſſibly amuſe a number of our readers. The tables given are the baſis of many experiments, as well on numbers, letters, and other ſubjects, as on the cards; but the effect produced by them with the laſt is the moſt ſurpriſing, as that which ſhould ſeem to prevent any colluſion, that is the ſhuffling of the cards, is on the contrary the cauſe from whence it proceeds.

It is a matter of indifference what numbers are made uſe of in forming theſe tables. We ſhall here confine ourſelves to ſuch as are applicable to the ſubſequent experiments. Any one may conſtruct them in ſuch manner as is agreeable to the purpoſes he intends they ſhall anſwer.

To make them, for example, correſpond to the nine digits and a cipher, there muſt be ten cards, and at the top of nine of them muſt be written one of the digits, and on the tenth a cipher. Theſe cards muſt be placed upon each other in the regular order, the number 1 being on the firſt, and the cipher at bottom. You then take the cards in your left hand, as is commonly done in ſhuffling, and taking off the two top cards, 1 and 2, you place the two following, 3 and 4, upon them; and under thoſe four cards the three following, 5, 6, and 7: at the top you put the cards 8 and 9, and at the bottom the card marked 0; conſtantly placing in ſucceſſion 2 at top and 3 at bottom: And they will then be in the following order:

8.9..3.4..1.2...5.6.7..0

If you ſhuffle them a ſecond time, in the ſame manner, they will then ſtand in this order:

6.7..3.4..8.9..1.2.5..0

Thus, at every new ſhuffle, they will have a different order, as is expreſſed in the following lines:

1 ſhuffle 8.9.3.4.1.2.5.6.7.0
2 6.7.3.4.8.9.1.2.5.0
3 2.5.3.4.6.7.8.9.1 0
4 9.1.3.4.2.5.6.7.8.0
5 7.8.3.4.9.1.2.5.6.0
6 5.6.3.4.7.8.9.1.2.0
7 1.2.3.4.5.6.7.8.9.0

It is a remarkable property of this number, that the cards return to the order in which they were firſt placed, after a number of ſhuffles, which added to the number of columns that never change the order, is equal to the number of cards. Thus the number of ſhuffles is 7, and the number of columns in which the cards marked 3, 4, &c. never change their places is 3, which are equal to 10, the number of the cards. This property is not common to all numbers; the cards ſometimes returning to the firſt order in a leſs number, and ſometimes in a greater number of ſhuffles than that of the cards.

TABLES of COMBINATIONS,
Conſtructed on the foregoing principles.
I. *For ten numbers.*

Order before dealing.	After 1ſt deal.	After the 2d.	After the 3d.
1	8	6	2
2	9	7	5
3	3	3	3
4	4	4	4
5	1	8	6
6	2	9	7
7	5	1	8
8	6	2	9
9	7	5	1
0	0	0	0

Theſe

(A) It is eaſy from hence to determine whether a bett propoſed at hazard, or any other game with the dice, be advantageous or not; if the dice be true (which, by the way, is rarely the caſe for any long time together, as it is ſo eaſy for thoſe that are poſſeſſed of a dexterity of hand to change the true dice for falſe.)

Theſe tables, and the following examples at piquet, except the 36th, appear to have been compoſed by M. Guyot.

II. *For twenty-four numbers.*

Order before dealing.	After 1ſt deal.	After the 2d.	After the 3d.
1	23	21	17
2	24	22	20
3	18	12	2
4	19	15	7
5	13	5	13
6	14	6	14
7	8	9	3
8	9	3	18
9	3	18	12
10	4	19	15
11	1	23	21
12	2	24	22
13	5	13	5
14	6	14	6
15	7	8	9
16	10	4	19
17	11	1	23
18	12	2	24
19	15	7	8
20	16	10	4
21	17	11	1
22	20	16	10
23	21	17	11
24	22	20	16

III. *For twenty-ſeven numbers.*

Order before dealing.	After 1ſt deal.	After the 2d.	After the 3d.
1	23	21	17
2	24	22	20
3	18	12	2
4	19	15	7
5	13	5	13
6	14	6	14
7	8	9	3
8	9	3	18
9	3	18	12
10	4	19	16
11	1	23	21
12	2	24	22
13	5	13	5
14	6	14	6
15	7	8	9
16	10	4	19
17	11	1	23
18	12	2	24
19	15	7	8
20	16	10	4
21	17	11	1
22	20	16	10
23	21	17	11
24	22	20	16
25	25	25	25
26	26	26	26
27	27	27	27

IV. *For thirty-two numbers.*

Order before dealing.	After 1ſt deal.	After the 2d.	After the 3d.
1	28	26	22
2	29	27	25
3	23	17	7
4	24	20	12
5	18	10	9
6	19	11	3
7	13	1	28
8	14	2	29
9	8	14	2
10	9	8	14
11	3	23	17
12	4	24	20
13	1	28	26
14	2	29	27
15	5	18	10
16	6	19	11
17	7	13	1
18	10	9	8
19	11	3	23
20	12	4	24
21	15	5	18
22	16	6	19
23	17	7	13
24	20	12	4
25	21	15	5
26	22	16	6
27	25	21	15
28	26	22	16
29	27	25	21
30	30	30	30
31	31	31	31
32	32	32	32

I. “ Several letters that contain no meaning, being “ written upon cards, to make them, after they have “ been twice ſhuffled, give an anſwer to a queſtion “ that ſhall be propoſed ; as, for example, *What is* “ *love ?*” Let 24 letters be written on as many cards which, after they have been twice ſhuffled, ſhall give the following anſwer :

A dream of joy that ſoon is o'er.

Firſt, write one of the letters in that line on each of the cards (B). Then write the anſwer on a paper, and aſſign one of the 24 firſt numbers to each card, in the following order :

A D R E A M O F J O Y T H A T S O O N
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
I S O' E R.
20 21 22 23 24.

Next, write on another paper a line of numbers, from 1 to 24, and looking in the table for 24 combinations, you will ſee that the firſt number after the ſecond ſhuffle is 21 ; therefore the card that has the firſt letter of the anſwer, which is A, muſt be placed againſt that number, in the line of numbers you have juſt made (C). In like manner the number 22 being the ſecond of the ſame column, indicates that the card which

---

(B) Theſe letters ſhould be written in capitals on one of the corners of each card, that the words may be eaſily legible when the cards are ſpread open.

(C) For the ſame reaſon, if you would have the anſwer after one ſhuffle, the cards muſt be placed according to the firſt column of the table ; or if after three ſhuffles, according to the third column.

Combination.

which anſwers to the ſecond letter D of the anſwer, muſt be placed againſt that number; and ſo of the reſt. The cards will then ſtand in the following order:

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

O O F S A M N T O I S R H A E O' E J O

20 21 22 23 24

R A D Y T

From whence it follows, that after theſe cards have been twice ſhuffled, they muſt infallibly ſtand in the order of the letters in the anſwer.

Obſerve 1. You ſhould have ſeveral queſtions, with their anſwers, conſiſting of 24 letters, written on cards; theſe cards ſhould be put in caſes, and numbered, that you may know to which queſtion each anſwers belongs. You then preſent the queſtions; and when any one of them is choſen, you pull out the caſe that contains the anſwer, and ſhowing that the letters written on them make no ſenſe, you then ſhuffle them, and the anſwer becomes obvious.

2. To make this experiment the more extraordinary you may have three cards, on each of which an anſwer is written; one of which cards muſt be a little wider; and another a little longer, than the others. You give theſe three cards to any one, and when he has privately choſen one of them, he gives you the other two, which you put in your pocket without looking at them, having diſcovered by feeling which he has choſen. You then pull out the caſe that contains the cards that anſwer this queſtion and perform as before.

3. You may alſo contrive to have a long card at the bottom, after the ſecond ſhuffle. The cards may be then cut ſeveral times, till you perceive by the touch that the long card is at bottom, and then give the anſwer; for the repeated cuttings, however often, will make no alteration in the order of the cards.

The ſecond of theſe obſervations is applicable to ſome of the ſubſequent experiments, and the third may be practiſed in almoſt all experiments with the cards. You ſhould take care to put up the cards as ſoon as the anſwer has been ſhown; ſo that if any one ſhould deſire the experiment to be repeated, you may offer another queſtion, and pull out thoſe cards that contain the anſwer.

Though this experiment cannot fail of exciting at all times pleaſure and ſurpriſe, yet it muſt be owned that a great part of the applauſe it receives ariſes from the addreſs with which it is performed.

II. "The 24 letters of the alphabet being written "upon ſo many cards, to ſhuffle them, and pronounce "the letters ſhall then be in their natural order; but "that not ſucceeding, to ſhuffle them a ſecond time, "and then ſhow them in proper order." Write the 24 letters on the cards in the following order:

1 2 3 4 5 6 7 8 9 10 11 12

R S H Q E F T P G U X C

13 14 15 16 17 18 19 20 21 22 23 24

N O D Y Z I K & A B L M

The cards being diſpoſed in this manner, ſhow them upon the table, that it may appear they are promiſcuouſly marked. Then ſhuffle and lay them again on the table, pronouncing that they will be then in alphabetical order. Appear to be ſurpriſed that you have failed; take them up again and give them a ſecond ſhuffle, and then counting them down on the table they will all be in their natural order.

Combinations.

III. "Several letters being written promiſcuouſly "upon 32 cards, after they have been once ſhuffled, "to find in a part of them a queſtion; and then "ſhuffling the remainder a ſecond time, to ſhow the "anſwer. ſuppoſe the queſtion to be, *What is each* "*Briton's boaſt?* and the anſwer, *His liberty*; which "taken together contain 32 letters."

After you have written thoſe letters on 32 cards, write on a paper the words, *his liberty*, and annex to the letters the firſt ten numbers thus:

H I S L I B E R T Y

1 2 3 4 5 6 7 8 9 10

Then have recourſe to the table of combinations for ten numbers, and apply the reſpective numbers to them in the ſame manner as in experiment I. taking the firſt column, as theſe are to be ſhuffled only once, according to that order.

1 2 3 4 5 6 7 8 9 10

I B S L E R T H I Y

This is the order in which theſe cards muſt ſtand after the whole number 32 has been once ſhuffled, ſo that after a ſecond ſhuffle they may ſtand in their proper order. Next diſpoſe the whole number of letters according to the firſt column for 32 letters: the laſt ten are to be here placed in the order above; as follows:

W H A T I S E A C H B R I T O N'S

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17

B O A S T?

18 19 20 21 22

I B S L E R T H I Y

23 24 25 26 27 28 29 30 31 32

Therefore, by the firſt column of the table, they will next ſtand thus:

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

I T B R O N S C H B O A E A S T *long card.*

17 18 19 20 21 22 23 24 25 26 27 28 22 30 31 32

I I S B S L I B E R T W H H I Y

You muſt obſerve, that the card here placed the 16th in order, being the laſt of the queſtion, is a long card; that you may cut them, or have them cut, after the firſt ſhuffle, at that part, and by that means ſeparate them from the other ten cards that contain the anſwer.

Your cards being thus diſpoſed, you ſhow that they make no meaning; then ſhuffle them once, and cutting them at the long card, you give the firſt part to any one, who reads the queſtion, but can find no anſwer in the others, which you open before him; you then ſhuffle them a ſecond time, and ſhow the anſwer as above.

IV. "To write 32 letters on ſo many cards, then "ſhuffle and deal them by twos to two perſons, in "ſuch manner, that the cards of one ſhall contain a "queſtion, and thoſe of the other an anſwer. Suppoſe the queſtion to be, *Is nothing certain?* and the "anſwer, *Yes, diſappointment.*"

Over the letters of this queſtion and anſwer, write the following numbers, which correſpond to the order in which the cards are to be by two and two.

I S N O T H I N G C E R T A I N?

31 32 27 28 23 24 19 20 15 16 11 12 7 8 3 4

Y E S D I S A P O I N T M E N T.

29 30 25 26 21 22 17 18 13 14 9 10 5 6 1 2

Then have recourſe to the firſt column of the table for 32 members, and diſpoſe theſe 32 cards in the following order, by that column.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
O	I	E	R	G	C	A	N	T	P	I	N	T	A	I	S
17	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**32**
T	M	E	H	S	D	I	N	N	O	Y	N	T	E	I	S

The cards being thus diſpoſed, ſhuffle them once, and deal them two and two; when one of the parties will neceſſarily have the queſtion, and the other the anſwer.

Inſtead of letters you may write words upon the 32 cards, 16 of which may contain a queſtion, and the remainder the anſwer; or what other matter you pleaſe. If there be found difficulty in accommodating the words to the number of cards, there may be two or more letters or ſyllables written upon one card.

V. "The five beatitudes." The five bleſſings we will ſuppoſe to be, 1. Science, 2. Courage, 3. Health, 4. Riches, and 5. Virtue. Theſe are to be found upon cards that you deal, one by one, to be five perſons. Firſt write the letters of theſe words ſucceſſively, in the order they ſtand, and then add the numbers here annexed to them.

S	C	I	E	N	C	E	C	O	U	R	A	G	E
31	26	21	16	11	6	1	32	27	22	17	12	7	2
H	**E**	**A**	**L**	**T**	**H**		**R**	**I**	**C**	**H**	**E**	**S**	
28	23	18	13	8	3		29	24	19	14	9	4	
V	**I**	**R**	**T**	**U**	**E**								
30	25	20	15	10	5								

Then range them in order agreeable to the firſt column of the table for 32 numbers, as in the laſt experiment. Thus,

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L	H	N	A	T	E	R	E	U	A	C	R	G	T	I	U
17	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**32**
E	E	C	I	I	C	H	S	O	H	R	E	E	V	S	C

Next, take a pack of cards, and write on the four firſt the word Science; on the four next the word Courage; and ſo of the reſt.

Matters being thus prepared, you ſhow that the cards on which the letters are written convey no meaning. Then take the pack on which the words are written, and ſpreading open the firſt four cards, with their backs upwards, you deſire the firſt perſon to chooſe one. Then cloſe thoſe cards, and ſpread the next four to the ſecond perſon; and ſo to all the five; telling them to hold up their cards leſt you ſhould have a confederate in the room.

You then ſhuffle the cards, and deal them one by one, in the common order, beginning with the perſon who choſe the firſt card, and each one will find in his hand the ſame word as is written on his card. You will obſerve, that after the ſixth round of dealing, there will be two cards left, which you give to the firſt and ſecond perſons, as their words contain a letter more than the others.

VI. "The cards of the game of piquet being mixed together, after ſhuffling them, to bring, by cutting them, all the cards of each ſuit together." The order in which the cards muſt be placed to produce the effect deſired being eſtabliſhed on the ſame principle as that explained in the experiment II. except that the ſhuffling is here to be repeated three times, we think it will be ſufficient to give the order in which they are to be placed before the firſt ſhuffle.

Order of the Cards.

1 Ace	clubs	17 King clubs	
2 Knave		18 Ten	hearts
3 Eight	diamonds	19 Nine	
4 Seven		20 Seven clubs	
wide card			
5 Ten clubs		21 Ace diamonds	
6 Eight	ſpades	22 Knave ſpades	
7 Seven		23 Queen hearts	
wide card			
8 Ten	diamonds	24 Knave hearts	
9 Nine		25 Ace ſpades	
10 Queen		26 King diamonds	
11 Knave		27 Nine clubs	
12 Queen clubs		28 Ace	hearts
13 Eight	hearts	29 King	
14 Seven		30 Eight clubs	
wide card			
15 Ten	ſpades	31 King	ſpades
16 Nine		32 Queen	

You then ſhuffle the cards, and cutting at the wide card, which will be the ſeven of hearts, you lay the eight cards that are cut, which will be the ſuit of hearts, down on the table. Then ſhuffling the remaining cards a ſecond time, you cut at the ſecond wide card, which will be the ſeven of ſpades, and lay, in like manner, the eight ſpades down on the table. You ſhuffle the cards a third time, and offering them to any one to cut, he will naturally cut them at the wide card (D), which is the ſeven of diamonds, and conſequently divide the remaining cards into two equal parts, one of which will be diamonds and the other clubs.

VII. "The cards at piquet being all mixed together, to divide the pack into two unequal parts, and name the number of points contained in each part." You are firſt to agree that each king, queen, and knave ſhall count as uſual, 10, the ace 1, and the other cards according to the number of the points. Then diſpoſe the cards, by the table for 32 numbers, in the following order, and obſerve that the laſt card of the firſt diviſion muſt be a wide card.

Order of the cards before ſhuffling.

1 Seven hearts		17 Nine diamonds	
2 Nine clubs		18 Ace ſpades	
3 Eight hearts		19 Ten clubs	
4 Eight	ſpades	20 Knave	diamonds
5 Knave		21 Eight	
6 Ten		22 King	
7 Queen	clubs	23 Seven ſpades	
8 Ace		24 Seven	diamonds
9 Ace hearts		25 Queen	
wide card			
10 Nine hearts		26 Knave hearts	
11 Queen ſpades		27 King clubs	
12 Knave clubs		28 Nine	ſpades
13 Ten diamonds		29 King	

(D) You muſt take particular notice whether they be cut at the wide card, and if they are not, you muſt have them cut, or cut them again yourſelf.

14 Ten
15 King } hearts
16 Queen

30 Ace diamonds
31 Seven } clubs
32 Eight

You then ſhuffle them carefully, according to the method before deſcribed, and they will ſtand in the following order.

Cards.	Numbers.	Cards.	Numbers.
		brought up	34
1 Nine	9	6 Ten clubs	10
2 King } ſpades	10	7 Ten diamonds	10
3 Seven	7	8 Ten hearts	10
4 Seven diamonds	7	9 Ace clubs	1
5 Ace ſpades	1	10 Acehearts(wide card)	1
carried up	34	total	66
		Brought up	101
11 Eight hearts	8	22 Queen hearts	10
12 Eight ſpades	8	23 Nine	9
13 Seven hearts	7	24 Knave	10
14 Nine clubs	9	25 Eight } diamonds	8
15 Knave } ſpades	10	26 King	10
16 Ten	10	27 Queen	10
17 Queen clubs	10	28 Knave hearts	10
18 Nine hearts	9	29 King clubs	10
19 Queen ſpades	10	30 Ace diamonds	1
20 Knave clubs	10	31 Seven } clubs	7
21 King hearts	10	32 Eight	8
carried up	101	total	194

When the cards are by ſhuffling diſpoſed in this order, you cut them at the wide card, and pronounce that the cards you have cut off contain 66 points, and conſequently the remaining part 194.

VIII. "The inconceivable Repique (E)." When you would perform this experiment with the cards uſed in the laſt, you muſt obſerve not to diſorder the firſt 10 cards in laying them down on the table. Putting thoſe cards together, in their proper order, therefore, you ſhuffle them a ſecond time in the ſame manner, and offering them to any one to cut, obſerving carefully if he cut them at the wide card, which will be the ace of hearts, and will then be at top; if not, you muſt make him, under ſome pretence or other, cut them till it is; and the cards will then be ranged in ſuch order that you will repique the perſon againſt whom you play, though you let him chooſe (even after he has cut) in what ſuit you ſhall make the repique.

Order of the cards after they have been ſhuffled and cut.

1 Eight hearts
2 Eight
3 Knave } ſpades
4 Ten
5 Queen } clubs
6 Knave
7 King } hearts
8 Queen
9 Eight
10 King } diamonds
11 Queen
12 Ace

17 Nine } diamonds
18 Knave
19 Nine hearts
20 Queen ſpades
21 Seven hearts
22 Nine clubs
23 Ten hearts
24 Ace clubs
25 Seven ſpades
26 Seven diamonds
27 Nine ſpades

13 Seven } clubs
14 Eight
15 Knave hearts
16 King clubs

28 King } ſpades
29 Ace
30 Ten clubs
31 Ten diamonds
32 Ace hearts (wide card)

The cards being thus diſpoſed, you aſk your adverſary in what ſuit you ſhall repique him? If he ſay in clubs or diamonds, you muſt deal the cards by threes, and the hands will be a follows:

Elder	Younger
Hearts, king	Clubs, ace
——— queen	——— king
——— knave	——— queen
——— nine	——— knave
——— eight	——— nine
——— ſeven	Diamonds, ace
Spades queen	——— king
——— knave	——— queen
——— eight	——— knave
Diamonds, eight	——— nine
Clubs, eight	Spades, ten
———ſeven	Hearts, ten
Rentrée, or take in of the elder.	Rentrée of the younger.
Seven ſpades	Ten clubs
Seven diamonds	Ten diamonds
Nine	Ace hearts
King } ſpades	
Ace	

If he againſt whom you play, who is ſuppoſed to be elder hand, has named clubs for the repique, and has taken in five cards, you muſt then lay out the queen, knave, and nine of diamonds, and you will have, with the three cards you take in, a ſixiem major of clubs, and quatorze tens. If he leave one or two cards, you muſt diſcard all the diamonds.

If he require to be repiqued in diamonds, then diſcard the queen, knave, and nine of clubs: or all the clubs, if he leave two cards; and you will then have a hand of the ſame ſtrength as before.

Note, If the adverſary ſhould diſcard five of his hearts, you will not repique him, as he will then have a ſeptiem in ſpades: or if he only take one card: but neither of theſe any one can do, who has the leaſt knowledge of the game. If the perſon againſt whom you play ſhould be repiqued in hearts or ſpades, you muſt deal the cards by twos, and the game will ſtand thus:

Elder hand.	Younger hand.
King	Ace
Knave	King } clubs
Nine } diamonds	Ace
Eight	Queen } diamonds
Queen	Queen
Knave	Knave } ſpades
Nine } clubs	Ten
Eight	King
Seven	Queen
Eight } hearts	Knave } hearts
Seven	Ten
Eight ſpades	Nine
Rentrée.	Rentrée.

(E) This manœuvre of piquet was invented by the counteſs of L—— (a French lady), and communicated by her to M. Guyot.

Combination.

Seven ſpades
Seven diamonds
Nine } ſpades
King } ſpades
Ace } ſpades

Ten clubs
Ten diamonds
Ace hearts

If he require to be repiqued in hearts, you keep the quint to a king in hearts, and the ten of ſpades, and lay out which of the reſt you pleaſe: then, even if he ſhould leave two cards, you will have a ſixiem major in hearts, and quatorze tens, which will make a repique.

But if he demand to be repiqued in ſpades; at the end of the deal you muſt dexterouſly paſs the three cards that are at the bottom of the ſtock (that is, the ten of clubs, ten of diamonds, and ace of hearts) to the top (F), and by that means you reſerve the nine, king, and ace of ſpades for yourſelf: ſo that by keeping the quint in hearts, though you ſhould be obliged to lay out four cards, you will have a ſixiem to a king in ſpades, with which and the quint in hearts you muſt make a repique.

Obſerve here likewiſe, that if the adverſary lay out only three cards, you will not make the repique: but that he will never do, unleſs he be quite ignorant of the game, or has ſome knowledge of your intention.

This laſt ſtroke of piquet has gained great applauſe, when thoſe that have publicly performed it have known how to perform it dexterouſly. Many perſons who underſtand the nature of combining the cards, have gone as far as the paſſing the three cards from the bottom of the ſtock, and have then been forced to confeſs their ignorance of the manner in which it was performed.

IX. "The Metamorphoſed Cards." Provide 32 cards that are differently coloured; on which ſeveral different words are written, and different objects painted. Theſe cards are to be dealt two and two, to four perſons, and at three different times, ſhuffling them each time. After the firſt deal, every one's cards are to be of the ſame colour; after the ſecond deal, they are all to have objects that are ſimilar; and after the third, words that convey a ſentiment.

Diſpoſe of the cards in the following order.

Cards.	Colours.	Objects.	Words.
1	Yellow	Bird	I find
2	Yellow	Bird	In you
3	Green	Flower	Charming
4	Green	Flower	Flowers
5	White	Bird	To hear
6	White	Orange	Beauty
7	Red	Butterfly	My
8	Red	Flower	Notes
9	Red	Flower	In
10	Red	Butterfly	Shepherdeſs
11	Green	Butterfly	Lover
12	Green	Butterfly	Your
13	White	Flower	Of
14	White	Flower	an inconſtant
15	Yellow	Orange	Image
16	Yellow	Flower	Enchanting
17	White	Orange	Ardour
18	Yellow	Butterfly	My
19	Yellow	Butterfly	Phyllis
20	White	Bird	Birds
21	Red	Orange	Sing
22	Red	Orange	Dear
23	Green	Orange	and ſweetneſs
24	Green	Orange	The
25	Green	Bird	Of
26	Green	Bird	Preſent
27	Yellow	Flower	As
28	Red	Bird	Changes
29	Red	Bird	Boſom
30	Yellow	Orange	Me
31	White	Butterfly	Your
32	White	Butterfly	I long

The cards thus coloured, figured, and tranſcribed, are to be put in a caſe, in the order they here ſtand.

When you would perform this experiment you take the cards out of the caſe, and ſhow, without changing the order in which they were put, that the colours, objects, and words are all placed promiſcuouſly. You then ſhuffle them in the ſame manner as before, and deal them, two and two, to four perſons, obſerving that they do not take up their cards till all are dealt, nor mix them together: and the eight cards dealt to each perſon will be found all of one colour. You then take each perſon's cards, and put thoſe of the ſecond perſon under thoſe of the firſt, and thoſe of the fourth perſon under thoſe of the third. After which you ſhuffle them a ſecond time, and having dealt them in the ſame manner, on the firſt perſon's cards will be painted all the birds; on the ſecond perſon's cards, all the butterflies; on thoſe of the third, the oranges; and on thoſe of the fourth, the flowers. You take the cards a ſecond time, and obſerving the ſame precautions, ſhuffle and deal them as before, and then the firſt perſon, who had the laſt time the birds in his hand, will have the words that compoſe this ſentence:

Sing, dear birds; I long to hear your enchanting notes.

The ſecond perſon, who the laſt deal had the butterflies, will now have theſe words:

Of an inconſtant lover your changes preſent me the image.

The third, who had the oranges, will have this ſentence:

As in my Phyllis, I find in you beauty and ſweetneſs.

The fourth, who had the flowers, will have theſe words:

Charming flowers, adorn the boſom of my ſhepherdeſs.

It ſeems quite unneceſſary to give any further detail, as they who underſtand the foregoing experiments will eaſily perform this.

Among the different purpoſes to which the doctrine of combinations may be applied, thoſe of writing in cipher, and deciphering, hold a principal place. See the article CIPHER.

COMBINATIOM, in chemiſtry, ſignifies the union

(F) The manner of doing this is explained in the article LEGERDEMAIN.

of two bodies of different natures, from which a new compound body reſults. For example, when an acid is united with an alkali, we ſay that a combination betwixt theſe two ſaline ſubſtances takes place; becauſe from this union a neutral ſalt reſults, which is compoſed of an acid and an alkali.

COMBUST, in aſtronomy. When a planet is in conjunction with the ſun, or not diſtant from it above half its diſk; it is ſaid to be combuſt, or in combuſtion.

According to Argol, a planet is combuſt, or in combuſtion, when not above eight degrees and thirty minutes diſtant from the ſun, either before or after him.

COMBUSTIO PECUNIÆ, the ancient way of trying mixed and corrupt money, in Britain, by melting it down, upon payments into the Exchequer. In the time of king Henry II. a conſtitution was made, called the trial by *combuſtion*; the practice of which differed little or nothing from the preſent method of aſſaying ſilver. But whether this examination of money by combuſtion was to reduce an equation of money only of Sterling, *viz.* a due proportion of alloy with copper, or to reduce it to pure fine ſilver, does not appear. On making the conſtitution of trial it was conſidered, that though the money did anſwer *numero et pondere*, it might be deficient in value; becauſe mixed with copper or braſs, &c.

COMBUSTION, a term denoting the operation of fire upon any inflammable ſubſtance, by which it ſmokes, flames, and is reduced to aſhes.

There is not a phenomenon in nature by which the attention of philoſophers has been more engaged, nor which has puzzled them more to account for, than this very common operation. To explain it, theories have been invented the moſt oppoſite and contradictory to one another that can be imagined; and, till very lately, the ſtate of ſcience did not afford data ſufficient to explain it in a rational manner.

1 Theories of ancient chemiſts.

By former chemiſts it was ſuppoſed, that the parts of the combuſtible body itſelf were converted into fire. Accordingly Sir Iſaac Newton propoſes it as a query, whether groſs bodies and light are not convertible into one another? and many chemiſts of a more modern date have determined this queſtion in the affirmative, by maintaining that the light of the ſun is or contains phlogiſton. The interference of the air, however, in moſt caſes of combuſtion known to us, proved a difficulty in this theory almoſt, if not totally, unſurmountable; for if the fire proceeds entirely from the combuſtible body, what occaſion is there for any third ſubſtance diſtinct both from the fire and that body to produce combuſtion? This naturally excited a conjecture, that the fire by which the combuſtible body is conſumed, proceeds in reality from the air, and not from the body itſelf. And hence we ſee that Mr Hutchinſon's ſyſtem of fire and air being convertible into one another, might have paſſed as a rational *human* theory, if he had not attempted to force it upon mankind as a divine revelation. The modern diſcoveries in aerology, however, have entirely diſproved this hypotheſis with regard to our atmoſphere conſidered as a whole, at the ſame time that they point out the true method, as far as our faculties ſeem capable of comprehending it, by which this myſterious operation is performed. It is now almoſt univerſally known, that the air we breathe is compoſed of two kinds of elaſtic fluids, only one of which (called *dephlogiſticated, pure, empyreal,* or *vital* air) contributes to the ſupport of flame, as well as of animal life; and this part is found to be by far the leaſt in quantity of the atmoſphere we breathe. It is computed from good obſervations, that, among the various component parts of our atmoſphere, there is about one-fourth, $\frac{9}{33}$ according to Mr Scheele, or one-fifth according to Mr Cavendiſh, contained in it; and to this ſmall part alone is owing the combuſtion of inflammable bodies.

2 True principle on which combuſtion may be explained.

3 M. Lavoiſiers theory.

Since the eſtabliſhment of this important fact, ſeveral theories of combuſtion have been formed. According to M. Lavoiſier, dephlogiſticated air is a compound of two ſubſtances intimately combined; one is called by him the *oxygenous principle*, and the other *ſpecific elementary fire*. During the combuſtion of ſulphur, phoſphorus, inflammable air, or any other ſubſtance of that kind, the oxygenous principle of the dephlogiſticated air, according to him, combines with theſe bodies, to which it has a ſtrong attraction, and forms new compounds of ſalts and other bodies; at the ſame time that the elementary fire contained in theſe is ſet looſe, and becomes ſenſible, producing heat and flame, according to circumſtances. Thus the fire produced in combuſtion does not proceed from the burned body, but from the decompoſition of the dephlogiſticated air, in which it is contained in a latent and inſenſible ſtate; while its oxygenous principle combines with the ſulphur, phoſphorus, or inflammable air, and forms vitriolic and phoſphoric acids, or pure water. In like manner it is alſo ſuppoſed by this theory, 1. That metals are ſubſtances abſolutely ſimple. 2. That metallic calces are true compounds formed by the oxygenous part of pure air with the metallic particles; and, 3. That pure water is a ſimilar compound of the ſame principle with inflammable air.

4 Fourcroy's theory.

According to Fourcroy, combuſtible bodies are thoſe which have a ſtrong attraction to combine or unite with pure or dephlogiſticated air; and combuſtion is nothing elſe but the act of that combination. This aſſertion is founded on the following facts; 1. That no ſubſtance can be burnt without air; 2. That the purer this air is, the more rapid is the combuſtion; 3. That in combuſtion, an abſorption or waſte of air always takes place; and, 4. That the reſiduum contains often a very ſenſible quantity of that pure air which it abſorbed, and which may ſometimes be extracted from it.

5 Scheele's theory.

In Mr Scheele's new theory of heat, fire, light, and phlogiſton, he conſiders heat and light themſelves as compound ſubſtances. The former, according to him, conſiſts of phlogiſton and empyreal air. The calces of gold, reducible by heat alone, in a retort, ſhow that phlogiſton is contained in heat; becauſe it combines with the calces to revive them, and the dephlogiſticated air is found in the receiver. The precipitate *per ſe* of mercury, if revived in this manner, affords, according to our author, another inſtance of the truth of his doctrine: "If phlogiſton alone (ſays he) could paſs through the retort, there would not be found the empyreal air in the receiver, and the ignoble metals might be revived in the ſame manner."

Light, according to Mr Scheele, is a compound containing phlogiſton and heat, from which both may ſeparate themſelves in proper circumſtances. A ſolution of ſilver in nitrous acid mixed with chalk, and expoſed to the ſunſhine, is revived into a metallic form by the phlogiſton of light. Nitrous acid alſo in a glaſs veſſel, receives phlogiſton from light, and becomes of an orange colour: but if the glaſs be painted black, the acid receives the heat, not the phlogiſton. Even the various coloured rays of light, according to our author, contain unequal ſhares of phlogiſton; ſince the violet rays part more eaſily with their phlogiſton to revive metals than any other. When light is not ſtopped in its paſſage, no heat is perceived; but if ſtopped in its courſe, the oppoſing body receives heat, and ſometimes phlogiſton. Light ſeems therefore to be the matter of heat, loaded with a ſuperabundant quantity of phlogiſton. That which comes out from a furnace, produces heat on the ſurrounding bodies, which aſcends with the rarefied air; proceeds forward in ſtraight lines; and may be reflected from poliſhed ſurfaces, with this peculiarity, that a concave glaſs mirror retains the heat, whilſt it reflects the light; for although its focus is bright, yet it is not warm. A pane of glaſs alſo put before a burning mirror, retains the heat, and allows the light to paſs through it.

Fire is the more or leſs heated, or more or leſs luminous ſtate of bodies, by which they are reſolved into their conſtituent parts, and entirely deſtroyed. It requires, that they be previouſly heated in a contact with air: for to every combuſtible body a certain quantity of heat muſt be communicated, in order to ſet it in the fiery commotion.

Combuſtion is the action of heat penetrating the pores of bodies, and deſtroying their coheſion: in this caſe the body parts with its phlogiſton, provided there be a ſubſtance preſent which has a ſtrong attraction for the inflammable principle. If the heating be performed in open air, the empyreal part, on account of its ſtronger attraction, unites with the inflammable principle, which is thus ſet at liberty; from which union the heat is compounded; and ſcarcely is this heat generated, when the combuſtible body is ſtill more expanded by it than in the beginning, and its phlogiſton more laid open. The more the heat is increaſed, the more minute are the particles into which the combuſtible body is diſſolved. The empyreal air meets more ſurfaces; conſequently comes in contact with more phlogiſton; and, according to its nature, forms an union with a greater quantity of it, which produces a radiant heat. At this moment the conſtituent parts of the combuſtible body are ſo much diſunited by the ſtill increaſing heat, that the empyreal air, continuing to pour in upon it in ſtreams, attracts the phlogiſton in ſtill greater quantities; and hence the moſt elaſtic ſubſtance, light, is compoſed; which, according to the quantity of combuſtible matter, ſhows various colours.

6
Dr Crawford's theory.

The laſt theory we ſhall here take notice of is that of Dr Crawford.—He has by a great number of experiments endeavoured to ſhow, that bodies which contain a large portion of phlogiſton, poſſeſs but a ſmall ſhare of ſpecific heat or fire; on the contrary, that thoſe with a great ſhare of this laſt, contain but little phlogiſton; and laſtly, thoſe which are deprived of phlogiſton, increaſe their capacity for ſpecific fire. Thus, when regulus of antimony is deprived of its phlogiſton, by calcination, which is then called *diaphoretic antimony*, it nearly triples its ſpecific fire. The ſame change takes place in *crocus martis* and in iron. This fact is generally true, whatever be the nature of the ſubſtance: and even the aeriform ones are in the ſame caſe, for phlogiſticated air has very little ſpecific fire, common air has more of it, and dephlogiſticated air ſhows a moſt prodigious quantity. From theſe facts it is clear, that phlogiſton and fire are diſtinct, and incompatible ſubſtances; ſo that when one enters into the compoſition of any body, the other of courſe is expelled from it. Thus metals are calcined in conſequence of a double attraction, by which the metal imparts its phlogiſton to the air, while the air communicates its fire to the metallic calces; which is further confirmed by the air that is found in metallic calces, whoſe increaſed weight by calcination correſponds to the air that is expelled from them by their reduction to a metallic ſtate.

All combuſtible bodies are abſolutely in the ſame caſe. By theſe are meant ſuch bodies as contain a large quantity of phlogiſton in their compoſition, but looſely adherent to them. Dephlogiſticated air, which is greatly loaded with ſpecific fire, has at the ſame time a ſtrong attraction for phlogiſton; and, in the act of combuſtion, communicates its fire to the combuſtible body, whilſt the air becomes phlogiſticated or loaded with phlogiſton. Thus we find, that ſulphur contaminates the air, when burned, by the phlogiſton it throws into it, and the produced vitriolic acid, if any, becomes impregnated with the ſame.

In ſome caſes the moſt intenſe heat or ſenſible fire is produced in the combuſtion; but in others it is very moderate. This variation generally depends on the quantity and quality of the vapours produced during the combuſtion: when theſe are very inconſiderable, and the reſiduum cannot abſorb the fire which is emitted by the air, the remainder is precipitated, or diffuſed all around, and produces a very ſenſible heat. On the contrary, if the vapours are capable of abſorbing it, very little heat is produced. We know, by the moſt certain experiments, that, for inſtance, the vapour of water abſorbs about 800 degrees of heat beyond that of its boiling ſtate; from whence it follows, that whenever there is a quantity of watery vapours produced by combuſtion, very little ſenſible fire muſt be felt. So when ſpirits of wine are fired, the heat then produced by the combuſtion is very inconſiderable, the greater part being abſorbed by the watery vapours that are then produced: but when the phoſphorus of Kunkel is ſet on fire, the heat is very ſtrong; there being but a ſmall quantity of acid to carry off the ſpecific fire that is ſet looſe.

7
M. Magellan's remarks.

Theſe are the principal theories of combuſtion that have appeared. M. Magellan, from whoſe notes on Cronſtedt's Mineralogy the above account is taken, objects to M. Lavoiſier's opinion, that the oxygenous principle cannot be ſhown to our ſenſes, nor is it better demonſtrated than the *phlogiſton* ſuppoſed by the great Stahl and his followers. M. Fourcroy's ſyſtem he ſuppoſes to be leſs objectionable: but to Scheele he objects from Mr Kirwan, 1. That in no inſtance it appears that phlogiſton penetrates glaſs, much leſs a compound of pure air and phlogiſton; and, 2dly, That if Mr Scheele's notions were true, then other metallic calces, or at leaſt black manganeſe, would be reduced by heat alone: for this calx dephlogiſticates nitrous acid, and has a ſtronger affinity with phlogiſton than it; and therefore ought to decompoſe the heat with as great facility as the nitrous acid, or even with greater on account of its greater attraction. The former objection M. Magellan does not ſuppoſe to be altogether concluſive, as there are many combinations (he ſays) of two or more ſubſtances that paſs through bodies, each of which would be ſtopped before they were combined; and what Mr Scheele has ſaid on light ſeems to prove that glaſs is not always quite impervious to phlogiſton; but the latter he deems altogether unanſwerable.

Having thus rejected three of theſe theories, he acquieſces in that of Dr Crawford, which, he tells us, "is the moſt ſatisfactory concerning the nature and proceſs of combuſtible bodies and of their combuſtion, ſo far as the preſent ſtate of our knowledge has opened the field of our views into the operations of nature." Before ſuch a full aſſent, however, is given to any theory, it is altogether neceſſary that it ſhould be conſiſtent with every known fact, as far as that fact can be inveſtigated by us in our preſent ſtate of knowledge; and that this is not the caſe with the theories either of Fourcroy, Scheele, or Crawford, will appear from the following conſiderations.

8 Objections to M. Fourcroy's theory.

I. With regard to that of Fourcroy, it is evidently deficient in one of the eſſential requiſites to produce combuſtion, even *fire* itſelf; for if combuſtion depends only on the *attraction* between combuſtible bodies and pure air, then it ought to take place on all occaſions wherever pure air and combuſtible bodies are preſented to each other. But this is not the caſe; for though we put a piece of unlighted charcoal into a jar full of dephlogiſticated air, no combuſtion will enſue. To produce this it is neceſſary that the charcoal be already, in part at leaſt, in a ſtate of combuſtion, or that fire be applied to it from without. This theory therefore, inſtead of explaining the matter, gives not the ſmalleſt inſight into it; ſince we are perpetually left to ſeek for the cauſe of the fire which produced that in queſtion: for the combination of a combuſtible body with air is the *effect* of combuſtion, not the cauſe.

9 To Mr Scheele's.

II. Mr Scheele's theory is ſo exceedingly contrary to the common notions of mankind, that it can ſcarce ever be ſeriouſly believed. The pure light of the ſun can never be ſuppoſed by any mortal to conſiſt principally of a ſubſtance as groſs as the ſoot of our chimneys, without a degree of evidence of which the ſubject is quite incapable.

10 To Mr Crawford's.

III. Under the article CHEMISTRY, Dr Crawford's theory of heat is fully conſidered, and found to be inſufficient. It is there ſhown that the degree of *ſpecific heat* contained in bodies cannot be meaſured by any method yet known to us; that the phraſe, *quantity of heat*, ſo frequently made uſe of by Dr Crawford and others, is vague, inaccurate, and improper; as expreſſing only the degree of ſenſible heat *extricated, produced, generated*, or which becomes perceptible in certain circumſtances by us, without regard to the real quantity contained in the body itſelf, either originally, or after it has parted with that in queſtion. Thus all experiments founded on the *quantities* of ſpecific heat contained in different bodies muſt be fallacious and inconcluſive. Not to inſiſt, however, on theſe general arguments, it is contrary to fact, that "bodies which contain a large portion of phlogiſton contain but a ſmall ſhare of ſpecific heat," and *vice verſa*, as the Doctor aſſerts; which will appear from the following conſiderations.

1. The only methods by which we can meaſure the *quantity* of any material ſubſtance is either by its bulk or weight.

2. Whatever occupies ſpace, and reſiſts the touch, we have a right to call a material ſubſtance, whether we can ſee it and weigh it or not. Thus air, which is inviſible, and not very eaſily ponderable, is univerſally allowed to be a *ſubſtance* and not a *quality*.

3. In caſes where we cannot conveniently meaſure the weight of any ſubſtance, its quantity muſt always be judged of by its bulk. Thus the quantity of air contained in a bladder, or in a bellows, is always judged of by the degree of expanſion of either.

4. Heat, which is ſtill more ſubtile than air, is meaſured in this way, as Dr Crawford himſelf acknowledges; for the expanſions of mercury are in an arithmetical progreſſion expreſſive of the real degrees of heat.

5. Applying this rule to bodies in general, we muſt conclude, that the expanſions of all bodies will be in proportion to the degrees of heat which they contain. Thus, if a body is expanded by heat to double its bulk, and in this ſtate remains even when the heating cauſe is withdrawn, we may then ſay with juſtice, that this body contains double the quantity of *latent* or ſpecific heat that it did before, and ſo on (A).

6. As the vapour of water is found to abſorb a vaſt quantity of heat, and likewiſe to become prodigiouſly expanded in compariſon with the water from whence it is produced, we may juſtly conclude, that the quantity of heat abſorbed, or of *ſpecific heat* contained in the ſteam, is to the ſpecific heat contained in the water as the bulk of the ſteam is to that of the water. It is difficult indeed to determine how much ſteam exceeds in bulk the water from which it is derived: but from ſome experiments, Dr Black concludes, that it is augmented in bulk between 1600 and 1700 times; and from the great quantity of heat emitted by ſteam during its condenſation, which in ſome caſes exceeds 1000 degrees of Fahrenheit, we have reaſon to believe

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(A) This is not contradictory to the obſervation that the expanſions of all bodies are not in proportion to the degree with which they are heated, nor equal at different times. It is the degree of heat *abſorbed* and entangled among the particles of the body which expands it, not that which flows out from it, and affects our ſenſes or the thermometer. Thus, though a body is heated to 100 degrees, it may abſorb only 10; and, after it has done ſo, it may require 300 or 400 degrees more to cauſe it abſorb other ten.

believe that the quantity of its expanſion is proportionable to that of the heat abſorbed.

7. As we thus are aſcertained, by the great expanſion of aqueous vapour, that it has abſorbed a vaſt quantity of heat, it will evidently follow, that from the expanſion of other ſubſtances we ought alſo to know the quantity of heat abſorbed by them. To apply this then to the preſent caſe. In Dr Prieſtley's experiments on the converſion of charcoal into inflammable air, he found, that one grain of charcoal, diſperſed by the heat of the ſun *in vacuo*, gave ſix ounce meaſures of inflammable air. In another experiment, he found that 2½ grains of charcoal gave 15½ ounce meaſures of the ſame kind of air. But from a computation of the weight of the air ſo produced, it appears, that at leaſt an equal quantity of water with that of the charcoal goes to the compoſition of the aerial fluid. In meaſuring this expanſion, therefore, we may allow one-half for that of the water requiſite to form the inflammable air; and hence the grain of charcoal, properly ſpeaking, abſorbs only three ounce meaſures of fire. That this expanſion was the effect of fire is very evident; for there was nothing elſe preſent but fire, or the concentrated light of the ſun: the experiment being performed by means of a burning glaſs *in vacuo*. It cannot be a fact then, as Dr Crawford aſſerts, that a phlogiſtic body contains but a ſmall quantity of ſpecific heat; for here ſo ſmall a quantity as one grain of charcoal was made to contain as much ſpecific fire as is equivalent in bulk to three ounce meaſures. It appears, therefore, that the quantity of ſpecific fire contained in bodies is not determined by their being combuſtible or not, or by their containing phlogiſton or not: much leſs can we believe that heat and phlogiſton are ſo incompatible with one another, that where "one enters into the compoſition of any body the other is of courſe expelled from it;" ſince here we find the pureſt fire we know united in vaſt quantity with the pureſt phlogiſton we know, and both together conſtituting one of the moſt inflammable ſubſtances in nature, viz. inflammable air.

8. In like manner muſt the laſt part of the Doctor's theory be erroneous, viz. that "in the act of combuſtion the dephlogiſticated air communicates its fire to the combuſtible body." In the inſtance juſt now adduced, the combuſtible ſubſtance, inflammable air, contains already as much fire as it can hold; and according to the general rule in theſe caſes, if it was to abſorb more fire, it ought to become ſtill more expanded. But inſtead of this, when dephlogiſticated and inflammable air mixed together in due proportion, are ſet on fire, they ſhrink in a manner into nothing; ſo that it is plain, inſtead of one communicating its fire to the other, both of them throw out almoſt all the fire they contain; ſo that they are no longer air, but *water*, or ſome other ſubſtance about which philoſophers are not yet agreed.

9. Dr Crawford's theory of combuſtion is liable to the very ſame objection with that of Fourcroy, *viz*. that it ſets aſide the neceſſity of any external cauſe to ſet on fire the combuſtible bodies. If dephlogiſticated air attracts the phlogiſton of the combuſtible body, and the phlogiſton in the latter attracts the fire of the dephlogiſticated air, the conſequence of which is combuſtion; then, wherever dephlogiſticated and inflammable air are mixed, combuſtion ought immediately to enſue. But this is not the caſe. A candle, a ſpark of electricity, or, in a word, ſome body *already in a ſtate of combuſtion*, muſt be applied before we can produce the effect in queſtion. We muſt therefore ſeek for the cauſe of combuſtion in the burning body applied, which will be found equally inexplicable; and thus we cannot proceed a ſingle ſtep in real knowledge, though aſſiſted by all that Dr Crawford has advanced.

11 M. Lavoiſier's theory preferable to the former.

10. The theory of M. Lavoiſier, notwithſtanding M. Magellan's criticiſm, ſeems to come much nearer the truth than that of Dr Crawford. With regard to the exiſtence of what Lavoiſier calls the oxygenous principle, it is certainly eſtabliſhed on as ſure grounds as that of any inviſible ſubſtance can be. M. Magellan complains, without reaſon, that it "cannot be ſhown to our ſenſes." It has not yet indeed been made *viſible per ſe*; but it is found to increaſe the weight of bodies very ſenſibly. Perhaps, indeed, it may not be an *oxygenous* or acidifying principle; perhaps it may be water, or ſome other ſubſtance; but ſtill it is *ſomething* which, by being combined with elementary fire, is expanded into a vaſt bulk, and which, by being deprived of this fire, ſhrinks into its former dimenſions. Thus it manifeſts itſelf to be a real ſubſtance; and not only ſo, but a terreſtrial gravitating ſubſtance; and which, even when lightened by a mixture of charcoal ſo as to conſtitute the ſolid part of fixed air, has been ſhown nearly to equal the denſity of gold. In this reſpect, therefore, M. Lavoiſier's theory is faultleſs, as well as in that which affirms that in the act of combuſtion the dephlogiſticated air parts with its fire; but it is imperfect in this reſpect, that he does not conſider the quantity of fire contained in the inflammable body, which is thrown out at the ſame time, nor the occaſion there is for ſome body in a ſtate of actual inflammation to begin the combuſtion. That the combinations mentioned by him do actually take place is not denied; but they are undoubtedly *conſequences* of the combuſtion, not cauſes of it, as they are generally ſuppoſed. To underſtand this ſubject fully, therefore, it will ſtill be neceſſary to conſider farther,

12 Another theory.

11. Under the article CHEMISTRY, already quoted, it is ſhown that heat and cold are not eſſentially diſtinct from one another, but that heat conſiſts in the motion of a certain ſubtle and inviſible fluid from a centre towards a circumference, and that cold conſiſts in the action of the ſame fluid from a circumference to a centre. In other words, when elementary fire acts from any body outwards, we ſay that body is *hot*, becauſe it heats other bodies; but when it flows from others into any particular body, we call the latter *cold*, as depriving the neighbouring bodies of part of their relative quantity of heat. We may farther illuſtrate this by the example of electricity, where the fluid ruſhing out from any body produces a kind of electricity called *poſitive*; but, when entering into it, produces another, oppoſite in many reſpects to the former, called *negative* electricity. In like manner all bodies in the act of throwing out elementary fire are hot, and in the act of abſorbing it cold. Vapours of all kinds, therefore, ought to be naturally cold: and experience ſhows that they really are ſo; for, by means of evaporation, very intenſe degrees of cold may be produced. See COLD and EVAPORATION.

12. In moſt terreſtrial bodies the heat eaſily flows out from one to another, and therefore they are in a manner indifferent as to the ſtate of being either *hot* or *cold*: but in vapours, the heat, having once flowed into them, continues to have a tendency to do ſo without regard to the external temperature of bodies. Hence theſe fluids are naturally cold to the touch; and thoſe who have been immerſed in clouds on the tops of high mountains or otherwiſe have uniformly related that they found the vapour exceſſively cold; and thus our atmoſphere, unleſs ſupplied by the powerful influence of the ſun-beams, not only becomes extremely cold itſelf, but likewiſe cools to an extreme degree the ſurface of the earth and every thing upon it.

13. In all caſes therefore, where a quantity of vapour, whether inflammable or not, is collected into one place, there is a conſtant influx, or at leaſt a conſtant preſſure inwards of the elementary fire exiſting inviſibly all around; which preſſure muſt continue until by ſome means or other the flow or preſſure of etherial fluid be reverſed, and inſtead of tending from without inwards, is made to tend from within outwards.

14. One method of reverſing this influx is by external preſſure, or by any other means bringing the particles of vapour nearer to one another. On this ſubject, a treatiſe has been written by Dr Webſter of Edinburgh, in which he endeavours to eſtabliſh the doctrine, that condenſation is in all caſes the cauſe of heat. That it really is the immediate cauſe, in a great many caſes, is very certain; but it is equally evident that even in theſe caſes, the cauſe of *condenſation* muſt be the ultimate cauſe of heat. Thus, if a quantity of air be violently compreſſed in an air-gun, it is found to become hot; but though the compreſſion be the immediate cauſe, the force by which the compreſſion is occaſioned muſt be the ultimate cauſe of the heat. The immediate agent, however, by which the heat is produced, is neither the compreſſing cauſe nor the condenſation, but the efflux of elementary fire from the air, by bringing the particles of the latter nearer to each other. In like manner, when iron is hammered until it becomes hot, the metal may probably be ſuppoſed to be condenſed, and the elementary fire to be ſqueezed out of it as water from a ſponge: but it is neither the action of the hammer, nor the approximation of the particles to each other, that is the cauſe of heat; but the flux of elementary fire directed from the iron every where from within outwards.

15. Thus we may now at once explain the action of combuſtion; to do which, we ſhall take the example of a mixture of inflammable and dephlogiſticated air already mentioned. When theſe are mixed together, there is a conſtant preſſure of the elementary fluid inwards from all quarters into the aerial vapours, by which their elaſticity and form as airs are preſerved, and this preſſure will continue as long as we let them remain undiſturbed. But when a burning body is brought into contact with them, the influx of the elementary fire is not only prevented but reverſed in that part which comes in contact with the burning body. Thus the whole conſtitution of both inflammable and dephlogiſticated airs is deſtroyed in a moment; for the ſubtle fluid, feeling (if we may uſe the expreſſion) that the preſſure is leſſened in one place, inſtantly directs its whole force thither: and the preſſure inwards being thus reverſed in this part inſtantly becomes ſo in every other, and the whole fluid contained in both is diſcharged with a bright flaſh and loud exploſion.

16. In a ſimilar manner may we explain the combuſtion of ſolid bodies. None of theſe can be ignited without the aſſiſtance of external fire. This in the firſt place rarefies ſome part of them into vapour; which by means of dephlogiſticated air is decompoſed in the manner already mentioned; while, by means of the heat thrown out, a freſh quantity of vapour is raiſed, at the ſame time that the fire is augmented, and would continue to be ſo *in infinitum*, as long as fuel could be ſupplied. When no more inflammable vapour can be raiſed, the combuſtion ceaſes of courſe; and the remainder becomes charcoal, aſhes, ſlag, &c. according to its different nature, or the combinations it is capable of aſſuming with the terreſtrial or gravitating part of the pure air by which the fire was ſupplied.

13 Objections anſwered.

17. It may now be aſked, If the cauſe of combuſtion be merely the reverſing of the influx of elementary fire, why cannot inflammable vapours be fired *in vacuo*, by means of heat applied to ſome part of them externally? Thus, as inflammable air has a conſtant influx of elementary fire into it, why may not this influx be reverſed, and a flame produced, not ſo violent indeed as with dephlogiſticated air, but ſufficient to authoriſe us to ſay that ſuch a body was actually in the ſtate of combuſtion? But this, we know, cannot be the caſe unleſs ſome pure air be admited; for a ſtream of inflammable air, if nothing elſe be admitted, will as effectually put out a fire as a ſtream of water. Here, however, we may reply, that this would ſuppoſe inflammable air to be deſtroyed by the very power by which it was produced. It ſeems to be the nature of all vapours to abſorb heat without any limitation, as is evident by the increaſe of elaſticity in them by an increaſe of heat. Elementary fire is one of the component parts of vapour, and no ſubſtance can be decompoſed merely by the action of one of its component parts. Something heterogeneous muſt therefore be added, on which one or both of the component parts may act; and then the vapour will be decompoſed *in vacuo* as well as in the open air, though with leſs obvious circumſtances. Thus charcoal once diſperſed by heat into inflammable air cannot be decompoſed merely by heat, becauſe its tendency is always to abſorb this element: But if into a jar full of inflammable air we introduce a quantity of calx of lead, and then heat it, the preſſure of the fluid is interrupted in that part where the calx is, and preſently becomes reverſed by means of the additional heat there, which, at the ſame time that it furniſhes no more charcoal, affords a ſubſtance with which the charcoal in the inflammable air may unite. The air is therefore decompoſed, though too ſlowly to produce actual flame. For combuſtion, therefore, it is neceſſary that the following circumſtances ſhould concur: 1. The mixture of two vapours containing a great quantity of ſpecific fire each. 2. That the terreſtrial baſes of theſe vapours ſhould be capable of acting upon one another; but no third ſubſtance capable of immediately abſorbing the fire ſhould be preſent. 3. The preſence of actual fire in ſome part, to leſſen the preſſure of the elementary fluid, ſet it in motion, and reverſe it. This is the caſe when inflammable and dephlogiſticated

phlogiſticated airs are mixed together. Both thoſe contain ſpecific fire in great quantity. The baſis of the one, known to be charcoal, is capable of being united by means of heat to the baſis of dephlogiſticated air, and of forming with it in ſome caſes fixed air, in others water, or ſome other ſubſtance, according to their various proportions; and after this union is formed, there is no third ſubſtance by which the elementary fire may be abſorbed. The inflamed body by which they are ſet on fire firſt leſſens the inward preſſure of the elementary fire on one part, by which the baſes are allowed to approach nearer each other, and to form a chemical union according to the general obſervation: But this union cannot be effected without the emiſſion of part of the elementary fire, which being contained in the mixture in great quantity, produces a bright flame. This leſſens the preſſure ſtill more; a new chemical union and a new flame are produced; and ſo on as long as any of the materials remain.

When all theſe circumſtances concur, it is not a property peculiar to dephlogiſticated air to ſupport flame, though it ſeems to be ſo to preſerve animal life. It is well known that pyrophorus will burn in common nitrous air, and a candle will burn with an enlarged flame in that kind called *dephlogiſticated nitrous air*. But where any of the concurrent circumſtances abovementioned is wanting, no combuſtion will be produced. Thus, though the ſteam of water contains a vaſt quantity of ſpecific fire, and though it is decompoſed by paſſing over red-hot iron, yet no combuſtion is produced; becauſe, in the very moment of extrication, the elementary fire finds a quantity of phlogiſtion either in the iron, the water itſelf, or both, with which it combines, and forms inflammable air, but without any flame.

With regard to the ſubſtances which have the property of taking fire ſpontaneouſly, as PHOSPHORUS and PYROPHORUS, ſee theſe articles.

COMEDY, a ſort of dramatic poetry, which gives a view of common and private life, recommends virtue, and corrects the vices and follies of mankind by means of ridicule. See the article POETRY.

This laſt kind alone was received among the Romans, who neverthelefs made a new ſubdiviſion of it into ancient, middle, and new, according to the various periods of the commonwealth. Among the ancient comedies were reckoned thoſe of Livius Andronicus; among the middle thoſe of Pacuvius; and among the new ones, thoſe of Terence. They likewiſe diſtinguiſhed comedy according to the quality of the perſons repreſented, and the dreſs they wore, into togatæ, prætextatæ, trabeatæ, and terbernariæ, which laſt agrees pretty nearly with our farces. Among us, comedy is diſtinguiſhed from farce, as the former repreſents nature as ſhe is; the other diſtorts and overcharges her. They both paint from the life, but with different views: the one to make nature known, the other to make her ridiculous.

COMENIUS (John Amos), a grammarian, and Proteſtant divine, born in Moravia in 1592. He was eminent for his deſign to introduce a new method of teaching languages; for which purpoſe he publiſhed ſome eſſays in 1616, and had prepared ſome others, when the Spaniards pillaged his library, after having taken the city of Fulnec, where he was miniſter and maſter of the ſchool. Comenius fled to Leſna; a city of Poland, and taught Latin there. The book he publiſhed in 1631, under the title of *Janua Linguarum reſerata*, gained him a prodigious reputation, inſomuch that he was offered a commiſſion for regulating all the ſchools in Poland. The parliament of England deſired his aſſiſtance to regulate the ſchools in that kingdom. He arrived at London in 1641; and would have been received by a committee to hear his plan had not the parliament been taken up with other matters. He therefore went to Sweden, being invited by a generous patron, who ſettled a ſtipend upon him that delivered him from the fatigues of teaching; and now he employed himſelf wholly in diſcovering general methods for thoſe who inſtructed youth. In 1657 he publiſhed the different parts of his new method of teaching. He was not only taken up with the reformation of ſchools; but he alſo filled his brain with prophecies, the fall of Antichriſt, Millennium, &c. At laſt Comenius took it into his head to addreſs Louis XIV. of France, and to ſend him a copy of the prophecies of Drabicius; inſinuating that it was to this monarch God promiſed the empire of the world. He became ſenſible at laſt of the vanity of his labours, and died in 1671.

COMET, an opaque, ſpherical, and ſolid body like a planet, performing revolutions about the ſun in elliptical orbits, which have the ſun in one of their foci.

There is a popular diviſion of comets into *tailed*, *bearded*, and *hairy* comets: though this diviſion rather relates to the different circumſtances of the ſame comet, than to the phenomena of ſeveral. Thus when the light is weſtward of the ſun, and ſets after it, the comet is ſaid to be *tailed*, becauſe the train follows it in the manner of a tail: when the comet is eaſtward of the ſun, and moves from it, the comet is ſaid to be *bearded*, becauſe the light marches before it in the manner of a beard. Laſtly, when the comet and the ſun are diametrically oppoſite (the earth between them), the train is hid behind the body of the comet, except a little that appears round it in the form of a border of *hair:* and from this laſt appearance the word comet is derived; as κομητης *cometa*, comes from κομη, *coma*, hair. But there has been comets whoſe diſk was as clear, as round, and as well defined, as that of Jupiter, without either tail, beard, or coma. See ASTRONOMY-*Index*.

COMETARIUM, a curious machine, exhibiting an idea of the revolution of a comet about the ſun. See ASTRONOMY-*Index*.

COMETEAN, a town of Bohemia in the circle of Saltz, with a handſome town-houſe. It was taken by ſtorm in 1421, and all the inhabitants, men, women, and children, put to the ſword. It is ſeated in a fertile plain, in E. Long. 13. 25. N. Lat. 50. 30.

COMETES, in botany: A genus of the monogynia order, belonging to the tetrandria claſs of plants. The involucrum is tetraphyllous and triflorous; the calyx tetraphyllous; the capſule tricoccous.

COMFREY. See SYMPHYTUM.

COMINES (Philip de), an excellent hiſtorian, born of a noble family in Flanders in 1446. He lived in a kind of intimacy with Charles the Bold, duke of Burgundy, for about eight years: but being ſeduced to the court of France by Louis XI. he was highly promoted by him, and executed ſeveral ſucceſsful negociations. After this king's death he experienced many troubles on account of being a foreigner, by the envy of other courtiers, and lay long in priſon before he was diſcharged; he died in 1509. Comines was a man of more natural abilities than learning; he ſpoke ſeveral living, but knew nothing of the dead languages; he has left behind him ſome memoirs of his own times, that are admired by all true judges of hiſtory. Catherine de Medicis uſed to ſay, that Comines made as many heretics in politics as Luther had in religion.

Comines, a town of French Flanders on the lines which the French have made to defend their country againſt the Auſtrian Netherlands. It is ſituated on the river Lis, in E. Long. 3. 1. N. Lat. 50. 30.

COMITATUS, in law, a county. Ingulphus tells us, that England was firſt divided into counties by king Alfred; and the counties into hundreds, and theſe again into tythings; and Forteſcue writes, that *regnum Angliæ per comitatus, ut regnum Franciæ per ballivatus diſtinguitur.* Sometimes it is taken for a territory or juriſdiction of a particular place; as in Mat. Paris, anno 1234. See County.

COMITIA, in Roman antiquity, were general aſſemblies of the people, lawfully called by ſome magiſtrate for the enjoinment or prohibition of any thing by their votes.

The proper comitia were of three ſorts; *curiata, centuriata*, and *tributa;* with reference to the three grand diviſions of the city and people into *curiæ, centuriæ*, and *tribes:* For, by comitia *calata*, which we ſometimes meet with in authors, in elder times were meant all the comitia in general; the word *calata* from κωλεα, or *calo*, being their common epithet; though it was at laſt reſtrained to two ſorts of aſſemblies, thoſe for the creation of prieſts, and thoſe for the regulation of laſt wills and teſtaments.

The *comitia curiata* owe their origin to the diviſion which Romulus made of the people into 30 curiæ; ten being contained in every tribe. They anſwered in moſt reſpects to the pariſhes in our cities, being not only ſeparated by proper bounds and limits, but diſtinguiſhed too by their different places ſet apart for the celebration of divine ſervice, which was performed by particular prieſts (one to every curia), with the name of *curiones*.

Before the inſtitution of the comitia centuriata, all the grand concerns of the ſtate were tranſacted in the aſſembly of the curiæ; as the election of kings and other chief officers, the making and abrogating of laws, and the judging of capital cauſes. After the expulſion of the kings, when the commons had obtained the privilege to have tribunes and ædiles, they elected them for ſome time at theſe aſſemblies; but that ceremony being at length transferred to the comitia tributa, the curiæ were never convened to give their votes, except now and then upon account of making ſome particular law relating to adoptions, wills, and teſtaments, or the creation of officers for an expedition; or for electing ſome of the prieſts, as the *flamines*, and the *curio maximus*, or ſuperintendant of the curiones, who were themſelves choſen by every particular curia.

The power of calling theſe aſſemblies belonged at firſt only to the kings; but upon the eſtabliſhment of the democracy, the ſame privilege was allowed to moſt of the chief magiſtrates, and ſometimes to the pontifices.

The perſons who had the liberty of voting here were ſuch Roman citizens as belonged to the curiæ; or ſuch as actually lived in the city, and conformed to the cuſtoms and rites of their proper curiæ; all thoſe being excluded who dwelt without the bounds of the city, retaining the ceremonies of their own country, though they had been honored with the *jus civitatis*, or admitted free citizens of Rome. The place where the curiæ met was the *comitium*, a part of the forum: No ſet time was appointed for the holding theſe, or any other of the comitia, but only as buſineſs required.

The people being met together, and confirmed by the report of good omens from the augurs (which was neceſſary in all the aſſemblies), the rogatio, or buſineſs to be propoſed to them, was publicly read. After this (if none of the magiſtrates interpoſed), upon the order of him that preſided in the comitia, the people divided into their proper curias, and conſulted of the matter; and then the curias being called out, as it happened by lot, gave their votes man by man, in ancient times *viva voce*, and afterwards by tablets; the moſt votes in every curia, going for the voice of the whole curia, and the moſt curiæ for the general conſent of the people.

In the time of Cicero, the comitia curiata were ſo much out of faſhion, that they were formed only by 30 lictors repreſenting the 30 curiæ; whence, in his ſecond oration againſt Rullus, he calls them *comitia adumbrata*.

The *comitia centuriata* were inſtituted by Servius Tullius: who, obliging every one to give a true account of what he was worth, according to thoſe accounts, divided the people into ſix ranks or claſſes, which he ſubdivided into 193 centuries. The firſt claſſis, containing the equites and richeſt citizens, conſiſted of 98 centuries. The ſecond taking in the tradeſmen and mechanics, conſiſted of 22 centuries. The third, 20. The fourth, 22. The fifth, 30. The ſixth, filled up with the poorer ſort, but one century: and this, though it had the ſame name with the reſt, yet was ſeldom regarded, or allowed any power in public matters. Hence it is a common thing with the Roman authors, when they ſpeak of the claſſes, to reckon no more than five, the ſixth not being worth their notice. This laſt claſſis or order was divided into two parts, or orders; the *proletarii* and the *capite cenſi.* The former, as their name implies, were deſigned purely to ſtock the republic with men, ſince they could ſupply it with ſo little money; and the latter, who paid the loweſt tax of all, were rather counted and marſhalled by their heads than by their eſtates.

Perſons of the firſt rank, by reaſon of their pre-eminence, had the name of *claſſici;* whence came the name of *claſſici authores* for the moſt approved writers. All others, of what claſſis ſoever, were ſaid to be *infra claſſem.* The aſſembly of the people by centuries was held for the electing of conſuls, cenſors, and prætors; as alſo for the judging of perſons accuſed of what they called *crimen perduellionis*, or actions by which the party had ſhowed himſelf an enemy to the ſtate, and for the confirmation of all ſuch laws as were propoſed by the chief magiſtrates, who had the privilege of calling theſe aſſemblies.

The place appointed for their meeting was the *campus martius*; becauſe in the primitive times of the commonwealth, when they were under continual apprehenſions of enemies, the people, to prevent any ſudden aſſault, went armed, in martial order, to hold theſe aſſemblies; and were for that reaſon forbidden by the laws to meet in the city, becauſe an army was upon no account to be marſhalled within the walls: yet, in latter ages, it was thought ſufficient to place a body of ſoldiers as a guard in the janiculum, where an imperial ſtandard was erected, the taking down of which denoted the concluſion of the comitia.

Though the time of holding theſe comitia for other matters was undetermined; yet the magiſtrates, after the year of the city 601, when they began to enter on their place, on the kalends of January, were conſtantly *deſigned* about the end of July and the beginning of Auguſt.

All the time between their election and confirmation they continued as private perſons, that inquiſition might be made into the election, and the other candidates might have time to enter objections, if they met with any ſuſpicion of foul dealing. Yet, at the election of the cenſors, this cuſtom did not hold; but as ſoon as they were elected, they were immediately inveſted with the honour.

By the inſtitution of theſe comitia, Servius Tullius ſecretly conveyed the whole of the power from the commons: for the centuries of the firſt and richeſt claſs being called out firſt, who were three more in number than all the reſt put together, if they all agreed, as generally they did, the buſineſs was already decided, and the other claſſes were needleſs and inſignificant. However, the three laſt ſcarce ever came to vote.

The commons, in the time of the free ſtate, to remedy this diſadvantage, obtained, that before they proceeded to voting any matter at theſe comitia, that century ſhould give their ſuffrages firſt upon whom it fell by lot, with the name of *centuria prerogativa*; the reſt being to follow according to the order of their claſſes. After the conſtitution of the 35 tribes into which the claſſes and their centuries were divided in the firſt place, the tribes caſt lots which ſhould be *prerogative tribe*; and then the centuries of the tribes for the honour of being a prerogative century. All the other tribes and centuries had the appellation of *jure vocatæ*, becauſe they were called out according to their proper places.

The prerogative century being choſen by lot, the chief magiſtrate, ſitting in a tent in the middle of the campus martius, ordered that century to come out and give their voices, upon which they preſently ſeparated from the reſt of the multitude, and came into an incloſed apartment, which they termed *ſepta*, or *ovilia*, paſſing over the *pontes* or narrow boards laid there for the occaſion; on which account, *de ponte dejici* ſignifies to be denied the privilege of voting, and perſons thus dealt with are called *depontani*.

At the hither end of the pontes ſtood the *diribitores* (a ſort of under officers ſo called from their marſhalling the people), and delivered to every man, in the election of magiſtrates, as many tables as there appeared candidates, one of whoſe names was written upon every tablet. A proper number of great cheſts were ſet ready in the *ſepta*, and every body threw in which tablet he pleaſed.

By the cheſts were placed ſome of the public ſervants, who taking out the tablets of every century, for every tablet, made a prick or a point in another tablet which they kept by them. Thus, the buſineſs being decided by the moſt points, gave occaſion to the *omne tulit punctum*, and the like.

The ſame method was obſerved in the judiciary proceſs at theſe comitia, and in the confirmation of laws; except that, in both theſe caſes, only two tablets were offered to every perſon; on one of which was written U. R. and on the other A, in capital letters: the two firſt ſtanding for *uti rogas*, “be it as you deſire,” relating to the magiſtrate who propoſed the queſtion; and the laſt for *antiquo*, or “I forbid it.”

It is remarkable, that though in the election of magiſtrates, and in the ratification of laws, the votes of that century, whoſe tablets were equally divided, ſignified nothing; yet in trials of life and death, if the tablets *pro* and *con* were the ſame in number, the perſon was actually acquitted.

The diviſion of people into *tribes* was an invention of Romulus, after he had admitted the Sabines into Rome; and though he conſtituted at that time only three, yet as the ſtate increaſed in power, and the city in number of inhabitants, they roſe by degrees to 35. For a long time after this inſtitution, a *tribe* ſignified no more than ſuch a ſpace of ground with its inhabitants. But at laſt the matter was quite altered, and tribe was no longer *pars urbit*, but *pars civitatis*; not a quarter of the city, but a company of citizens living where they pleaſed. This change was chiefly occaſioned by the original difference between the tribes in point of honour. For Romulus having committed all ſordid and mechanic arts to the care of ſtrangers, ſlaves, and libertines; and reſerved the more honeſt labour of agriculture to the freemen and citizens, who by this active courſe of life might be prepared for martial ſervice; the *tribus ruſticæ* were for this reaſon eſteemed more honourable than the *tribus urbanae*. And now all perſons being deſirous of getting into the more creditable diviſion; and their being ſeveral ways of accompliſhing their wiſhes, as by adoption, by the power of cenſors, or the like; that ruſtic tribe which had the moſt worthy names in its roll, had the preference to all others, though of the ſame general denomination. Hence all of the ſame great family, bringing themſelves by degrees into the ſame tribe, gave the name of their family to the tribe they honoured; whereas at firſt the generality of the tribes did not borrow their names from perſons but from places.

The firſt aſſembly of the tribes we meet with is about the year of Rome 263, convened by Sp. Sicinius, tribune of the commons, upon account of the trial of Coriolanus. Soon after, the tribunes of the commons were ordered to be elected here; and at laſt all the inferior magiſtrates, and the collegiate prieſts. The ſame comitia ſerved for the enacting of laws relating to war and peace, and all others propoſed by the tribunes and plebeian officers, though they had not properly the name of *leges*, but *plebiſcita*. They were generally convened by the tribunes of the commons; but the ſame previlege was allowed to all the chief magiſtrates. They were confined to no place; and therefore ſometimes we find them held in the comitium; ſometimes in the campus martius, and now and then in the capitol. The proceedings were in moſt reſpects anſwerable to thoſe already deſcribed in the account of the other comitia, and therefore need not be inſiſted on. Only we may farther obſerve of the comitia in general, that when any candidate was found to have moſt tablets for a magiſtracy, he was declared to be *deſigned* or elected by the preſident of the aſſembly; and this they termed *renunciari conſul, prætor*, or the like; and that the laſt ſort of the comitia only could be held without the conſent and approbation of the ſenate, which was neceſſary to the convening of the other two.

COMITIALIS MORBUS, an appellation given to the EPILEPSY, by reaſon the comitia of ancient Rome were diſſolved if any perſon in the aſſembly happened to be taken with this diſtemper.

COMITIUM, in Roman antiquity, a large hall in the forum, where the COMITIA were ordinarily held.

COMMA, among grammarians, a point or character marked thus (,), ſerving to denote a ſhort ſtop, and to divide the members of a period. Different authors define and uſe it differently. According to F. Buffier, the comma ſerves to diſtinguiſh the members of a period, in each of which is a verb and the nominative caſe of the verb: thus, "That ſo many people are pleaſed with trifles, is owing to a weakneſs of mind, which makes them love things eaſy to be comprehended." Beſides this, the comma is uſed to diſtinguiſh in the ſame member of a period, ſeveral nouns-ſubſtantive, or nouns-adjective, or verbs not united by a conjunction: thus, "Virtue, wit, knowledge, are the chief advantages of a man:" or, "A man never becomes learned without ſtudying conſtantly, methodically, with a guſt, application, &c." If thoſe words are united in the ſame phraſe with a conjunction, the comma is omitted: thus, "the imagination and the judgment do not always agree."

The ingenious author of the tract *De ratione interpungendi*, printed with Voſſius's Element. Rhetor. Lond. 1724, lays down the uſe of a comma to be, to diſtinguiſh the ſimple members of a period, or ſentence; *i. e.* ſuch as only conſiſt of one ſubject, and one definite verb. But this rule does not go throughout; the ſame author inſtancing many particular caſes not yet included herein, where yet the comma is adviſable. See PUNCTUATION.

It is a general rule that a comma ought not to come between a nominative and a verb, or an adjective and ſubſtantive, when theſe are not otherwiſe disjoined: thus, in the ſentence, *God ruleth with infinite wiſdom*, a comma between *God* and *ruleth*, or between *infinite* and *wiſdom*, would be abſurd. But to this exceptions may occur; as when not a ſingle word, but a ſentence, happens to be the nominative: thus, in the example firſt above given, where the ſentence *that ſo many people are pleaſed with trifles*, forms the nominative to the verb *is*, a comma at *trifles* is proper, both for the ſake of perſpicuity, and coinciding with a ſlight natural pauſe.

COMMA, in muſic. See INTERVAL.

COMMANDINUS (Frederic), born at Urbino in Italy, and deſcended from a very noble family, in the 16th century. To a vaſt ſkill in the mathematics, he had added a great knowledge in the Greek tongue, by which he was well qualified to tranſlate the Greek mathematicians into Latin: accordingly he tranſlated and publiſhed ſeveral, which no writer till then had attempted; as Archimedes, Apollonius, Euclid, &c.

COMMANDRY, a kind of benefice or fixed revenue belonging to a military order, and conferred on ancient knights who had done conſiderable ſervices to the order.

There are ſtrict or regular commandries, obtained in order, and by merit; there are others of grace and favour, conferred at the pleaſure of the grand maſter; there are alſo commandries for the religious, in the orders of St Bernard and St Anthony. The kings of France have converted ſeveral of the hoſpitals for lepers into commandries of the order of St Lazarus.

The commandries of Malta are of different kinds; for as the order conſiſts of knights, chaplains, and brothers-ſervitors, there are peculiar commandries or revenues attached to each. The knight to whom one of theſe benefices or commandries is given is called *commander*: which agrees pretty nearly with the præpoſitus ſet over the monks in places at a diſtance from the monaſtery, whoſe adminiſtration was called *obedientia*; becauſe depending entirely upon the abbot who gave him his commiſſion. Thus it is with the ſimple commanders of Malta, who are rather farmers of the order than beneficiaries; paying a certain tribute or rent, called *reſponſio*, to the common treaſure of the order.

COMMELINA, in botany: A genus of the monogynia order, belonging to the triandria claſs of plants; and in the natural method of ranking under the 6th order, *Enſatæ*. The corolla is hexapetalous; there are three nectaria, of a cruciform figure, and inſerted into their proper filaments. There are ten ſpecies, all of them natives of warm climates. They are herbaceous plants, riſing from two to four feet high, and adorned with blue or yellow flowers. Their culture differs in nothing from that of the common exotics.

COMMEMORATION, in a general ſenſe, the remembrance of any perſon or thing, or the doing any thing to the honour of a perſon's memory, or in remembrance of any paſt event. Thus the euchariſt is a commemoration of the ſufferings of Jeſus Chriſt.

COMMENDAM, in the eccleſiaſtical law, the truſt or adminiſtration of the revenues of a benefice, given either to a layman, to hold by way of depoſitum for ſix months, in order to repairs, &c. or to an eccleſiaſtic or beneficed perſon, to perform the paſtoral duties thereof, till once the benefice is provided with a regular incumbent.

Anciently the adminiſtration of vacant biſhoprics belonged to the neareſt neighbouring biſhop; which is ſtill practiſed between the archbiſhopric of Lyons and the biſhopric of Autun; on this account they were called *commendatory biſhops*.

This cuſtom appears to be very ancient. S. Athanaſius ſays of himſelf, according to Nicephorus, that there had been given him *in commendam, i. e.* in adminiſtration, another church beſides that of Alexandria whereof he was ſtated biſhop.

The care of churches, it ſeems, which had no paſtor, was committed to a biſhop, till they were provided of an ordinary: the regiſter of Pope Gregory I. is full of theſe commiſſions, or commendams, granted during the abſence or ſickneſs of a biſhop, or the vacancy of the ſee.

Some ſay, that Pope Leo IV. firſt ſet the modern commendams on foot, in favour of eccleſiaſtics who had been expelled their benefices by the Saracens; to whom the adminiſtration of the vacant churches was committed for a time, in expectation of their being reſtored: though S. Gregory is ſaid to have uſed the ſame, while the Lombards deſolated Italy.

In a little time the practice of commendams was exceedingly abuſed; and the revenues of monaſteries given to laymen for their ſubſiſtence. The biſhops alſo procured ſeveral benefices, or even biſhoprics, *in commendam*, which ſerved as a pretext for holding them all without directly violating the canons. Part of the abuſe has been retrenched; but the uſe of commendams is ſtill retained as an expedient to take off the incompatibility of the perſon by the nature of the benefice.

When a parſon is made biſhop, his parſonage becomes vacant; but if the king give him power, he may ſtill hold it *in commendam.*

COMMENDATUS, one who lives under the protection of a great man. *Commendati homines*, were perſons who, by voluntary homage, put themſelves under the protection of any ſuperior lord: for ancient homage was either *predial*; due for ſome tenure; or *perſonal*, which was by compulſion, as a ſign of neceſſary ſubjection; or voluntary, with a deſire of protection; and thoſe who, by voluntary homage, put themſelves under the protection of any man of power, were ſometimes called *homines ejus commendati*, as often occurs in Doomſday. *Commendati dimidii* were thoſe who depended on two ſeveral lords, and paid one-half of their homage to each; and *ſub-commendati* were like under-tenants under the command of perſons that were themſelves under the command of ſome ſuperior lord: alſo there were *dimidii ſub-commendati*, who bore a double relation to ſuch depending lords. This phraſe ſeems to be ſtill in uſe in the uſual compliment "Commend me to ſuch a friend," &c. which is to let him know, "I am his humble ſervant."

COMMENSURABLE, among geometricians, an appellation given to ſuch quantities as are meaſured by one and the ſame common meaſure.

Commensurable Numbers, whether integers or fractions, are ſuch as can be meaſured or divided by ſome other number without any remainder: ſuch are 12 and 18, as being meaſured by 6 and 3.

Commensurable in Power, is ſaid of right lines, when their ſquares are meaſured by one and the ſame ſpace or ſuperficies.

Commensurable Surds, thoſe that being reduced to their leaſt terms, become true figurative quantities of their kind; and are therefore as a rational quantity to a rational one.

COMMENTARY, or Comment, in matters of literature, an illuſtration of the difficult or obſcure paſſages of an author.

Commentary, or *Commentaries*, likewiſe denotes a kind of hiſtory, or memoirs of certain tranſactions, wherein the author had a conſiderable hand: ſuch are the Commentaries of Cæſar.

COMMERCE

IS an operation by which the wealth, or work, either of individuals or of ſocieties, may be exchanged by a ſet of men called *merchants*, for an equivalent, proper for ſupplying every want, without any interruption to induſtry, or any check upon conſumption.

Chap. I. History *of* Commerce.

§ 1. *General Hiſtory.*

It is a point as yet undecided by the learned, to what nation the invention and firſt uſe of commerce belonged; ſome attribute it to one people, ſome to another, for reaſons that are too long to be diſcuſſed here. But it ſeems moſt probable that the inhabitants of Arabia were thoſe that firſt made long voyages. It muſt be allowed, that no country was ſo happily ſeated for this purpoſe as that which they inhabited, being a peninſula waſhed on three ſides by three famous ſeas, the Arabian, Indian, and Perſian. It is alſo certain that it was very early inhabited; and the firſt notice we have of any conſiderable trade refers it to the Iſhmaelites, who were ſettled in the hither part of Arabia: To them Joſeph was ſold by his brethren, when they were going down with their camels to Egypt with ſpicery, balm, and myrrh. It may ſeem ſtrange to infer from hence, that commerce was already practiſed by this nation, ſince mention is here made of camels, or a caravan, which certainly implies an inland trade; and it muſt be likewiſe allowed, that balm and myrrh were the commodities of their country. But whence had they the ſpicery? Or how came Arabia to be ſo famous in ancient times for ſpices? Or whence proceeded that miſtake of many great authors of antiquity, that ſpices actually grew there? Moſt certainly, becauſe theſe people dealt in them; and that they dealt in them the firſt of any nation that we know of, appears from this very inſtance. Strabo and many other good authors aſſure us, that in ſucceeding times they were very great traders; they tell us particularly what ports they had; what prodigious magazines they kept of the richeſt kinds of goods, what wonderful wealth they obtained; in what prodigious magnificence they lived, and into what exceſſes they fell in reſpect to their expences for carving, building, and ſtatues. All this ſhows that they were very great traders: and it alſo ſhows, that they traded to the Eaſt Indies; for from thence only they could have their ſpieces, their rich gums, their ſweet-ſcented woods, and their ivory, all which it is expreſsly ſaid that they had in the greateſt abundance. This therefore proves that they had an extenſive and flouriſhing commerce; and that they had it earlier than any other nation, ſeems evident from their dealing at that time in ſpices. Beſides, there is much leſs difficulty in ſuppoſing that they firſt diſcovered the route to the Indies, than if we aſcribe that diſcovery to any other nation: for in the firſt place they lay neareſt, and in the next they lay moſt conveniently; to which we may add, thirdly, that as the ſituation of their country naturally inclined them to navigation, ſo by the help of the monſoons they might make regular voyages to and from the Indies with great facility; nor is at all unlikely that this diſcovery might be at firſt owing to chance, and to ſome of their veſſels being blown by a ſtrong gale to the oppoſite coaſt, from whence they might take the courage to return, by obſerving the regularity of the winds at certain ſeaſons. All theſe reaſons taken together ſeem to favour this opinion, that commerce flouriſhed firſt among them; and as to its conſequences in making them rich and happy, there is no diſpute about them.

We find in the records of antiquity no nation celebrated more early for carrying all arts to perfection than the inhabitants of Egypt; and it is certain alſo, that no art was there cultivated more early, with more aſſiduity, or with greater ſucceſs, than trade. It appears from the foregoing inſtance, that the richeſt commodities were carried there by land; and it is no leſs certain, that the moſt valuable manufactures were invented and brought to perfection there many ages before they were thought of in other countries: for, as the learned Dr Warburton very juſtly obſerves, at the time that Joſeph came into Egypt, the people were not only poſſeſſed of all the conveniences of life, but were remarkable alſo for their magnificence, their politeneſs, and even for their luxury; which argues, that traffic had been of long ſtanding amongſt them. To ſay the truth, the great advantages derived from their country's lying along the Red Sea, and the many benefits that accrued to them from the Nile, which they very emphatically called *The River*, or *The River of Egypt*, and of which they knew how to make all the uſes that can be imagined, gave them an opportunity of carrying their inland trade not only to a greater height than in any country at that time, but even higher than it has been carried any where, China only excepted; and ſome people have thought it no trivial argument to prove the deſcent of the Chineſe from the Egyptians, that they have exactly the ſame ſort of genius, and with wonderful induſtry and care have drawn ſo many cuts and canals, that their country is in almoſt every part of it navigable. It was by ſuch methods, by a wiſe and well-regulated government, and by promoting a ſpirit of induſtry amongſt the people, that the ancient Egyptians became ſo numerous, ſo rich, ſo powerful; and that their country, for large cities, magnificent ſtructures, and perpetual abundance, became the glory and wonder of the old world.

The Phœnicians, though they poſſeſſed only a narrow ſlip of the coaſt of Aſia, and were ſurrounded by nations ſo powerful and ſo warlike that they were never able to extend themſelves on that ſide, became famous, by erecting the firſt naval power that makes any figure in hiſtory, and for the raiſing of which they took the moſt prudent and effectual meaſures. In order to this, they not only availed themſelves of all the creeks, harbours, and ports, which nature had beſtowed very liberally on their narrow territory, but improved them in ſuch a manner, that they were no leſs remarkable for their ſtrength than conſiderable for their conveniency; and ſo attentive they were to whatever might contribute to the increaſe of their power, that they were not more admired for the vaſt advantages they derived from their commerce, than they were formidable by their fleets and armies. They were likewiſe celebrated by antiquity as the inventors of arithmetic and aſtronomy; and in the laſt mentioned ſcience they muſt have been very conſiderable proficients, ſince they had the courage to undertake long voyages at a time when no other nation (the Arabians and Egyptians excepted) durſt venture farther than their own coaſts. By theſe arts Tyre and Sidon became the moſt famous marts in the univerſe, and were reſorted to by all their neighbours, and even by people at a conſiderable diſtance, as the great ſtorehouſes of the world. We learn from the Scriptures how advantageous their friendſhip and alliance became to the two great kings of Iſrael, David and Solomon; and we ſee, by the application of the latter for architects and artiſts to Hiram king of Tyre, to what a prodigious height they had carried manufactures of every kind.

It is very certain that Solomon made uſe of their aſſiſtance in equipping his fleets at Elath and Eziongeber; and it is very probable that they put him upon acquiring thoſe ports, and gave him the firſt hints of the amazing advantages that might be derived from the poſſeſſion of them, and from the commerce he might from thence be able to carry on. Theſe ports were moſt commodiouſly ſituated on the Arabian gulph; and from thence his veſſels, manned chiefly by Phœnicians, ſailed to Ophir and Tharſis, where-ever thoſe places were. Some writers will needs have them to be Mexico and Peru, which is certainly a wild and extravagant ſuppoſition; others believe that we are to look for Ophir on the coaſt of Africa, and Tharſis in Spain; but the moſt probable opinion is, that they were both ſeated in the Eaſt Indies. By this adventurous navigation he brought into his country curioſities not only unſeen, but unheard of before, and riches in ſuch abundance, that, as the Scripture finely expreſſes it, "He made ſilver in Jeruſalem as ſtones, and cedar-trees as ſycamores that grow in the plains." The metaphor is very bold and emphatical; but when we conſider that it is recorded in this Hiſtory, that the return of one voyage only to Ophir produced 450 talents of gold, which makes 51,328 pounds of our Troy weight, we cannot doubt of the immenſe profit that accrued from this commerce. It is alſo obſervable that the queen of Sheba, or Saba, which lies in that part of Arabia before mentioned, ſurpriſed at the reports that were ſpread of the magnificence of this prince, made a journey to his court on purpoſe to ſatisfy herſelf whether fame had not exaggerated the fact; and from the preſents ſhe made him of 120 talents of gold, of ſpices in great abundance, and precious ſtones, we may diſcern the true reaſon of her curioſity, which proceeded from an opinion that no country could be ſo rich as her own. And there is another circumſtance very remarkable, and which ſeems ſtrongly to fortify what we have advanced in the beginning of this ſection; it is added, "neither were there any ſuch ſpices as the queen of Sheba gave to king Solomon;" which ſeems to intimate, that the Arabians had penetrated farther into the Indies than even the fleets of this famous prince, and brought from thence other ſpices (perhaps nutmegs and cloves) than had ever been ſeen before. It was by his wiſdom, and by his ſteady application to the arts of peace, all of which mutually ſupport each other, as they are all driven on by the wheel of commerce, which ſupplies every want, and converts every ſuperfluity into merchandiſe, that this monarch raiſed his ſubjects to a condition much ſuperior to that of any of their neighbours, and rendered the land of Iſrael, while he governed it, the glory and wonder of the Eaſt. He made great acquiſions without making wars; and his ſucceſſor, by making wars, loſt thoſe acquiſitions. It was his policy to keep all his people employed; and, by employing them, he provided equally for the extenſion of their happineſs, and his own power: but the following kings purſued other meaſures,. and other conſequences attended them. The trade of Judea ſunk almoſt as ſuddenly as it roſe, and in proceſs of time they loſt thoſe ports on the Red Sea, upon which their Indian commerce depended.

The whole trade of the univerſe became then, as it were, the patrimony of the Phœnicians and the Egyptians. The latter monopolized that of the Indies, and, together with her corn and manufactures, brought ſuch a prodigious balance of wealth continually into the country, as enabled the ancient monarchs of Egypt to compaſs all thoſe memorable works that in ſpite of time and barbarous conquerors remain the monuments of their wiſdom and power, and are like to remain ſo as long as the world ſubſiſts. The Phœnicians drew from Egypt a great part of thoſe rich commodities and valuable manufactures which they exported into all the countries between their own and the Mediterranean ſea; they drew likewiſe a vaſt reſort to their own cities, even from countries at a great diſtance; and we need only look into the prophets Iſaiah and Ezekiel in order to be convinced that theſe governments, founded on trade, were infinitely more glorious and more ſtable than thoſe that were erected by force. All this we find likewiſe confirmed by profane hiſtories; and by comparing theſe, it is evident, that the induſtry of the inhabitants of this ſmall country triumphed over all obſtacles, procured the greateſt plenty in a barren ſoil, and immenſe riches, where, without induſtry, there muſt have been the greateſt indigence. It is true, that old Tyre was deſtroyed by Nebuchadnezzar, but not till ſhe had flouriſhed for ages; and even then ſhe fell with dignity, and after a reſiſtance that ruined the army of tha Great Conqueror of Aſia. Out of the aſhes of this proud city the great ſpirit of its inhabitants produced a Phœnix, little, if at all, inferior in beauty to its parent. New Tyre was ſituated on an iſland; and though her bounds were very narrow, yet ſhe became quickly the miſtreſs of the ſea, and held that ſupreme dominion till ſubdued by Alexander the Great, whom no power could reſiſt. The ſtruggle ſhe made, however, though unſucceſsful, was great, and very much to the honour of her inhabitants: it muſt be owned, that the Greek hero found it more difficult to maſter this ſingle place, than to overcome the whole power of Perſia.

The views of the Macedonian prince were beyond compariſon more extenſive than his conqueſts; and whoever conſiders Alexander's plan of power, and enters into it thoroughly, will think him more a politician than he was a conqueror. He framed in his own mind an idea of univerſal monarchy, which it was indeed impoſſible to accompliſh; but the very notion of it does him far greater honour than all his victories. He thought of placing his capital in Arabia; and of diſpoſing things in ſuch a manner, as to have commanded the moſt remote parts of the Indies, at the ſame time that he maintained a connection with the moſt diſtant countries in Europe. He was for making uſe of force to acquire, but he very well knew, that commerce only could preſerve an empire, that was to have no other limits than thoſe which nature had aſſigned the world. He deſired to be maſter of all; but at the ſame time he was willing to be a wiſe and gracious maſter, and to place his happineſs in that of his people, or rather in making all the nations of the earth but one people. A vaſt, an extravagant, an impracticable ſcheme it was, of which he lived not long enough to draw the outlines; but the ſample he left in his new city of Alexandria ſufficiently ſhows how juſt and how correct his notions were, and how true a judgement he had formed of what might be effected by thoſe methods upon which he depended. That city, which he might be ſaid to deſign with his own hand, and which was built, as it were, under his eye, became in ſucceeding times all that he expected, the glory of Egypt, and the centre of commerce for ſeveral ages.

While Tyre was in the height of her glory, and had no rival in the empire of the ſea, ſhe founded her noble colony of Carthage on the coaſt of Africa. The ſituation of the city was every where admirable; whether conſidered in the light of a capital, of a ſtrong fortreſs, or of a commodious port. It was equally diſtant from all the extremities of the Mediterranean ſea, had a very fine country behind it, and was not in the neighbourhood of any power capable of reſtraining its commerce or its growth. It is almoſt inexpreſſible how ſoon its inhabitants became not only numerous and wealthy, but potent and formidable. By degrees they extended themſelves on all ſides, conquered the beſt part of Spain, and erected there a new Carthage; the iſlands of Sicily and Sardinia, or at leaſt the beſt part of them, ſubmitted likewiſe to their yoke. Their conqueſts, however, were inconſiderable in extent, when compared with their navigation. On one ſide they ſtretched as far weſtward as Britain; and the Scilly iſlands, which are now ſo inconſiderable, were to them an Indies, the route to which they uſed the utmoſt induſtry to conceal. On the other hand, they diſcovered a great part of the coaſt of Africa, the Canary iſlands; and ſome there are who believe they firſt found the way to America. While they confined themſelves to trade, and the arts which belonged thereto, their power was continually increaſing;

ſing; but when induſtry gave way to luxury, and a ſpirit of ambition baniſhed their old maxims of frugality and labour, their acquiſitions remained at a ſtand. The Romans began to grow jealous of their naval power, which it coſt them two obſtinate wars of 40 years continuance to humble. When ſhe was at length deſtroyed, her very ruins were majeſtic; for at the beginning of the third fatal Punic war, this city contained 700,000 inhabitants alone, and had 300 cities in Africa under her dominion. Such was the empire of Carthage, raiſed entirely by commerce; and to which, if ſhe had been content to have applied herſelf with the ſame ſteadineſs in her higheſt proſperity as in her early beginnings, there is no doubt ſhe had preſerved her freedom much longer than ſhe did; for as thrift, and diligence, and good faith, are the pillars of a commercial ſtate; ſo when theſe are once ſhaken, it is not only natural that ſhe ſhould decline, but unavoidable alſo.

The Ptolemies, who were the ſucceſſors of Alexander in Egypt, entered deeply into that hero's ſcheme, and reaped the benefit of his wiſe eſtabliſhment. Ptolemy Philadelphus, by encouraging trade, made his ſubjects immenſely rich, and himſelf inexpreſſibly powerful. We are told by an ancient author, that he had 120 gallies of war of an enormous ſize, and upwards of 4000 other veſſels, ſmall and great. This would appear incredible, if other wonders were not related of him, which ſeem to explain and confirm theſe. He raiſed a new city on the coaſt of the Red Sea; he was at an immenſe expence in opening harbours, conſtructing quays, in raiſing inns at proper diſtances on the road, and in cutting a canal from ſea to ſea. A prince who comprehended the importance of commerce to a degree that induced him to dare ſuch expences as theſe, might have what treaſures, what armies, what fleets he pleaſed. In his time, Alexandria appeared in pomp and ſplendor. She owed her birth to Alexander; but it was Ptolemy, who caught a double portion of his maſter's ſpirit, which raiſed her to that magnificence that ages could not deface. We may gueſs at what ſhe was in her glory, by what we are told was the produce of her cuſtoms, which fell little ſhort of two millions Sterling annually; and yet we cannot ſuppoſe that Ptolemy, who underſtood trade ſo well, would cramp it by high duties, or extravagant impoſitions. When the revenue of the prince from a ſingle port was ſo great, what muſt have been the riches of his ſubjects!

But what ſhows us Alexandria in the higheſt point of light, is the credit ſhe maintained after Egypt ſunk from an empire into a province. The Romans themſelves were ſtruck with the majeſty of her appearance; and though till then they had little regarded traffic, yet they were not long before they comprehended the advantages of ſuch a port, and ſuch a mart as Alexandria; they confirmed her privileges, they protected her inhabitants, they took every meaſure poſſible to preſerve her commerce; and this with ſo good an effect, that ſhe actually preſerved it longer than Rome herſelf could preſerve her power. She followed, indeed, the fortune of the empire; and became at laſt dependent upon Conſtantinople, when its founder removed thither the capital of the empire; and his ſucceſſor found means to transfer alſo a part of the trade of Alexandria to the ſame place. Yet this city continued ſtill to hold up her head, and though ſhe ſunk under the barbarous power of the Arabs, yet they grew poliſhed by degrees; by degrees ſhe recovered ſomewhat of her ancient pre-eminence; and though ſhe never roſe to any thing like her former luſtre, yet ſhe remained the centre of what little trade there was in the world; which is more than can be ſaid of almoſt any place that has fallen under the Mohammedan power.

When the Roman empire was over-run by barbarians, and arts and ſciences ſunk with that power which had cultivated and protected them, commerce alſo viſibly declined; or, to ſpeak with greater propriety, was overwhelmed and loſt. When that irruption of various nations had driven the Roman policy out of the greateſt part of Europe, ſome ſtraggling people, either forced by neceſſity, or led by inclination, took ſhelter in a few ſtraggling iſlands that lay near the coaſt of Italy, and which would never have been thought worth inhabiting in a time of peace. This was in the 6th century; and at their firſt fixing there they had certainly nothing more in view than living in a tolerable ſtate of freedom, and acquiring a ſubſiſtence as well as they could. Theſe iſlands being divided from each other by narrow channels, and thoſe channels ſo incumbered by ſhallows that it was impoſſible for ſtrangers to navigate them, theſe refugees found themſelves tolerably ſafe; and uniting amongſt themſelves for the ſake of improving their condition, and augmenting their ſecurity, they became in the 8th century a well-ſettled government, and aſſumed the form of a republic.

Simple and mean as this relation may appear, yet it is a plain and true account of the riſe, progreſs, and eſtabliſhment of the famous and potent republic of Venice. Her beginnings were indeed weak and ſlow; but when the foundation was once well laid, her growth was quick, and the increaſe of her power amazing. She extended her commerce on all ſides; and taking advantage of the barbarous maxims of the Mohammedan monarchies, ſhe drew to herſelf the profits of the Indian trade, and might, in ſome ſenſe, be ſaid to make Egypt a province, and the Saracens her ſubjects. By this means her traffic ſwelled beyond conception; ſhe became the common mart of all nations; her naval power arrived at a prodigious height: and, making uſe of every favourable conjuncture, ſhe ſtretched her conqueſt not only over the adjacent Terra Firma of Italy, but through the iſlands of the Archipelago, ſo as to be at once miſtreſs of the ſea, of many fair and fruitful countries, and of part of the great city of Conſtantinople itſelf. But ambition, and, the deſire of lording it over her neighbours, brought upon her thoſe evils which firſt produced a decay of trade, and then a declenſion of power. General hiſtories indeed aſcribe this to the league of Cambray, when all the great powers in Europe combined againſt this republic; and in truth, from that period the ſinking of her power is truly dated; but the Venetian writers very juſtly obſerve, that though this effect followed the league, yet there was another more latent, but at the ſame time a more effectual cauſe, which was, the falling off of their commerce; and they have ever ſince been more indebted to their wiſdom than their power; to the prudent concealing of their own weakneſs, and taking advantage of the errors of their enemies, than to any other cauſe, for their keeping up that part which they ſtill bear, and which had been loſt long ago by any other nation but themſelves.

At the ſame time that Venice roſe, as it were, out of the ſea, another republic was erected on the coaſt of Italy. There could not well be a worſe ſituation than the narrow, marſhy, unprofitable, and unwholeſome iſlands in the Adriatic, except the rocky, barren, and inhoſpitable ſhores of Liguria; and yet as commerce raiſed Venice the Rich on the one, ſo ſhe erected Genoa the Proud on the other. In ſpite of ambitious and warlike neighbours, in ſpite of a confined and unproducing country, and, which were ſtill greater impediments, in ſpite of perpetual factions and ſucceſſive revolutions, the trade of Genoa made her rich and great. Her merchants traded to all countries, and throve by carrying the commodities of the one to the other. Her fleets became formidable; and, beſides the adjacent iſland of Corſica, ſhe made larger and important conqueſts. She fixed a colony at Caffa, and was for ſome time in poſſeſſion of the coaſts on both ſides of the Black Sea. That emulation which is natural to neighbouring nations, and that jealouſy which riſes from the purſuit of the ſame miſtreſs, commerce, begat continual wars between theſe rival republics; which, after many obſtinate and bloody battles, were at laſt terminated in favour of Venice, by that famous victory of Chiozza gained by her doge Andrew Contarini, from which time Genoa never pretended to be miſtreſs of the ſea. Theſe quarrels were fatal to both; but what proved more immediately deſtructive to the Genoeſe, was their avarice, which induced them to abandon the fair profits of trade for the ſake of that vile method of acquiring wealth by uſury.

But we muſt now look to another part of the world. In the middle age of the German empire, that is, about the middle of the 13th century, there was formed a confederacy of many maritime cities, or at leaſt of cities not far from the ſea. This confederacy ſolely regarded commerce, which they endeavoured to promote and extend, by intereſting therein a great number of perſons, and endeavoured to profit by their different views and different lights. Though the cities of Germany held the principal rank in the Teutonic Hanſe, they did not however forbear aſſociating many other cities, as well in France as in England and in the low countries; the whole, however, without hurting the authority, without prejudice to the rights, of the ſovereign on whom they depended. This confederacy had its laws, its ordinances, and its judgments, which were obſerved with the ſame reſpect as the maritime code of the Rhodians, who paſſing for the ableſt ſeamen in all antiquity, their conſtitutions were obſerved by the Greeks and Romans. The Teutonic Hanſe grew in a ſhort time to ſo high a rank in power and authority by the immenſe riches it acquired, that princes themſelves rendered it a ſincere homage from principles of eſteem and admiration. Thoſe of the north principally had frequent occaſion for their credit, and borrowed of them conſiderable ſums. The grand maſters of the Teutonic order, who were at that time ſovereigns of Livonia, declared themſelves conſervators of the rights and privileges of the Hanſe: all ſucceeded, not only to, but beyond their wiſhes; and Germany, charmed with their progreſs, looked on them with the ſame eyes as a curious gardener does on certain rare plants, though not of his own raiſing and culture. The kings of France and England granted alſo various privileges to the Teutonic confederacy; they exempted their veſſels in caſe of ſhipwreck from all demands whatſoever from the admiralty, or from private perſons; they forbade any diſturbance to their navigation at all times, and even when France was at war with the emperor, or the princes of the north. In fine, during the courſe of thoſe unhappy wars which were ſtyled *Croiſades*, the Hanſe was ſignally conſulted, and gave always puiſſant ſuccours in money and in ſhips to the Chriſtians oppreſſed by infidels. It is aſtoniſhing, that cities at ſo great a diſtance from each other, ſubject to different kings, ſometimes in open war, but always jealous of their rights, ſhould be able to confederate and live together in ſo ſtrict an union. But when this union had rendered them very rich and powerful, it cannot ſeem at all ſtrange, that on the one hand they grew arrogant and overbearing, took upon them not only to treat with ſovereigns on the foot of equality, but even to make war with them, and more than once with ſucceſs. It will, on the other hand, appear ſtill leſs ſtrange, that ſuch behaviour as this awakened various princes to a more particular view of the dangers that ſuch a league might produce, and the advantages that would naturally flow to their reſpective ſtates, by recovering their trade thus made over, at leaſt in ſome part to others, entirely to themſelves; and theſe, in few words, were the cauſes of the gradual declenſion of the Hanſiatic alliance: which, however, is not totally diſſolved at this day; the cities of Lubeck, Hamburgh, and Bremen, maintaining ſufficient marks of that ſplendor and dignity with which this confederacy was once adorned.

We muſt now turn our eyes to Portugal and Spain, where in the ſpace of about 50 years there happened a train of events which gradually led on to ſuch diſcoveries as changed the whole face of affairs in the commercial world, and gave to the knowledge of later ages what for ſome thouſand years had been kept ſecret from all mankind, we mean a perfect and diſtinct notion of that terraqueous globe which they inhabit. The kingdom of Portugal was ſmall, but well cultivated, very populous, and bleſſed with a variety of good ports; all which, however, had ſtood them in little ſtead, if they had not had a ſucceſſion of wiſe princes, who, inſtead of involving themſelves in war with their neighbours to gratify their ambition, endeavoured to extend the happineſs and wealth of their ſubjects, and by ſo doing their own power, in the ſofter and more ſucceſsful method of protecting arts and ſciences, encouraging induſtry, and favouring trade. This, with the convenient ſituation of their country, in the beginning of the 15th century, prompted ſome lively ſpirits to attempt diſcoveries; and theſe, countenanced by an heroic young prince, puſhed on their endeavours with ſuch ſucceſs, that ſtep by ſtep the coaſt of Africa was ſurveyed as far as the Cape of Good Hope, to which they gave that name. The point they had in view was a new route to the Eaſt Indies, which Vaſqueze de Gama happily diſcovered; and in a ſhort ſpace of time Portugal, from one of the leaſt conſiderable, grew to be one of the richeſt powers in Europe, gained prodigious dominions in Aſia and Africa, and raiſed a naval power ſuperior to any thing that had been ſeen for many ages before.

See *Columbus* (*Chriſtopher.*)

But while this was doing, Chriſtopher Columbus, a Genoeſe of great capacity, though of almoſt unknown original, who had been bred to the ſea from his youth, and who had carefully ſtudied what others made a trade, formed in his mind the amazing project of counteracting experience, and ſailing to the Indies by a weſt courſe. He offered this project to the Portugueſe, by whom it was conſidered and rejected as a chimera. He propoſed it afterwards to other ſtates, but with no better fortune; and at laſt owed the diſcovery of the New World to the high ſpirit of a heroine, the famous Iſabella queen of Caſtile, who almoſt at her own expence, and with very little countenance from her huſband, who yet was ſtyled *Ferdinand the Wiſe*, furniſhed the adventurous Columbus with that poor ſquadron, with which at once, in ſpite of all the difficulties that the envy of his officers, and the obſtinacy of his mutinous crew, threw in his way, he perfected his deſign, and laid open a new Indies, though in reality he aimed at the diſcovery of the old. Neither was this noble effort of his matchleſs underſtanding defeated; for after his deceaſe, Ferdinand Magellan, a Portugueſe, propoſed to the emperor Charles V. the diſcovery of a paſſage to the ſpice iſlands by the South Seas, which was what Columbus aimed at; and though Magellan lived not to return, yet in one voyage the diſcovery was perfected. It is unconceivable almoſt how many and how great benefits accrued to Europe from theſe diſcoveries; of which, however, it is certain, that the Portugueſe made a very indifferent, and the Spaniards much worſe, uſe; the former making ſlaves of, and the latter rooting out, the natives. This, as it was a moſt ungrateful return to divine Providence for ſo high a bleſſing; ſo it might have been eaſily foreſeen it would prove, as experience has ſhown it did prove, highly prejudicial to their own intereſts, by depopulating very fine countries, which have been thereby turned into deſerts: and though on their firſt diſcovery infinite treaſures were returned from them, which were coined in the mints of Spain; yet by an obſtinate purſuit of this falſe policy, the Spaniſh iſlands in the Weſt Indies are now brought ſo low as to be ſcarce worth keeping. The conſequences that naturally followed on the diſcovery of a paſſage by the Cape of Good Hope, and of a fourth part of the globe in the weſtern hemiſphere, were, as it has been already hinted, the cauſe of an entire change in the ſtate of Europe, and produced, not only in Portugal and Spain, but in moſt other nations, a deſire of viſiting theſe remote parts, of eſtabliſhing colonies, of ſetting manufactures on foot, of exporting and importing commodities, and of raiſing, ſettling, and protecting new manufactures. By this means, as the reader cannot but perceive, not only particular nations brought about ſignal advantages to themſelves, but Europe in general received a laſting and invaluable benefit: for its potentates made themſelves formidable, and even terrible, in thoſe diſtant parts of the earth, where their fame had hardly reached before. It is however true, that this has not been carried on as high as it might have been; for though there was room enough for every nation to have had its ſhare, and though it might be demonſtrated that the good of the whole would have contributed ſufficiently to the profit of every ſtate, the ſubjects of which had engaged in this traffic; yet, inſtead of proſecuting ſo natural and ſo equitable a meaſure, they have taken a quite contrary courſe; and by decrying, attacking, and deſtroying each other, have very much leſſened that prodigious reverence which the Aſiatics, Africans, and Americans, at firſt had for the inhabitants of Europe.

The naval power of the Portugueſe received an incurable wound by falling under the power of the Spaniards: and though human policy would have ſuggeſted, that this alone muſt have raiſed the latter to the monopoly of commerce, and the univerſal dominion of the ſea; yet the very purſuit of a deſign ſo viſibly detrimental to the intereſt of mankind, proved very quickly their ruin alſo. For the Spaniards, from the natural haughtineſs of their temper, miſled by the boundleſs ambition of their princes, and endeavouring to become the lords of Europe, forced other nations in their own defence to make a much quicker progreſs in navigation than otherwiſe they could have done. For the Engliſh and Dutch, who till this time ſeemed blind to the advantages of their ſituation, had their eyes opened by the injuries they received; and by degrees the paſſion of revenge inſpired them with deſigns that poſſibly public ſpirit had never excited. In ſhort, the pains taken by Spain to keep all the riches that flowed from theſe diſcoveries to herſelf, and the dangerous, deteſtable, and deſtructive purpoſes to which ſhe applied the immenſe wealth that flowed in upon her from them, produced effects directly oppoſite to thoſe which ſhe propoſed, and made her enemies rich, great, powerful, and happy, in proportion as her commerce dwindled away, and as her naval power ſunk and crumbled to pieces, merely by an improper diſplay, an ill-managed exertion, and a wrong application of it.

It was from hence that the inhabitants of the Seven Provinces, whom her oppreſſion had made poor, and her ſeverities driven mad, became firſt free, then potent, and by degrees rich. Their diſtreſſes taught them the neceſſity of eſtabliſhing a moderate and equal government; the mildneſs of that government, and the bleſſings which it procured to its ſubjects, raiſed their number, and elevated their hopes. The conſequences became quickly viſible, and in a ſhort ſpace of time amazing both to friends and enemies; every fiſhing village improved into a trading-town; their little towns grew up into large and magnificient cities; their inland boroughs were filled with manufactures; and in leſs than half a century the diſtreſſed States of Holland became high and mighty; nay, in ſpite of the danger and expences which attended a war made all that time againſt a ſuperior force, theſe people, ſurrounded with enemies, loaded with taxes, expoſed to perſonal ſervice, and to a thouſand other diſadvantages, grew up to ſuch a ſtrength as not only made the Spaniards deſpair of reducing them any more under their dominion, but inclined them to wiſh, and at laſt forced them to ſeek their friendſhip.

This, at leaſt as far as either ancient or modern hiſtories inform us, was the quickeſt and ſtrongeſt of all the productions of commerce that the world has ever ſeen. For it is out of diſpute, that the republic of the United Provinces owes her freedom, her power, and her wealth, to induſtry and trade entirely. The greateſt part of the country is far from being fertile; and what is ſo, produces not enough to ſuffice the tenth part of its inhabitants for the tenth part of the year: the climate is rather tolerable than wholeſome; and its havens are rather advantageous from the difficulty of entering them, than from their commodiouſneſs in any other reſpect. Native commodities they have few or none; timber and maritime ſtores are entirely wanting; their country cannot boaſt ſo much as of a coal-mine; and yet theſe provinces, upon which nature has beſtowed ſo little, in conſequence of an extenſive trade, are enriched with all things. Their ſtorehouſes are full of corn, even when the harveſt in corn-countries fails; there is no commodity, how bulky ſoever, or however ſcarce and hard to come at, which may not be had from their magazines. The ſhipping of Holland is prodigious; and to ſee the quantities of naval ſtores with which their yards and ports abound, aſtoniſhes thoſe who are unacquainted with the vigour of that cauſe which produces this abundance. But above all the populouſneſs of this country is the greateſt miracle. That men ſhould reſort to a Canaan, and deſire to live in a land flowing with milk and honey, is nothing ſtrange; but that they ſhould make it their choice to force nature, to raiſe palaces, lay out gardens, dig canals, plant woods, and ranſack all the quarters of the earth for fruits and flowers, to produce an artificial paradiſe in a dead plain, or upon an ingrateful heath in the midſt of fogs and ſtanding lakes, would, in ſo critical an age as this, paſs for a fable, if the country did not lie ſo near us, as to put the truth of it out of queſtion.

§ 2. *Britiſh Hiſtory.*

We may eaſily conceive, that foreign commerce by the natives of England, muſt have been a work of time; for men think firſt of neceſſaries, then of conveniences, and laſt of ſuperfluities. Thoſe who came originally from the continent might have better notions of things; but as it muſt be preſumed that either fear or indigence drove them hither, ſo it is eaſy to apprehend, that ſucceeding generations muſt for ſome time ſink much below their anceſtors, in their notions of the commodities of life; and, deriving their manners from their circumſtances, became quite another ſort of people. But thoſe on the oppoſite continent, knowing that Britain was inhabited, and having the uſe, though in ever ſo imperfect a degree, of veſſels, and of foreign traffic, came over hither, and bartered their goods for the raw commodities of the Britons, till by degrees perhaps they taught the latter to make ſome improvement in thoſe ſlight leather and wicker boats, which they uſed for paſſing their own rivers and creeping along their coaſts, till at laſt they ventured themſelves over to Gaul, and entered upon ſome kind of correſpondence with their neighbours. All this is ſo deducible from the laws of nature, that we might have divined thus much by the light of reaſon, if we had not the commentaries of Cæſar to guide us, and to ſtrengthen by the authority of hiſtory the facts that might have been found out by the force of rational conjecture.

Things were preciſely in this ſituation when the Romans invaded Britain; and there is no doubt that its inhabitants falling under the power of that empire, and under its power at a time when with reſpect to arts and ſciences it was in a moſt flouriſhing condition, was a great advantage to them; and though from their love of civil liberty, which, when under the direction of reaſon, is the moſt natural and laudable of all paſſions, they made a long and vigorous, and in ſome ſenſe a noble and glorious reſiſtance; yet by degrees they caught the manners and cuſtoms of their conquerors, and grew content to be happy rather than free. With learning and politeneſs the Romans introduced foreign commerce; and according to the nature of their policy, as they made high roads through the iſland, eſtabliſhed colonies in proper places, and fixed ſtanding camps, which were a kind of fortreſſes, where they thought proper; ſo they were no leſs careful with regard to marts or emporiums for the conveniency of traders, and of which what they found is uncertain: but that they left many, is without queſtion; and amongſt the reſt London, which is not more famous for her preſent extenſive trade, than venerable for her unrecorded antiquity.

When the Romans unwillingly left Britain, and the Britons as unwillingly made way for the Saxons, a new deluge of barbarity overflowed the iſland: almoſt all the improvements of the civilized conquerors were defaced; and, upon the eſtabliſhment as it were of a new people, things were all to begin again. This neceſſarily took up a great deal of time; and before they were in any tolerable poſture, the Saxons found themſelves diſtreſſed by freſh ſwarms of barbarians. Yet there ſtill remains ſome evidences of their having been acquainted with, inclined to, and, if their circumſtances would have permitted, moſt certainly would have entered upon, and carried foreign commerce to a great height. We have authentic teſtimonies, that Alfred the Great formed projects of vaſt diſcoveries to the North, as he actually ſent perſons of great prudence and abilities into the Eaſt; and the curioſities which they brought home were for many ages preſerved in the treaſury of the church of Saliſbury.

As for the Danes, they were not long maſters in Britain: but as they became ſo by a maritime force, and as their countrymen had eſtabliſhed themſelves not only on the oppoſite ſhore of France, but in other parts of Europe; ſo it is reaſonable to believe that they held ſome correſpondence with them from thence; and that, if their dominion had laſted longer, this might have been better regulated, and productive of many advantages. But they had ſoon to do with their brethren in another way: for the Normans, men of the ſame race, but better eſtabliſhed in another country, diſpoſſeſſed them there; and partly under the colour of right, partly by force, erected that monarchy, which not without various alterations and changes, ſubſiſts even to our times, and to the ſubſiſtence of which, with the help of thoſe changes and altertions, the Engliſh nation owe that happy conſtitution under which they live; that univerſal improvement which adorns the face of the country; that domeſtic trade which nouriſhes ſo numerous a people, by plentifully rewarding their induſtry; and that extenſive commerce which is at once the ſource of their wealth and the ſupport of their liberty.

It cannot be expected, that, in a work like this, we ſhould attempt to trace the progreſs of trade through every reign, ſhow how it was encouraged and protected, or diſcountenanced and checked; what occaſions were luckily ſeized, or what opportunities unfortunately loſt. It may be ſufficient for us, after what has been already ſaid, to obſerve, that the opinion commonly entertained, of the Engliſh having little or no trade before the reign of queen Elizabeth, is very far from being well founded.

In fact, the reign of that princeſs was great and glorious, in whatever light we conſider it; but it was moſt ſo in this, that, under Providence, it became great and glorious by the wiſdom and prudence of the queen and her miniſters. The Engliſh nation never was in ſo deſperate a condition as at her acceſſion. The crown was in debt, the treaſury empty, the nation involved in a foreign war directly againſt her own intereſts, her coaſts naked; in a word, without credit abroad, and without concord at home, no ſettled religion, the great men ſplit into factions, and the common people diſtracted and dejected. Sad circumſtances theſe! and yet from hence aroſe the grandeur of that reign, and the eſtabliſhment of commerce. The queen found herſelf obliged to act with great caution, to derive aſſiſtance from every quarter, to employ it faithfully, and to promote to the utmoſt of her power the welfare of her ſubjects, whom nothing but the public-ſpiritedneſs of her government could enable to grow rich enough to ſupport the neceſſary expences of the crown. It was this gave a popular turn to her councils. She encouraged her ſubjects to arm againſt the Spaniards, that they might be accuſtomed to the ſea, and acquire that knowledge in navigation, with which, till then, they had been unacquainted. She paſſed many laws for the public good, erected ſeveral companies, and ſaw that thoſe companies purſued the ends for which they were erected; in ſhort, ſhe did every thing that could be expected, during the whole courſe of her reign, to excite and encourage induſtry at home, and to enable her people to make a proper figure abroad. In a word, ſhe furniſhed them with ſtock and credit, put them upon improving their commodities and manufactures, brought the art of ſhip-building amongſt them, filled their ports with able ſeamen, ſhowed a juſt reſpect to Engliſh merchants, reduced Ireland ſo as to render it beneficial to Britain, and approved their ſending colonies into America; and thus the ſeeds of Britiſh wealth were ſown in her time, though the harveſt was reaped in the days of her ſucceſſors. See the articles COALERY COLONY, FISHERIES, MANUFACTURES, SHIPPING, and TRADE.

CHAP. II. PRINCIPLES *of* COMMERCE.

§ 1. *Origin of trade.*

THE moſt ſimple of all trade is that which is carried on by bartering the neceſſary articles of ſubſiſtence. If we ſuppoſe the earth free to the firſt poſſeſſor, this perſon who cultivates it will firſt draw from it his food, and the ſurplus will be the object of barter; he will give this in exchange to any one who will ſupply his other wants. This naturally ſuppoſes both a ſurplus quantity of food produced by labour, and alſo free hands; for he who makes a trade of agriculture cannot ſupply himſelf with all other neceſſaries, as well as food; and he who makes a trade of ſupplying the farmers with ſuch neceſſaries, in exchange for his ſurplus of food, cannot be employed in producing that food. The more the neceſſities of man increaſe, the more free hands are required to ſupply them: and the more free hands are required, the more ſurplus food muſt be produced by additional labour, to ſupply their demand.

This is the leaſt complex kind of trade, and may be carried on to a greater or leſs extent, in different countries, according to the different degrees of the wants to be ſupplied. In a country where there is no money, nor any thing equivalent to it, the wants of mankind will be confined to few objects; to wit, the removing the inconveniences of hunger, thirſt, cold, heat, danger, and the like. A free man, who, by his induſtry, can procure all the comforts of a ſimple life, will enjoy his reſt, and work no more: and, in general, all increaſe of work will ceaſe, ſo ſoon as the demand for the purpoſes mentioned comes to be ſatisfied. There is a plain reaſon for this. When the free hands have procured, by their labour, wherewithal to ſupply their wants, their ambition is ſatisfied: ſo ſoon as the huſbandmen have produced the neceſſary ſurplus for relieving theirs, they work no more. Here then is a natural ſtop put to induſtry, conſequently to bartering.

The next thing to be examined is, how bartering grows into trade, properly ſo called, and underſtood, according to the definition given of it above; how trade comes to be extended among men; and how manufactures, more ornamental than uſeful, come to be eſtabliſhed; and how men come to ſubmit to labour, in order to acquire what is not abſolutely neceſſary for them.

This in a free ſociety, is chiefly owing to the introduction of money, and a taſte for ſuperfluities in thoſe who poſſeſs it.

In ancient times, money was not wanting; but the taſte for ſuperfluities not being in proportion to it, the ſpecie was locked up. This was the caſe in Europe four hundred years ago. A new taſte for ſuperfluity has drawn, perhaps, more money into circulation, from our own treaſures, than from the mines of the new world. The poor opinion we entertain of the riches of our forefathers, is founded upon the modern way of eſtimating wealth, by the quantity of coin in circulation, from which we conclude, that the greateſt part of the ſpecie now in our hands muſt have come from Mexico and Peru.

It is more, therefore, through the taſte of ſuperfluity, than in conſequence of the quantity of coin, that trade comes to be eſtabliſhed; and it is only in conſequence of trade that we ſee induſtry carry things in our days to ſo high a pitch of refinement and delicacy. Let us illuſtrate this, by comparing together the different operations of barter, ſale, and commerce.

When reciprocal wants are ſupplied by barter, there is not the ſmalleſt occaſion for money: this is the moſt ſimple of all combinations.

When wants are multiplied, bartering becomes more difficult: upon this money is introduced. This is the common price of all things: it is a proper equivalent in the hands of thoſe who want, perfectly calculated to ſupply the occaſions of thoſe who, by induſtry, can relieve them. This operation of buying and ſelling is a little more complex than the former; but ſtill we have here no idea of trade, becauſe we have not introduced the merchant by whoſe induſtry it is carried on.

Let this third perſon be brought into play, and the whole operation becomes clear. What before we called *wants*, is here repreſented by the conſumer; what we called *induſtry*, by the manufacturer; what we called *money*, by the merchant. The merchant here repreſents the money, by ſubſtituting credit in its place; and as the money was invented to facilitate bartar, ſo the merchant, with his credit, is a new refinement upon the uſe of money. This renders it ſtill more effectual in performing the operations of buying and ſelling. This operation is trade: it relieves both parties of the whole trouble of tranſportation, and adjuſting wants to wants, or wants to money; the merchant repreſents by turns both the conſumer, the manufacturer, and the money. To the conſumer he appears as the whole body of manufacturers; to the manufacturers as the whole body of conſumers; and to the one and the other claſs his credit ſupplies the uſe of money. This is ſufficient at preſent for an illuſtration. We now return to the ſimple operations of money in the hands of the two contracting parties, the buyer and the ſeller, in order to ſhow how men come to ſubmit to labour in order to acquire ſuperfluities.

So ſoon as money is introduced into a country, it becomes an univerſal object of want to all the inhabitants.

The conſequence is, that the free hands of the ſtate, who before ſtopt working, becauſe all their wants were provided for, having this new object of ambition before their eyes, endeavour, by refinements upon their labour, to remove the ſmaller inconveniences which reſult from a ſimplicity of manners. People, who formerly knew but one ſort of clothing for all ſeaſons, willingly part with a little money to procure for themſelves different ſorts of apparel properly adapted to ſummer and winter, which the ingenuity of manufacturers, and their deſire of getting money, may have ſuggeſted to their invention.

Indeed theſe refinements ſeem more generally owing to the induſtry and invention of the manufacturers (who by their ingenuity daily contrive means of ſoftening or relieving inconveniences, which mankind ſeldom perceive to be ſuch, till the way of removing them is contrived), than to the taſte of luxury in the rich, who, to indulge their eaſe, engage the poor to become induſtrious.

Let any man make an experiment of this nature upon himſelf, by entering into the firſt ſhop. He will no where ſo quickly diſcover his wants as there. Every thing he ſees apppears either neceſſary, or at leaſt highly convenient; and he begins to wonder how he could have been ſo long without that which the ingenuity of the workman alone had invented, in order that from the novelty it might excite his deſire; for perhaps when it is bought, he will never once think of it more, nor ever apply it to the uſe for which it at firſt appeared ſo neceſſary.

Here then is a reaſon why mankind labour though not in want. They become deſirous of poſſeſſing the very inſtruments of luxury, which their avarice or ambition prompted them to invent for the uſe of others.

What has been ſaid repreſents trade in its infancy, or rather the materials with which that great fabric is built.

We have formed an idea of the wants of mankind multiplied even to luxury, and abundantly ſupplied by the employment of all the free hands ſet apart for that purpoſe. But if we ſuppoſe the workman himſelf diſpoſing of his work, and purchaſing with it food from the farmer, cloaths from the clothier; and, in general ſeeking for the ſupply of every want from the hands of the perſon directly employed for the purpoſe of relieving it; this will not convey an idea of trade according to our definition.

Trade and commerce are an abbreviation of this long proceſs: a ſcheme invented and ſet on foot by merchants, from a principle of gain, ſupported and extended among men, from a principle of general utility to every individual, rich or poor, to every ſociety, great or ſmall.

Inſtead of a pin-maker exchanging his pins with 50 different perſons, for whoſe labour he has occaſion, he ſells all to the merchant for money or for credit; and as occaſion offers, he purchaſes all he wants, either directly from thoſe who ſupply them, or from other merchants who deal with manufacturers in the ſame way his merchant dealt with him.

Another advantage of trade is, that induſtrious people in one part of the country, may ſupply cuſtomers in another, though diſtant. They may eſtabliſh themſelves in the moſt commodious places for their reſpective buſineſs, and help one another reciprocally, without making the diſtant parts of the country ſuffer for want of their labour. They are likewiſe expoſed to no avocation from their work, by ſeeking for cuſtomers.

Trade produces many excellent advantages; it marks out to the manufacturers when their branch is under or overſtocked with hands. If it is underſtocked, they will find more demand than they can anſwer: if it is overſtocked, the ſale will be ſlow.

Intelligent men, in every profeſſion, will eaſily diſcover when theſe appearances are accidental, and when they proceed from the real principles of trade.

Poſts, and correſpondence by letters, are a conſequence of trade; by the means of which merchants are regularly informed of every augmentation or diminution of induſtry in every branch, in every part of the country. From this knowledge they regulate the prices they offer; and as they are many, they ſerve as a check upon one another, from the principles of competition.

From the current prices, the manufucturers are as well informed, as if they kept the correſpondence themſelves: the ſtateſman feels perfectly where hands are wanting, and young people deſtined to induſtry, obey, in a manner, the call of the public, and fall naturally in to ſupply the demand.

Two great aſſiſtances to merchants, eſpecially in the infancy of trade, are public markets for collecting the work of ſmall dealers, and large undertakings in the manufacturing way by private hands. By theſe means the merchants come at the knowledge of the quantity of work in the market, as on the other hand the manufacturers learn, by the ſale of the goods, the extent of the demand for them. Theſe two things being juſtly known, the price of goods is eaſily fixed.

Public ſales ſerve to correct the ſmall inconveniences which proceed from the operations of trade. A ſet of manufacturers got all together into one town, and entirely taken up with their induſtry, are thereby as well informed of the rate of the market as if every one of them carried thither his work; and upon the arrival of the merchant, who readily takes it off their hands, he has not the leaſt advantage over them from his knowledge of the ſtate of demand. This man both buys and ſells in what is called *wholeſale*; and from him retailers purchaſe, who diſtribute the goods to every conſumer throughout the country. Theſe laſt buy from wholeſale merchants in every branch, that proportion of every ſort of merchandize, which is ſuitable to the demand of their borough, city, or province.

Thus all inconveniences are prevented, at ſome additional coſt to the conſumer, who muſt naturally reimburſe the whole expence. The diſtance of the manufacturer, the obſcurity of his dwelling, the caprice in ſelling his work, are quite removed; the retailer has all in his ſhop, and the public buys at a current price.

§ 2. *How the prices of Goods are determined by Trade.*

In the price of goods, two things muſt be conſidered as really exiſting, and quite different from one another; to wit, the real value of the commodity, and the profit upon alienation.

I. The firſt thing to be known of any manufacture, when it comes to be ſold, is, how much of it a perſon can perform in a day, a week, a month, according to the nature of the work, which may require more or leſs time to bring it to perfection. In making ſuch eſtimates, regard is to be had only to what, upon an average, a workman of the country in general may perform, without ſuppoſing him the beſt or the worſt in his profeſſion, or having any peculiar advantage or diſadvantage as to the place where he works.

Hence the reaſon why ſome people thrive by their induſtry, and others not; why ſome manufactures flouriſh in one place and not in another

II. The ſecond thing to be known is, the value of the workman's ſubſiſtence, and neceſſary expence, both for ſupplying his perſonal wants, and providing the inſtruments belonging to his profeſſion, which muſt be taken upon an average as above; except when the nature of the work requires the preſence of the workman in the place of conſumption; for although ſome trades and almoſt every manufacture, may be carried on in places at a diſtance, and therefore may fall under one general regulation as to prices; yet others there are, which, by their nature, require the preſence of the workman in the place of conſumption; and in that caſe the prices muſt be regulated by circumſtances relative to every particular place.

III. The third and laſt thing to be known, is the value of the materials, that is, the firſt matter employed by the workman; and if the object of his induſtry be the manufacture of another, the ſame proceſs of inquiry muſt be gone through with regard to the firſt as with regard to the ſecond: and thus the moſt complex manufactures may be at laſt reduced to the greateſt ſimplicity.

Theſe three articles being known, the price of manufacture is determined. It cannot be lower than the amount of all the three, that is, than the real value; whatever it is higher, is the manufacturer's profit. This will ever be in proportion to demand, and therefore will fluctuate according to circumſtances.

Hence appears the neceſſity of a great demand, in order to promote flouriſhing manufactures.

By the extenſive dealings of merchants, and their conſtant application to the ſtudy of the balance of work and demand, all the above circumſtances are known to them, and are made known to the induſtrious, who regulate their living and expence according to their certain profit.

Employ a workman in a country where there is little trade or induſtry, he proportions his price always to the urgency of your want, or your capacity to pay; but ſeldom to his own labour. Employ another in a country of trade, he will not impoſe upon you, unleſs perhaps you be a ſtranger, which ſuppoſes your being ignorant of the value; but employ the ſame workman in a work not uſual in the country, conſequently not demanded, conſequently not regulated as to the value, he will proportion his price as in the firſt ſuppoſition.

We may therefore conclude, from what has been ſaid that in a country where trade has been eſtabliſhed, manufactures muſt flouriſh, from the ready ſale, the regulated price of work, and the certain profit reſulting from induſtry. Let us next inquire into the conſequences of ſuch a ſituation.

§ 3. *How foreign Trade opens to an induſtrious People, and the Conſequences of it to the Merchants who ſet it on foot.*

The firſt conſequence of the ſituation deſcribed in the preceding ſection is, that wants are eaſily ſupplied for the adequate value of the thing wanted.

The next conſequence is, the opening of foreign trade, under its two denominations of paſſive and active. Strangers and people of diſtant countries, finding the difficulty of having their wants ſupplied at home, and the eaſe of having them ſupplied from this country, immediately have recourſe to it. This is paſſive trade. The active is when merchants, who have executed this plan at home with ſucceſs, begin to tranſport the labour of their countrymen into other regions, which either produce, or are capable of producing ſuch articles of conſumption, proper to be manufactured, as are moſt demanded at home; and conſequently will meet with the readieſt ſale, and fetch the largeſt profits.

Here then is the opening of foreign trade, under its two denominations of active and paſſive.

What then are the conſequences of this new commerce to our merchants, who have left their homes in queſt of gain abroad?

The firſt is, that, arriving in any new country, they find themſelves in the ſame ſituation, with regard to the inhabitants, as the workman in the country of no trade, with regard to thoſe who employ him; that is, they proportion the price of their goods to the eagerneſs of acquiring, or the capacity of paying, in the inhabitants, but never to their real value.

The firſt profits then, upon this trade, muſt be very conſiderable; and the demand from ſuch a country will be *high* or *low*, *great* or *ſmall*, according to the ſpirit, not the real wants of the people: for theſe in all countries muſt firſt be ſupplied by the inhabitants themſelves, before they ceaſe to labour.

If the people of this not-trading country be abundantly furniſhed with commodities uſeful to the traders, they will eaſily part with them, at firſt, for the inſtruments of luxury and eaſe; but the great profit of the traders will inſenſibly increaſe the demand for the productions of their new correſpondents; this will have the effect of producing a competition between themſelves, and thereby throwing the demand on their ſide. This is perpetually a diſadvantage in traffic: the moſt unpoliſhed nations in the world quickly perceive the effects of it; and are taught to profit by the diſcovery, in ſpite of the addreſs of thoſe who are the moſt expert in commerce.

The traders will therefore be very fond of falling upon every method and contrivance to inſpire this people with a taſte of refinement and delicacy. Abundance of fine preſents, conſiſting of every inſtrument of luxury and ſuperfluity, the beſt adapted to the genius of the people, will be given to the prince and leading men among them. Workmen will even be employed at home, to ſtudy the taſte of the ſtrangers, and to captivate their deſires by every poſſible means. The more eager they are of preſents, the more laviſh the traders will be in beſtowing and diverſifying them. It is an animal put up to fatten; the more he eats, the ſooner he is fit for ſlaughter. When their taſte for ſuperfluity is fully formed, when the reliſh for their former ſimplicity is ſophiſticated, poiſoned, and obliterated, then they are ſurely in the fetters of the traders, and the deeper they go, the leſs poſſibility there is of their getting out. The preſents then will die away, having ſerved their purpoſe: and if afterwards they are found to be continued, it will probably be to ſupport the competition againſt other nations, who will incline to ſhare of the profits.

If, on the contrary, this not-trading nation does not abound with commodities uſeful to the traders, theſe will make little account of trading with them, whatever their turn may be; but, if we ſuppoſe this country inhabited by a laborious people, who, having taken a taſte for refinement from the traders, apply themſelves to agriculture, in order to produce articles of ſubſiſtence, they will ſolicit the merchants to give them part of their manufactures in exchange for thoſe; and this trade will undoubtedly have the effect of multiplying numbers in the trading nation. But if food cannot be furniſhed, nor any other branch of production found out to ſupport the correſpondence, the taſte for refinement will ſoon die away, and trade will ſtop in this quarter.

Had it not been for the furs in thoſe countries adjacent to Hudſon's Bay, and in Canada, the Europeans never would have thought of ſupplying inſtruments of luxury to thoſe nations; and if the inhabitants of thoſe regions had not taken a taſte for the inſtruments of luxury furniſhed to them by the Europeans, they never would have become ſo indefatigable nor ſo dexterous hunters. At the ſame time we are not to ſuppoſe, that ever theſe Americans would have gone to Europe in queſt of their manufactures. It is, therefore, owing to merchants, that theſe nations are become in any degree fond of refinement; and this taſte, in all probability, will not exceed ſoon the proportion of the productions of their country. From theſe beginnings of foreign trade it is eaſy to trace its increaſe.

One ſtep towards this, is the eſtabliſhing correſpondences in foreign countries; and theſe are more or leſs neceſſary in proportion as the country where they are eſtabliſhed is more or leſs poliſhed or acquainted with trade. They ſupply the want of poſts, and point out to the merchants what proportion the productions of the country bear to the demand of the inhabitants for manufactures. This communicates an idea of commerce to the not-trading nation, and they inſenſibly begin to fix a determined value upon their own productions, which perhaps bore no determined value at all before.

Let us trace a little the progreſs of this refinement in the ſavages, in order to ſhow how it has the effect of throwing the demand upon the traders, and of creating a competition among them, for the productions of the new country.

Experience ſhows, that, in a new diſcovered country, merchants conſtantly find ſome article or other of its productions, which turn out to a great account in commerce; and we ſee that the longer ſuch a trade ſubſiſts, and the more the inhabitants take a taſte for European manufactures, the more their own productions riſe in their value, and the leſs profit is made by trading with them, even in caſes where the trade is carried on by companies; which is a very wiſe inſtitution for one reaſon, that it cuts off a competition between the merchants.

This is the beſt means of keeping prices low in favour of the nation; however it may work a contrary effect with reſpect to individuals who muſt buy from theſe monopolies.

When companies are not eſtabliſhed, and when trade is open, the merchants, by their eagerneſs to profit by the new trade, betray the ſecrets of it; they enter into competition for the purchaſe of the foreign produce; and this raiſes prices, and favours the commerce of the moſt ignorant ſavages.

§ 4. *Conſequences of the Introduction of a paſſive foreign Trade among a People who live in Simplicity and Idleneſs.*

We now ſuppoſe the arrival of traders, all in one intereſt, with inſtruments of luxury and refinement, at a port in a country of great ſimplicity of manners, abundantly provided by nature with great advantages for commerce, and peopled by a nation capable of adopting a taſte for ſuperfluities.

The firſt thing the merchants do is, to expoſe their goods, and point out the advantages of many things, either agreeable or uſeful to mankind in general, ſuch as wines, ſpirits, inſtruments of agriculture, arms and ammunition for hunting, nets for fiſhing, manufactures for clothing, and the like. The advantages of theſe are preſently perceived, and ſuch commodities are eagerly ſought after.

The natives, on their ſide, produce what they moſt eſteem, generally ſomething ſuperfluous or ornamental. The traders, after examining all circumſtances, determine the object of their demand, giving the leaſt quantity poſſible in return for this ſuperfluity, in order to impreſs the inhabitants with a high notion of the value of their own commodities; but as this parſimony may do more hurt than good to their intereſt, they are very generous in making preſents; from the principles mentioned above.

When the exchange is completed, and the traders depart, regret is commonly mutual; the one and the other are ſorry that the ſuperfluities of the country fall ſhort. A return is promiſed by the traders, and aſſurances are given by the natives of a better proviſion another time.

What are the firſt conſequences of this revolution?

It is evident, that in order to ſupply an equivalent for this new want, more hands muſt be ſet to work than formerly. And it is evident alſo, that this augmentation of induſtry will not eſſentially increaſe numbers: Why? Becauſe the produce of the induſtry is in this caſe, intended to be exported. But, if we can find out any additional conſumption at home, even implied by this new trade, it will have the effect of augmenting numbers. An example will make this plain.

Let us ſuppoſe the ſuperfluity of this country to be the ſkins of wild beaſts, not proper for food; the manufacture ſought for, brandy. The brandy is ſold for furs. He who has furs, or he who can ſpare time to hunt for them, will drink brandy in proportion: but there is no reaſon to conclude from this ſimple operation, that one man more in the country muſt neceſſarily be fed, or that any augmentation of agriculture muſt of conſequence enſue from this new traffic.

But let us throw in a circumſtance which may imply an additional conſumption at home, and then examine the conſequences.

A poor creature who has no equivalent to offer for food, who is miſerable, and ready to periſh for want of ſubſiſtence, goes a hunting, and kills a wolf; he comes to a farmer with the ſkin, and ſays, You are well fed, but you have no brandy; if you will give me a loaf, I will give you this ſkin, which the ſtrangers are ſo fond of, and they will give you brandy. But, ſays the farmer, I have no more bread than what is ſufficient for my own family. As for that, replies the other, I will come and dig in your ground, and you and I will ſettle our account as to the ſmall quantity I deſire of you. The bargain is made; the poor fellow gets his loaf, and lives at leaſt; perhaps he marries, and the farmer gets a dram. But had it not been for this dram, that is, this new want, which was purchaſed by the induſtry of this poor fellow, by what argument could he have induced the farmer to part with a loaf?

Here the ſentiment of charity is excluded. This alone is the principle of multiplication; but as true it is, on the other hand, that could the poor fellow have got bread by begging, he would not probably have gone a hunting.

Here then it appears, that the very dawning of trade, in the moſt unpoliſhed countries, implies a multiplication. This is enough to point out the firſt ſtep, and to connect the ſubject of our preſent inquiries with what has already been diſcuſſed in relation to other circumſtances.

So ſoon as all the furs are diſpoſed of, and a taſte for ſuperfluity is introduced, both the traders and the natives will be equally intereſted in the advancement of induſtry in this country. Many new objects of profit for the firſt will be diſcovered, which the proper employment for the inhabitants, in reaping the natural advantages of their ſoil and climate, will make effectual. The traders will therefore endeavour to ſet on foot many branches of induſtry among the ſavages, and the allurements of brandy, arms, and clothing, will animate theſe in the purſuit of them.

When once this revolution is brought about; when thoſe who formerly lived in ſimplicity become induſtrious; manners put on a new face.

That is to ſay, we now find two trading nations inſtead of one, with this difference, however, that as hitherto we have ſuppoſed the merchants all in one intereſt, the compound demand, that is, the competition of the buyers, has been, and muſt ſtill continue on the ſide of the natives. This is a great prejudice to their intereſt; but as it is not ſuppoſed ſufficient to check their induſtry, nor to reſtrain their conſumption of the manufactures, let us here examine a little more particularly the conſequences of the principle of demand in ſuch a ſituation; for although we allow, that it can never change ſides, yet it may admit of different modifications, and produce different effects, as we ſhall preſently perceive.

The merchants we ſuppoſe all in one intereſt, conſequently there can be no competition among them; conſequently no check can be put upon their raiſing their prices, as long as the prices they demand are complied with. So ſoon as they are raiſed to the full extent of the abilities of the natives, or of their inclination to buy, the merchants have the choice of three things, which are all perfectly in their option; and the preference to be given to the one or the other, depends entirely upon themſelves, and upon the circumſtances we are going to point out.

Firſt, they may ſupport their *high* demand; that is not lower their price; which will preſerve a high eſtimation of the manufactures in the opinions of the inhabitants, and render the profits upon their trade the greateſt poſſible. This part they may poſſibly take, if they perceive the natives doubling their diligence, in order to become able, in time, to purchaſe conſiderable cargoes at a high value; from which ſuppoſition is implied a ſtrong diſpoſition in the people to become luxurious, ſince nothing but want of ability prevents them from complying with the higheſt demand: but ſtill another circumſtance muſt concur, to engage the merchants not to lower their price. The great proportion of the goods they ſeek for in return, muſt be found in the hands of a few. This will be the caſe if ſlavery be eſtabliſhed; for then there muſt be many poor and few rich: and they are commonly the rich conſumers who proportion the price they offer, rather to their deſires, than to the value of the thing.

The ſecond thing which may be done is, to open the door to a *great* demand; that is to lower their prices. This will ſink the value of the manufactures in the opinion of the inhabitants, and render profits leſs in proportion, although indeed, upon the voyage, the profits may be greater.

This part they will take, if they perceive the inhabitants do not incline to conſume great quantities of the merchandize at a high value, either for want of abilities or inclination; and alſo, if the profits upon the trade depend upon a large conſumption, as is the caſe in merchandize of a low value, and ſuited chiefly to the occaſions of the lower ſort. Such motives of expediency will be ſufficient to make them neglect a high demand, and prefer a great one; and the more, when there is a likelihood that the conſumption of low-priced goods in the beginning may beget a taſte for others of a higher value, and thus extend in general the taſte of ſuperfluity.

A third part to be taken, is the leaſt politic, and perhaps the moſt familiar. It is to profit by the competition between the buyers, and encourage the riſing of demand as long as poſſible; when this comes to a ſtop, to make a kind of auction, by firſt bringing down the prices to the level of the higheſt bidders, and ſo to deſcend by degrees, in proportion as demand ſinks. Thus we may ſay with propriety, that demand commonly becomes great, in proportion as prices ſink. By this operation, the traders will profit as much as poſſible, and ſell off as much of their goods as the profits will permit.

But this plan, in a new diſcovered country, is not politic, as it both diſcovers a covetouſneſs and a want of faith in the merchants, and alſo throws open the ſecrets of their trade to thoſe who ought to be kept ignorant of them.

Let us next ſuppoſe, that the large profits of the merchants ſhall be diſcovered by others, who arrive at the ſame ports in a ſeparate intereſt, and who enter into no combination which might prevent the natural effects of competition.

Let the ſtates of demand among the natives be ſuppoſed the ſame as formerly, both as to height and greatneſs, in conſequence of the operation of the different principles, which might have induced the merchants to follow one or other of the plans we have been deſcribing; we muſt, however, ſtill ſuppoſe, that they have been careful to preſerve conſiderable profits upon every branch.

If we ſuppoſe the inhabitants to have increaſed in numbers, wealth, and taſte for ſuperfluity, ſince the laſt voyage, demand will be found rather on the riſing hand. Upon the arrival of the merchants in competition with the former, both will offer to ſale: but if both ſtand to the ſame prices, it is very natural to ſuppoſe, that the former dealers will obtain a preference; as, *cæteris paribus*, it is always an advantage to know and to be known. The laſt comers, therefore, have no other way left to counterbalance this advantage, but to lower their prices.

This is a new phenomenon: here the fall of prices is not voluntary as formerly; nor conſented to from expediency; not owing to a failure of demand, but to the influence of a new principle of commerce, to wit, a double competition, which we ſhall now examine.

§ 5. *Of double Competition.*

WHEN competition is much ſtronger on one ſide of the contract than on the other, it is called *ſimple*. This is the ſpecies of competition which is implied in the term *high demand*, or when it is ſaid that *demand raiſes prices*.

Double competition is, when, in a certain degree, it takes place on both ſides of the contract at once, or vibrates alternately from one to the other. This is what reſtrains prices to the adequate value of merchandize.

The great difficulty is to diſtinguiſh clearly between the principles of *demand* and thoſe of *competition*: here then follows the principal differences between the two, relatively to the effects they produce ſeverally in the mercantile contract of buying and ſelling, which we here expreſs ſhortly by the word *contract*.

Simple demand is what brings the quantity of a commodity to market. Many demand, who do not buy; many offer, who do not ſell. This demand is called *great* or *ſmall*; it is ſaid to increaſe, to augment, to ſwell; and is expreſſed by theſe and other ſynonimous terms, which mark an augmentation or diminution of quantity. In this ſpecies, two people never demand the ſame thing, but a part of the ſame thing, or things quite alike.

Compound demand is the principle which raiſes prices, and can never make them ſink; becauſe in this caſe more than one demands the very ſame thing. It is ſolely applicable to the buyers, in relation to the price they offer. This demand is called *high* or *low*, and is ſaid to riſe, to fall, to mount, to ſink, and is expreſſed by theſe and other ſynonimous terms.

Simple competition, when between buyers, is the ſame as *compound* or *high demand*; but differs from it in ſo far, as this may equally take place among ſellers, which compound demand cannot; and then it works a contrary effect: it makes prices ſink, and is ſynonimous with low demand: it is this competition which overturns the balance of work and demand.

Double competition is what is underſtood to take place in almoſt every operation of trade; it is this which prevents their exceſſive riſe of prices; it is this which prevents their exceſſive fall. While double competition prevails, the balance is perfect, trade and induſtry flouriſh.

The capital diſtinction, therefore, between the terms *demand* and *competition* is, that *demand* is conſtantly relative to the buyers; and when money is not the price, as in barter, then it is relative to that ſide upon which the greateſt *competition* is found.

We therefore ſay, with regard to *prices*, demand is *high* or *low*. With regard *to the quantity of merchandize*, demand is *great* or *ſmall*. With regard *to competition*, it is always called *great* or *ſmall*, *ſtrong* or *weak*.

Competition is, with equal propriety, applicable to both parties in the contract. A *competition* among buyers is a proper expreſſion; a *competition* among ſellers, who have the merchandize, is fully as eaſily underſtood, though it be not quite ſo ſtriking, for reaſons which an example will make plain.

You come to a fair, where you find a great variety of every kind of merchandize, in the poſſeſſion of different merchants. Theſe, by offering their goods to ſale, conſtitute a tacit competition; every one of them wiſhes to ſell in preference to another, and at the ſame time with the beſt advantage to himſelf.

The buyer begins, by cheapening at every ſhop. The firſt price aſked marks the covetouſneſs of the ſeller; the firſt price offered, the avarice of the buyer. From this operation competition begins to work its effects on both ſides, and ſo becomes double. The principles which influence this operation are now to be deduced.

It is impoſſible to ſuppoſe the ſame degree of eagerneſs, either to buy or ſell, among ſeveral merchants; becauſe the degree of eagerneſs is exactly in proportion to their views of profit; and as theſe muſt neceſſarily be influenced and regulated by different circumſtances, the buyer, who has the beſt proſpect of ſelling again with profit, obliges him, whoſe proſpect is not ſo good, to content himſelf with leſs; and that ſeller, who has bought to the beſt advantage, obliges him, who has paid dearer for the merchandize, to moderate his deſire of gain.

It is from theſe principles, that competition among buyers and ſellers muſt take place. This is what confines the fluctuation of prices within limits which are compatible with the reaſonable profits of both buyers and ſellers; for we muſt conſtantly ſuppoſe the whole operation of buying and ſelling to be performed by merchants; the buyer cannot be ſuppoſed to give ſo high a price as that which he expects to receive when he diſtributes to the conſumers, nor can the ſeller be ſuppoſed to accept of a lower than that which he paid to the manufacturer. This competition is properly called *double*, becauſe of the difficulty to determine upon which ſide it ſtands; the ſame merchant may have it in his favour upon certain articles, and againſt him upon others; it is conſtantly in vibration, and the arrival of every poſt may leſs or more pull down the heavy ſcale.

In every tranſaction between merchants, the profit reſulting from the ſale muſt be exactly diſtinguiſhed from the value of the merchandize. The firſt may vary, the laſt never can. It is this profit alone which can be influenced by competition; and it is for that reaſon we find ſuch uniformity every where in the prices of goods of the ſame quality.

The competition between ſellers does not appear ſo ſtriking as that between buyers; becauſe he who offers to ſale, appears only paſſive in the firſt operation; whereas the buyers preſent themſelves one after another; they make a demand when the merchandize is refuſed to one at a certain price; a ſecond either offers more, or does not offer all: but ſo ſoon as another ſeller finds his account in accepting the price the firſt had refuſed, then the firſt enters into competition, providing his profits will admit his lowering the firſt price; and thus competition takes place among the ſellers, until the profits upon their trade prevent prices from falling lower.

In all markets this competition is varying, though inſenſibly, on many occaſions; but in others the vibrations are very perceptible. Sometimes it is found ſtrongeſt on the ſide of the buyers; and in proportion as this grows, the competition between the ſellers diminiſhes. When the competition between the former has raiſed prices to a certain ſtandard, it comes to a ſtop; then the competition changes ſides, and takes place among the ſellers, eager to profit of the higheſt price. This makes prices fall; and according as they fall, the competition among the buyers diminiſhes. They ſtill wait for the loweſt period. At laſt it comes; and then perhaps ſome new circumſtance, by giving the balance a kick, diſappoints their hopes. If therefore it ever happens, that there is but one intereſt upon one ſide of the contract, as in the example in the former ſection, where we ſuppoſed the ſellers united, you perceive, that the riſe of the price, occaſioned by the competition of the buyers, and even its coming to a ſtop, could not poſſibly have the effect of producing any competition on the other ſide; and therefore, if prices come afterwards to ſink, the fall muſt have proceeded from the prudential conſiderations of adapting the price to the faculties of thoſe who, from the height of it, had withdrawn their demand.

From theſe principles of competition, the foreſtalling of markets is made a crime, becauſe it diminiſhes the competition which ought to take place between different people, who have the ſame merchandize to offer to ſale. The foreſtaller buys all up, with an intention to ſell with more profit, as he has by that means taken other competitors out of the way, and appears with a ſingle intereſt on one ſide of the contract, in the face of many competitors on the other. This perſon is puniſhed by the ſtate, becauſe he has prevented the price of the merchandize from becoming juſtly proportioned to the real value; he has robbed the public and enriched himſelf; and in the puniſhment he makes reſtitution. Here occur two queſtions to be reſolved, for the ſake of illuſtration.

Can competition among buyers poſſibly take place, when the proviſion made is more than ſufficient to ſupply the quantity demanded? On the other hand, can competition take place among the ſellers, when the quantity demanded exceeds the total proviſion made for it?

We think it may in both caſes; becauſe in the one and the other, there is a competition implied on one ſide of the contract, and the very nature of this competition implies a poſſibility of its coming on the other, provided ſeparate intereſts be found upon both ſides. But to be more particular:

1. Experience ſhows, that however juſtly the proportion between the demand and the ſupply may be determined in fact, it is ſtill next to impoſſible to diſcover it exactly, and therefore the buyers can only regulate the prices they offer, by what they may reaſonably expect to ſell for again. The ſellers, on the other hand, can only regulate the prices they expect, by what the merchandize has coſt them when brought to market. We have already ſhown, how, under ſuch circumſtances, the ſeveral intereſts of individuals affect each other, and make the balance vibrate.

2. The proportion between the ſupply and the demand is ſeldom other than *relative* among merchants, who are ſuppoſed to buy and ſell, not from neceſſity, but from a view to profit. What we mean by *relative* is, that their demand is *great* or *ſmall* according to prices; there may be a great demand for grain at 35s. *per* quarter, and no demand for it at all at 40s.; that is, among merchants.

It is eſſential to attend to the ſmalleſt circumſtance in matters of this kind. The circumſtance we mean, is the difference we find in the effect of competition, when it takes place purely among merchants on both ſides of the contract, and when it happens, that either the conſumers mingle themſelves with the merchant-buyers, or the manufacturers, that is, the furniſhers, mingle themſelves with the merchant-ſellers. This combination we ſhall illuſtrate by the ſolution of another queſtion, and then conclude with a few reflections upon the whole.

Can there be no caſe formed, where the competition upon one ſide may ſubſiſt, without a poſſibility of its taking place on the other, although there ſhould be ſeparate intereſts upon both?

The caſe is hardly ſuppoſable among merchants, who buy and ſell with a view to profit; but it is abſolutely ſuppoſable, and that is all, when the direct conſumers are the buyers; when the circumſtances of one of the parties is perfectly known; and when the competition is ſo ſtrong upon one ſide, as to prevent a poſſibility of its becoming double, before the whole proviſion is ſold off, or the demand ſatisfied. Let us have recourſe to examples.

Grain arriving in a ſmall quantity, at a port where the inhabitants are ſtarving, produces ſo great a competition among the conſumers, who are the buyers, that their neceſſity becomes evident; all the grain is generally bought up before prices can riſe ſo high as to come to a ſtop; becauſe nothing but the want of money, that is, an impoſſibility of complying with the prices demanded by the merchants, can reſtrain them: but if you ſuppoſe, even here, that prices come naturally to a ſtop; or that, after ſome time, they fall lower, from prudential conſiderations; then there is a poſſibility of a competition taking place among the ſellers, from the principles above deduced. If, on the contrary, the ſtop is not natural, but occaſioned by the interpoſition of the magiſtrate, from humanity, or the like, there will be no competition, becauſe then the principles of commerce are ſuſpended; the ſellers are reſtrained on one ſide, and they reſtrain the buyers on the other. Or rather indeed, it is the magiſtrate, or compaſſion, who in a manner fixes the price, and performs the office of both buyer and ſeller.

A better example ſtill may be found, in a competition among ſellers; where it may be ſo ſtrong as to render a commodity in a manner of no value at all, as in the caſe of an uncommon and unexpected draught of fiſh, in a place of ſmall conſumption, when no preparations have been made for ſalting them. There can be then no competition among the buyers; becauſe the market cannot laſt, and they find themſelves entirely maſters, to give what price they pleaſe, being ſure the ſellers muſt accept of it, or loſe their merchandize. In the firſt example, humanity commonly ſtops the activity of the principle of competition; in the other, it is ſtopped by a certain degree of fair dealing, which forbids the accepting of a merchandize for nothing.

In proportion therefore as the riſing of prices can ſtop demand, or the ſinking of prices can increaſe it, in the ſame proportion will competition prevent either the riſe or the fall from being carried beyond a certain length: and if ſuch a caſe can be put, where the riſing of prices cannot ſtop demand, nor the lowering of prices augment it, in ſuch caſes double competition has no effect; becauſe theſe circumſtances unite the moſt ſeparate intereſts of buyers and ſellers in the mercantile contract; and when upon one ſide there is no ſeparate intereſt, there can then be no competition.

From what has been ſaid, we may form a judgment of the various degrees of competition. A book not worth a ſhilling, a fiſh of a few pounds weight, are often ſold for conſiderable ſums. The buyers here are not merchants. When, an ambaſſador leaves a court in a hurry, things are ſold for leſs than half of their value: he is no merchant, and his ſituation is known. When, at a public market, there are found conſumers, who make their proviſion; or manufacturers, who diſpoſe of their goods for preſent ſubſiſtence; the merchants, who are reſpectively upon the oppoſite ſide of the contract to theſe, profit of their competition; and thoſe who are reſpectively upon the ſame ſide with them, ſtand by with patience until they have finiſhed their buſineſs. Then matters come to be carried on between merchant and merchant, and then profits may riſe and fall, in the proportion of quantity to demand; that is to ſay, if the proviſion is leſs than the demand, the competition among the demanders, or the riſe of the price, will be in the compound proportion of the falling ſhort of the commodity, and of the proſpect of ſelling again with profit. It is this combination which regulates the competition, and keeps it within bounds. It can affect but the profis upon the tranſaction: the intrinſic value of the commodity ſtands immoveable: nothing is ever ſold below the real value; nothing is ever bought for more than it may probably bring. We mean in general. Whereas, ſo ſoon as conſumers and needy manufacturers mingle in the operation, all proportion is loſt. The competition betwen them is too ſtrong for the merchants; the balance vibrates by jerks. In ſuch markets merchants ſeldom appear: the principal objects there, are the fruits and productions of the earth, and articles of the firſt neceſſity for life, not manufactures ſtrictly ſo called. A poor fellow often ſells to purchaſe bread to eat; not to pay what he did eat while he was employed in the work he diſpoſes of. The conſumer often meaſures the value of what he is about to purchaſe, by the weight of his purſe, and his deſire to conſume.

§ 6. *Of what is called Expence, Profit, and Loſs.*

The term *expence*, when ſimply expreſſed, without any particular relation, is always underſtood to be relative to money. This kind is diſtinguiſhed under the three heads of *private, public,* and *national.*

1. *Private expence* is what a private perſon, or private ſociety, lays out, either to provide articles of conſumption, or ſomething more permanent, which may be conducive to their eaſe, convenience, or advantage.

Thus we ſay, *a large domeſtic expence*, relative to one who ſpends a great income. We ſay, a merchant has been at *great expence* for magazines, for living, for clerks, &c. but never that he has been at any in buying goods. In the ſame way a manufacturer may expend for building, machines, horſes, and carriages, but never for the matter he manufactures. When a thing is bought in order to be ſold again, the ſum employed is called money *advanced;* when it is bought not to be ſold, it may be ſaid to be *expended.*

2. *Public expence* is the employment of that money which has been contributed by individuals for the current ſervice of the ſtate. The contribution, or gathering together, repreſents the effects of many articles of *private expence*; the laying it out when collected, is *public expence.*

3. *National expence* is what is expended out of the country; this is what diminiſhes national wealth. The principal diſtinction to be here attended to is between public expence, or the laying out of public money, and national expence, which is the alienating the nation's wealth in favour of ſtrangers. Thus the greateſt public expence imaginable may be no national expence; becauſe the money may remain at home. On the other hand, the ſmalleſt public or even private expence, may be a national expence; becauſe the money may go abroad.

Profit and *loſs* is divided into *poſitive*, *relative*, and *compound*. *Poſitive Profit* implies no loſs to any body; it reſults from an augmentation of labour, induſtry, or ingenuity, and has the effect of ſwelling or augmenting the public good.

Poſitive loſs implies no profit to any body; it is what reſults from the ceſſation of the former, or of the effects reſulting from it, and may be ſaid to diminiſh the public good.

Relative profit is what implies a loſs to ſomebody; it marks a vibration of the balance of wealth between parties, but implies no addition to the general ſtock.

Relative loſs is what, on the contrary, implies a profit to ſomebody; it alſo marks a vibration of the balance, but takes nothing from the general ſtock.

The *compound* is eaſily underſtood; it is that ſpecies of profit and loſs which is partly relative and partly poſitive.

§ 7. *The general conſequences reſulting to a trading Nation, upon the opening of an active foreign commerce.*

A NATION which remains paſſive in her commerce is at the mercy of thoſe who are active, and muſt be greatly favoured indeed by natural advantages, or by a conſtant flux of gold and ſilver from her mines, to be able to ſupport a correſpondence not entirely hurtful to the augmentation of her wealth.

When we look upon the wide field which here opens to our view, we are perplexed with too great a variety of objects. In one part we ſee a decent and comely beginning of induſtry; wealth flowing gently in to recompence ingenuity; numbers both augmenting, and every one becoming daily more uſeful to another; agriculture proportionally extending itſelf; no violent revolutions; no exorbitant profits; no inſolence among the rich; no exceſſive miſery among the poor; multitudes employed in producing; a great economy upon conſumption; and all the inſtruments of luxury, daily produced by the hands of the diligent going out of the country for the ſervice of ſtrangers; not remaining at home for the gratification of ſenſuality. At laſt the augmentations come inſenſibly to a ſtop. Then theſe rivers of wealth, which were in briſk circulation through the whole world, and which returned to this trading nation as blood returns to the heart, only to be thrown out again by new pulſations, begin to be obſtructed in their courſe; and flowing abroad more ſlowly than before, come to form ſtagnations at home. Theſe, impatient of reſtraint, ſoon burſt out into domeſtic circulation. Upon this cities ſwell in magnificence of buildings; the face of the country is adorned with palaces, and becomes covered with groves; luxury ſhines triumphant in every part; inequality becomes more ſtriking to the eye; and want and miſery appear more deformed, from the contraſt: even fortune grows more whimſical in her inconſtancy; the beggar of the other day now rides in his coach; and he who was born in a bed of ſtate, is ſeen to die in a gaol or in an alms-houſe. Such are the effects of great domeſtic circulation.

The ſtateſman looks about with amazement; he who was wont to conſider himſelf as the firſt man in the ſociety in every reſpect, perceives himſelf, perhaps, eclipſed by the luſtre of private wealth, which avoids his graſp when he attempts to ſeize it. This makes his government more complex and more difficult to be carried on; he muſt now avail himſelf of art and addreſs, as well as of power and force. By the help of cajoling and intrigues, he gets a little into debt; this lays a foundation for public credit, which, growing by degrees, and in its progreſs aſſuming many new forms, becomes, from the moſt tender beginnings, a moſt formidable monſter, ſtriking terror into thoſe who cheriſhed it in its infancy. Upon this, as upon a triumphant war-horſe, the ſtateſman gets aſtride; he then appears formidable anew; his head turns giddy; he is choaked with the duſt he has raiſed; and at the moment he is ready to fall, to his utter aſtoniſhment and ſurpriſe, he finds a ſtrong monied intereſt, of his own creating, which, inſtead of ſwallowing him up as he apprehended, flies to his ſupport. Through this he gets the better of all oppoſition, he eſtabliſhes taxes, multiplies them, mortgages his fund of ſubſiſtence; either becomes a bankrupt, and riſes again from his aſhes; or, if he be leſs audacious, he ſtands trembling and tottering for a while on the brink of the political precipice. From one or the other of theſe perilous ſituations, he begins to diſcover an endleſs path, which, after a mulitude of windings, ſtill returns into itſelf, and continues an equal courſe through this vaſt labyrinth.

It is now full time to leave off rhapſody, and return to reaſoning and cool enquiry, concerning the more immediate and more general effects and revolutions produced by the opening of a foreign trade in a nation of induſtry.

The firſt and moſt ſenſible alteration will be an increaſe of demand for manufacturers, becauſe by ſupplying the wants of ſtrangers, the number of conſumers will now be conſiderably augmented. What again will follow upon this, muſt depend upon circumſtances.

If this revolution in the ſtate of demand ſhould prove too violent, the conſequence of it will be to raiſe demand; if it ſhould prove gradual, it will increaſe it. This diſtinction is well underſtood, and the conſequence appears juſt: for, if the ſupply do not increaſe in proportion to the demand, a competition will enſue among the demanders; which is the common effect of ſuch ſudden revolutions. If, on the other hand, a gentle increaſe of demand ſhould be accompanied with a proportional ſupply, the whole induſtrious ſociety will grow in vigour, and in wholeſome ſtature, without being ſenſible of any great advantage or inconveniency; the change of their circumſtances will even be imperceptible.

The immediate effects of the violent revolution will, in this example, be flattering to ſome and diſagreeable to others. Wealth will be found daily to augment, from the riſing of prices, in many branches of induſtry. This will encourage the induſtrious claſſes, and the idle conſumers at home will complain. We have already dwelt abundantly long upon the effect reſulting from this to the lower claſſes of the people, in providing them with a certain means of ſubſiſtence. Let us now examine in what reſpect even the higher claſſes will be made likewiſe to feel the good effects of this general change, although at firſt they may ſuffer a temporary inconveniency from it.

Farmers, as has been obſerved, will have a greater difficulty in finding ſervants, who, inſtead of labouring the ground, will chuſe to turn themſelves to manufactures. This we have conſidered in the light of purging the lands of ſuperfluous mouths; but every conſequence in this great chain of politics draws other conſequences after it, and as they follow one another, things put on different faces, which affect claſſes differently. The purging of the land is but one of the firſt; here follows another.

The deſertion of the lands employed in a trifling agriculture will at firſt, no doubt embarraſs the farmers; but in a little time every thing becomes balanced in a trading nation, becauſe here every induſtrious man muſt advance in proſperity, in ſpite of all general combinations of circumſtances.

In the caſe before us, the relative profits upon farming muſt ſoon become greater than formerly, becauſe of this additional expence which muſt affect the whole claſs of farmers; conſequently, this additional expence, inſtead of turning out to be a loſs to either landlord or farmer, will, after ſome little time, turn out to the advantage of both; becauſe the produce of the ground, being indiſpenſably neceſſary to every body, muſt in every article increaſe in its value. Thus in a ſhort time accounts will be nearly balanced on all hands; that is to ſay, the ſame proportion of wealth will, *cæteris paribus*, continue the ſame among the induſtrious. We ſay among the induſtrious; for thoſe who are either idle, or even negligent, will be great loſers.

A proprietor of land, inattentive to the cauſes of his farmer's additional expence, may very imprudently ſuffer his rents to fall, inſtead of aſſiſting him on a proper occaſion, in order to make them afterwards riſe the higher.

Thoſe who live upon a determined income in money, and who are nowiſe employed in traffic, nor in any ſcheme of induſtry, will, by the augmentation of prices, be found in worſe circumſtances than before.

In a trading nation every man muſt turn his talents to account, or he will undoubtedly be left behind in this univerſal emulation, in which the moſt induſtrious, the moſt ingenious, and the moſt frugal, will conſtantly carry off the prize.

This conſideration ought to be a ſpur to every body. The richeſt men in a trading nation have no ſecurity againſt poverty; we mean proportional poverty; for though they diminiſh nothing of their income, yet, by not increaſing it in proportion to others, they loſe their rank in wealth, and from the firſt claſs in which they ſtood they will ſlide inſenſibly down to a lower.

There is one conſequence of an additional beneficial trade, which raiſes demand and increaſes wealth; but if we ſuppoſe no proportional augmentation of ſupply, it will prove at beſt but an airy dream which laſts for a moment; and when the gilded ſcene is paſſed away, numberleſs are the inconveniences which are ſeen to follow.

We ſhall now point out the natural conſequences of this augmentation of wealth drawn from foreign nations, when the ſtateſman remains inattentive to increaſe the ſupply both of food and manufactures, in proportion to the augmentation of mouths, and of the demand for the produce of induſtry.

In ſuch a ſituation profits will daily ſwell, and every ſcheme for reducing them within the bounds of moderation, will be looked upon as a hurtful and unpopular meaſure: be it ſo; but let us examine the conſequences.

We have ſaid, that the riſe of demand for manufactures naturally increaſes the value of work: now we muſt add, that under ſuch circumſtances, the augmentation of riches in a country, either not capable of improvement as to the ſoil, or where precautions have not been taken for facilitating a multiplication of inhabitants, by the importation of ſubſiſtence, will be productive of the moſt calamitous conſequences.

On one ſide, this wealth will effectually diminiſh the maſs of the food before produced; and on the other, will increaſe the number of uſeleſs conſumers. The firſt of theſe circumſtances will raiſe the demand for food; and the ſecond will diminiſh the number of uſeful free hands, and conſequently raiſe the price of manufactures: here are ſhortly the outlines of this progreſs.

The more rich and luxurious a people are, the more delicate they become in their manner of living; if they fed on bread formerly, they will now feed on meat; if they fed on meat, they will now feed on fowl. The ſame ground which feeds a hundred with bread, and a proportional quantity of animal food, will not maintain an equal number of delicate livers. Food muſt then become more ſcarce; demand for it riſes; the rich are always the ſtrongeſt in the market; they conſume the food, and the poor are forced to ſtarve. Here the wide door to modern diſtreſs opens; to wit, a hurtful competition for ſubſiſtence. Farther, when a people become rich, they think leſs of economy; a number of uſeleſs ſervants are hired, to become an additional dead weight on conſumption; and when their ſtarving countrymen cannot ſupply the extravagance of the rich ſo cheaply as other nations, they either import inſtruments of foreign luxury, or ſeek to enjoy them out of their own country, and thereby make reſtitution of their gains.

Is it not therefore evident, that if, before things come to this paſs, additional ſubſiſtence be not provided by one method or other, the number of inhabitants muſt diminiſh; although riches may daily increaſe by a balance of additional matter, ſuppoſed to be brought into the country in conſequence of the hitherto beneficial foreign trade? This is not all. We ſay farther, that the beneficial trade will laſt for a time only. For the infallible conſequence of the riſe of prices at home will be, that thoſe nations which at firſt conſumed your manufactures, perceiving the gradual increaſe of their price, will begin to work for themſelves; or finding out your rivals who can ſupply them cheaper, will open their doors to them. Theſe again, perceiving the great advantages gained by your traders, will begin to ſupply the market; and ſince every thing muſt be cheaper in countries where we do not ſuppoſe the concurrence of all the circumſtances mentioned above, theſe nations will ſupplant you, and be enriched in their turn.

Here comes a new revolution. Trade is come to a ſtop: what then becomes of all the hands which were formerly employed in ſupplying the foreign demands?

Were revolutions ſo ſudden as we are obliged to repreſent them, all would go to wreck; in proportion as they happen by quicker or ſlower degrees, the inconveniences are greater or ſmaller.

Prices, we have ſaid, are made to riſe by competition. If the competition of the ſtrangers was what raiſed them, the diſtreſs upon the manufacturers will be in proportion to the ſuddenneſs of their deſerting the market. If the competition was divided between the ſtrangers and the home-conſumers, the inconveniences which enſue will be leſs; becauſe the deſertion of the ſtrangers will be in ſome meaſure made up by an increaſe of home conſumption which will follow upon the fall of prices. And if, in the third caſe, the natives have been ſo imprudent, as not only to ſupport a competition with the ſtrangers, and thereby diſguſt them from coming any more to market, but even to continue the competition between themſelves, the whole loſs ſuſtained by the revolution will be national. Wealth will ceaſe to augment; but the inconveniences, in place of being felt by the manufacturers, will only affect the ſtate; thoſe will continue in affluence, extolling the generoſity of their countrymen, and deſpiſing the poverty of the ſtrangers who had enriched them.

Domeſtic luxury will here prove an expedient for preſerving from ruin the induſtrious part of a people, who in ſubſiſting themſelves had enriched their country. No change will follow in their condition; they will go on with a painful aſſiduity to labour: and if the conſequences of it become now hurtful to one part of the ſtate, they muſt at leaſt be allowed to be eſſentially neceſſary for the ſupport of the other.

But that luxury is no neceſſary concomitant of foreign trade, in a nation where the true principles of it are underſtood, will appear very plain, from a contraſt we are now going to point out, in the example of a modern ſtate, renowned for its commerce and frugality. The country is Holland.

A ſet of induſtrious and frugal people were aſſembled in a country by nature ſubject to many inconveniences, the removing of which neceſſarily employed abundance of hands. Their ſituation upon the continent, the power of their former maſters, and the ambition of their neighbours, obliged them to keep great bodies of troops. Theſe two articles added to the numbers of the community, without either enriching the ſtate by their labour exported, or producing food for themſelves or countrymen.

The ſcheme of a commonwealth was calculated to draw together the induſtrious; but it has been ſtill more uſeful in ſubſiſting them; the republican form of government being there greatly ſubdivided, veſts authority ſufficient in every part of it, to make ſuitable proviſion for their own ſubſiſtence; and the tie which unites them, regards only matters of public concern. Had the whole been governed by one ſovereign, or by one council, this important matter never could have been effectuated.

It would be impoſſible for the moſt able miniſter that ever lived, to provide nouriſhment for a country ſo extended as France, or even as England, ſuppoſing theſe as fully peopled as Holland is; even although it ſhould be admitted that a ſufficient quantity of food might be found in other countries for their ſubſiſtence. The enterpriſe would be too great, abuſes would multiply; the conſequence would be, that the inhabitants would die for want. But in Holland the caſe is different: every little town takes care of its own inhabitants; and this care being the object of application and profit to ſo many perſons, is accompliſhed with ſucceſs.

When once it is laid down as a maxim in a country, that food muſt of neceſſity be got from abroad in order to feed the inhabitants at home, the corn-trade becomes conſiderable, and at the ſame time certain, regular, and permanent. This was the caſe in Holland: as the inhabitants were induſtrious, the neceſſary conſequence has been, a very extraordinary multiplication; and at the ſame time ſuch an abundance of grain, that, inſtead of being in want themſelves, they often ſupply their neighbours. There are many examples of England's being ſupplied with grain from thence; and, which is ſtill more extraordinary, from the reexportation of the very produce of its own fruitful ſoil.

It is therefore evident, that the only way to ſupport induſtry, is to provide a ſupply of ſubſiſtence, conſtantly proportional to the demand that may be made for it. This is a precaution indiſpenſably neceſſary for preventing hurtful competition. This is the particular care of the Dutch: ſo long as it can be effectual, their ſtate can fear no decline; but whenever they come to be diſtreſſed in the markets, upon which they depend for ſubſiſtence, they will ſink into ruin. It is by mere dint of frugality, cheap and parſimonious living, that the navigation of this induſtrious people is ſupported. Conſtant employment, and an accumulation of almoſt imperceptible gains, fill their coffers with wealth, in ſpite of the large outgoings to which their own proper nouriſhment yearly forces them. The large profits upon induſtry in other countries which are no proof of generoſity, but a fatal effect of a ſcanty ſubſiſtence, is far from dazzling their eyes. They ſeldom are found in the liſt of competitors at any foreign port; if they have their cargo to diſpoſe of, they wait with pleaſure in their own veſſels, conſuming their own proviſions, and at laſt accept of what others have left. It may be ſaid, that many other circumſtances concur in favour of the Dutch, beſides the article of ſubſiſtence. Without diſputing this matter, it may be obſerved, that if a computation be made of the hands employed in providing ſubſiſtence, and of thoſe who are ſeverally taken up in ſupplying every other want, their numbers will be found nearly to balance one another in the moſt luxurious countries. From this we may conclude, that the article of food, among the lower claſſes, muſt bear a very high proportion to all the other articles of their conſumption; and therefore a dimunition upon the price of ſubſiſtence, muſt be of infinite conſequence to manufacturers who are obliged to buy it. From this conſideration, let us judge of the conſequence of ſuch augmentations upon the price of grain as are familiar to us; 30 or 40 *per cent.* ſeems nothing. Now this augmentation operates upon two-thirds, at leaſt, of the whole expence of a labouring man: let any one who lives in tolerable affluence make the application of this to himſelf, and examine how he would manage his affairs, if, by accidents of rains or winds, his expences were to riſe 30 *per cent.* without a poſſibility of reſtraining them; for this is unfortunately the caſe with all the lower claſſes. Frome whence it may be concluded, that the keeping food cheap, and ſtill more the preſerving it at all times at an equal ſtandard, is the fountain of the wealth of Holland; and that any hurtful competition in this article muſt beget a diſorder which will affect the whole of the manufacturers of a ſtate.

COMMERCY, a handſome town of France in the duchy of Bar, with the title of a principality, and a magnificent caſtle. It is ſeated on the river Menſe, in E. Long. 5. 24. N. Lat. 48. 20.

COMMERSONIA, in botany: A genus of the pentagynia order, belonging to the pentandria claſs of plants. The calyx is a monophyllous, five-parted, corolliferous perianthium, with ſharp ovated ſegments; the corolla has five linear petals; the ſtamina are five very ſhort filaments at the baſes of the petals; the pericarpium a globular, hard, quinquelocular nut, with two ovated ſeeds in each diviſion.

COMMINATION, an office in the liturgy of the church of England, appointed to be read on Aſh-Wedneſday, or the firſt day of Lent. It is ſubſtituted in the room of that *godly diſcipline in the primitive church*, by which (as the introduction to the office expreſſes it), "ſuch perſons, as ſtood convicted of notorious ſins, were put to open penance, and puniſhed in this world, that their ſouls might be ſaved in the day of the Lord; and that others, admoniſhed by their example, might be the more afraid to offend." This diſcipline, in after ages, degenerated, in the church of Rome, into a formal confeſſion of ſins upon Aſh-Wedneſday, and the empty ceremony of ſprinkling aſhes upon the heads of the people. Our reformers wiſely rejected this ceremony, as mere ſhadow and ſhow; and ſubſtituted this office in its room, which is, *A denunciation of God's anger and judgment againſt ſinners*; that the people, being apprized of God's wrath and indignation againſt ſin, may not, through want of diſcipline in the church, be encouraged to follow and purſue them, but rather be moved to ſupply that diſcipline to themſelves, and ſo to avoid being judged and condemned at the tribunal of God.

COMMINATORY, an appellation given to whatever threatens puniſhment, or ſome penalty. Thus, in France, when an exile is enjoined not to return under pain of death, it is deemed a *comminatory* penalty; ſince, if he do return, it is not ſtrictly executed; but a ſecond injunction is laid on him, which is more than comminatory, and, from the day of the date thereof, imports death without remedy.

COMMINGES, a province of France, 45 miles in length; and 15 in breadth; bounded on the north by Gaſcony, on the ſouth by Catalonia, on the eaſt by Couſſerans, and on the weſt by Bigorra. Its principal trade conſiſts in cattle, mules, and corn. St Bertrand is the capital town.

COMMINUTION, denotes the breaking, or rather grinding, a body to very ſmall particles.

COMMIRE (John), a celebrated Latin poet, born at Amboiſe in 1625, entered into the ſociety of the Jeſuits, and taught polite literature and divinity. He died at Paris in 1702. We have a volume of his Latin poems, and a collection of his poſthumous works. His odes and fables are more particularly admired.

COMMISSARY, in the eccleſiaſtical law, an officer of the biſhop, who exerciſes ſpiritual juriſdiction in places of a dioceſe ſo far from the Epiſcopal ſee, that the chancellor cannot call the people to the biſhop's principal conſiſtory court, without giving them too much inconveniency.

COMMISSARY-Court, in Scotland, a court orignally conſtituted by the biſhops for executing in their name an uſurped juriſdiction; and was anciently called the *biſhop's court*, *curia Chriſtianitatis*, or *conſiſtorial court*. This court was modelled by queen Mary at the Reformation, and it continues till this day.

COMMISSARY, in a military ſenſe, is of different ſorts.

COMMISSARY-General of the Muſters, an officer appointed to muſter the army, as often as the general thinks proper, in order to know the ſtrength of each regiment and company, to receive and inſpect the muſter-rolls, and to keep an exact ſtate of the ſtrength of the army.

COMMISSARY of Horſes, an officer in the artillery, appointed to have the inſpection of the artillery-horſes, to ſee them muſtered, and to ſend ſuch orders as he receives from the commanding officer of the artillery, by ſome of the conductors of horſes, of which he has a certain number for his aſſiſtants.

Commissary of Proviſions, an officer who has the charge of furniſhing the army with proviſions.

Commissary of Stores, an officer in the artillery, who has the charge of all the ſtores, for which he is accountable to the office of ordnance.

COMMISSION, in common law, the warrant or letters patent, which all perſons exerciſing juriſdiction have to empower them to hear or determine any cauſe or ſuit, as the commiſſion of the judge, *&c.*

Commission of Bankruptcy, is the commiſſion that iſſues from the chancellor, on a perſon's becoming a bankrupt within any of the ſtatutes, directed to certain commiſſioners appointed to examine into it, and to ſecure the bankrupt's lands and effects for the ſatisfaction of his creditors. See the article Bankrupt.

The proceedings on a commiſſion of bankrupt may be divided, 1. Into thoſe which affect the bankrupt himſelf. 2. Into thoſe which affect his property.

Blackſtone's Comment.

1. As to thoſe of the former kind, there muſt in the firſt place be a petition to the lord chancellor by one creditor to the amount of L. 100, or by two to the amount of L. 150, or by three or more to the amount of L. 200; upon which he grants a commiſſion to ſuch diſcreet perſons as to him ſhall ſeem good, who are then ſtyled commiſſioners of bankrupt. The petitioners, to prevent malicious applications, muſt be bound in a ſecurity of L. 200, to make the party amends, in caſe they do not prove him a bankrupt. And if, on the other hand, they receive any money or effects from the bankrupt, as a recompenſe for ſuing out the commiſſion, ſo as to receive more than their rateable dividends of the bankrupt's eſtate, they forfeit not only what they ſhall have ſo received, but their whole debt. When the commiſſion is awarded and iſſued, the commiſſioners are to meet at their own expence, and to take an oath for the due execution of their commiſſion, and to be allowed a ſum not exceeding 20s. *per diem* each, at every ſitting. And no commiſſion of bankruptcy ſhall abate or be void on any demiſe of the crown.

When the commiſſioners have received their commiſſion, they are firſt to receive proof of the perſon's being a trader, and having committed ſome act of bankruptcy; and then to declare him bankrupt, if proved ſo; and to give notice thereof in the gazette, and at the ſame time to appoint three meetings. At one of theſe meetings an election muſt be made of aſſignees, or perſons to whom the bankrupt's eſtate ſhall be aſſigned, and in whom it ſhall be veſted for the benefit of the creditors; which aſſignees are choſen by the major part, in value, of the creditors who ſhall then have proved their debts; but may be originally appointed by the commiſſioners, and afterwards approved or rejected by the creditors: but no creditor ſhall be admitted to vote in the choice of aſſignees, whoſe debt, on the balance of accounts, does not amount to L. 10. And at the third meeting at fartheſt, which muſt be on the 42d day after the advertiſement in the gazette, the bankrupt, upon notice alſo perſonally ſerved upon him, or left at his uſual place of abode, muſt ſurrender himſelf perſonally to the commiſſioners, and muſt thenceforth in all reſpects conform to the directions of the ſtatutes of bankruptcy; or, in default thereof, ſhall be guilty of felony without benefit of clergy, and ſhall ſuffer death, and his goods and eſtate ſhall be divided among his creditors.

In caſe the bankrupt abſconds, or is likely to run away between the time of the commiſſion iſſued and the laſt day of ſurrender, he may, by warrant from any judge or juſtice of the peace, be apprehended and committed to the county gaol, in order to be forthcoming to the commiſſioners, who are alſo empowered immediately to grant a warrant for ſeizing his goods and papers.

When the bankrupt appears, the commiſſioners are to examine him touching all matters relating to his trade and effects. They may alſo ſummon before them, and examine, the bankrupt's wife, and any other perſon whatſoever, as to all matters relating to the bankrupt's affairs: And in caſe any of them ſhall refuſe to anſwer, or ſhall not anſwer fully, to any lawful queſtion, or ſhall refuſe to ſubſcribe ſuch their examination, the commiſſioners may commit them to priſon without bail, till they make and ſign a full anſwer; the commiſſioners ſpecifying in their warrant of commitment the queſtion ſo refuſed to be anſwered. And any gaoler, permitting ſuch perſon to eſcape or go out of priſon, ſhall forfeit L. 500 to the creditors.

The bankrupt upon this examination, is bound, upon pain of death, to make a full diſcovery of all his eſtate and effects as well in expectancy as poſſeſſion, and how he has diſpoſed of the ſame; together with all books and writings relating thereto; and is to deliver up all in his power to the commiſſioners (except the neceſſary apparel of himſelf, his wife, and his children); or, in caſe he conceals or embezzles any effects to the amount of L. 20, or with-holds any book or writings, with intent to defraud his creditors, he ſhall be guilty of felony without benefit of clergy.

After the time allowed the bankrupt for ſuch diſcovery is expired, any other perſon voluntarily diſcovering any part of his eſtate before unknown to the aſſignees, ſhall be entitled to five *per cent.* out of the effects ſo diſcovered, and ſuch farther reward as the aſſignees and commiſſioners ſhall think proper. And any truſtee wilfully concealing the eſtate of any bankrupt, after the expiration of 42 days, ſhall forfeit L. 100, and double the value of the eſtate concealed, to the creditors.

Hitherto every thing is in favour of the creditors; and the law ſeems to be pretty rigid and ſevere againſt the bankrupt; but, in caſe he proves honeſt, it makes him full amends for all this rigour and ſeverity. For, if the bankrupt hath made an ingenuous diſcovery, hath conformed to the directions of the law, and hath acted in all points to the ſatisfaction of his creditors; and if they, or four parts in five of them in number and value (but none of them creditors for leſs than L. 20), will ſign a certificate to that purport; the commiſſioners are then to authenticate ſuch certificate under their hands and ſeals, and to tranſmit it to the lord chancellor: and he, or two judges whom he ſhall appoint, on oath made by the bankrupt that ſuch certificate was obtained without fraud, may allow the ſame; or diſallow it, upon cauſe ſhown by any of the creditors of the bankrupt.

If no cauſe be ſhown to the contrary, the certificate is allowed of courſe; and then the bankrupt is intitled to a decent and reaſonable allowance out of his effects, for his future ſupport and maintenance, and to put him in a way of honeſt induſtry. This allowance is alſo in proportion to his former good behaviour, in the early diſcovery of the decline of his affairs, and thereby giving his creditors a larger dividend. For if his effects will not pay one half of his debts, or 10s. in the pound, he is left to the diſcretion of the commiſſioners and aſſignees, to have a competent ſum allowed him, not exceeding *3 per cent.*; but if they pay 10s. in the pound, he is to be allowed *5 per cent.*; if 12s. and 6d. then *7½ per cent.*; and if 15s. in the pound, then the bankrupt ſhall be allowed 10 *per cent.*; provided that ſuch allowance do not in the firſt caſe exceed L. 200, in the ſecond L. 250, and in the third L. 300.

Beſides this allowance, he has alſo an indemnity granted him, of being free and diſcharged for ever from all debts owing by him at the time he became a bankrupt; even though judgment ſhall have been obtained againſt him, and he lies in priſon upon execution for ſuch debts; and, for that among other purpoſes, all proceedings on commiſſion of bankrupt, are, on petition, to be entered on record, as a perpetual bar againſt actions to be commenced upon this account: though, in general, the production of the certificate properly allowed ſhall be ſufficient evidence of all previous proceedings. Thus the bankrupt becomes a clear man again; and, by the aſſiſtance of his allowance and his own induſtry, may become a uſeful member of the commonwealth: which is the rather to be expected, as he cannot be intitled to theſe benefits, but by the teſtimony of his creditors themſelves of his honeſt and ingenuous diſpoſition; and unleſs his failures have been owing to misfortunes, rather than to miſconduct and extravagance.

2. As to the proceedings which affect the bankrupt's property.

By virtue of the ſtatutes before mentioned, all the perſonal eſtate and effects of the bankrupt are conſidered as veſted, by the act of bankruptcy, in the future aſſignees of his commiſſioners, whether they be goods in actual poſſeſſion, or debts, contracts, and other choſes in action; and the commiſſioners by their warrant may cauſe any houſe or tenement of the bankrupt to be broken open, in order to enter upon and ſeize the ſame. And when the aſſignees are choſen or approved by the creditors, the commiſſioners are to aſſign every thing over to them; and the property of every part of the eſtate is thereby as fully veſted in them as it was in the bankrupt himſelf, and they have the ſame remedies to recover it.

The property veſted in the aſſignees is the whole that the bankrupt had in himſelf, at the time he committed the firſt act of bankruptcy, or that has been veſted in him ſince, before his debts are ſatisfied or agreed for. Therefore it is uſually ſaid, that once a bankrupt, and always a bankrupt: by which is meant, that a plain direct act of bankruptcy once committed, cannot be purged, or explained away, by any ſubſequent conduct, as a dubious equivocal act may be; but that, if a commiſſion is afterwards awarded, the commiſſion and the property of the aſſignees ſhall have a relation, or reference, back to the firſt and original act of bankruptcy. In ſo much that all tranſactions of the bankrupt are from that time abſolutely null and void, either with regard to the alienation of his property or the receipt of his debts from ſuch as are privy to his bankruptcy; for they are no longer his property, or his debts, but thoſe of the future aſſignees. And if an execution be ſued out, but not ſerved and executed on the bankrupt's effects till after the act of bankruptcy, it is void, as againſt the aſſignees. But the king is not bound by this fictitious relation, nor is within the ſtatutes of bankrupts; for if, after the act of bankruptcy committed, and before the aſſignment of his effects, and extent iſſues for the debt of the crown, the goods are bound thereby. In France this doctrine of relation is carried to a very great length; for there, every act of a merchant, for 10 days precedent to the act of bankruptcy, is preſumed to be fraudulent, and is therefore void. But in England the law ſtands upon a more reaſonable footing: for as theſe acts of bankruptcy may ſometimes be ſecret to all but a few, and it would be prejudicial to trade to carry this notion to its utmoſt length, it is provided by ſtat. 19 Geo. II. c. 32. that no money paid by a bankrupt to a *bona fide*, or real creditor, in a courſe of trade, even after an act of bankruptcy done, ſhall be liable to be refunded. Nor by ſtat. 1 Jac. I. c. 15. ſhall any debtor of a bankrupt that pays him his debt without knowing of his bankruptcy, be liable to account for it again. The intention of this relative power being only to reach fraudulent tranſactions, and not to diſtreſs the fair trader.

The aſſignees may purſue any legal method of recovering this property ſo veſted in them, by their own authority; but cannot commence a ſuit in equity, nor compound any debts owing to the bankrupt, nor refer any matters to arbitration, without the conſent of the creditors, or the major part of them in value, at a meeting to be held in purſuance of notice in the gazette.

When they have got in all the effects they can reaſonably hope for, and reduced them to ready money, the aſſignees muſt, within 12 months after the commiſſion iſſued, give 21 days notice to the creditors of a meeting for a dividend or diſtribution; at which time they muſt produce their accounts, and verify them upon oath, if required. And then the commiſſioners ſhall direct a dividend to be made, at ſo much in the pound, to all creditors who have before proved or ſhall then prove, their debts. This dividend muſt be made equally, and in a rateable proportion, to all the creditors, according to the quantity of their debts; no regard being had to the quality of them. Mortgages, indeed, for which the creditor has a real ſecurity in his own hands, are entirely ſafe; for the commiſſion of bankrupt reaches only the equity of redemption. So are alſo perſonal debts, where the creditor has a chattel in his hands, or a pledge or pawn, for the payment, or has taken the debtors lands or goods in execution. And, upon the equity of the ſtat. 8 An. c. 14 (which directs, that upon all executions of goods being on any premiſſes demiſed to a tenant one year's rent and no more ſhall, if due, be paid to the landlord) it hath alſo been held, that under a commiſſion of bankrupt, which is in the nature of a ſtatute execution, the landlord ſhall be allowed his arrears of rent to the ſame amount, in preference to other creditors, even though he hath neglected to diſtrein while the goods remained on the premiſſes; which he is otherwiſe intitled to do for his entire rent, be the quantum what it may. But otherwiſe judgments and recognizances (both which are debts of record, and therefore at other times have a priority), and alſo bonds and obligations by deed or ſpecial inſtrument (which are called debts by ſpecialty, and are uſually the next in order), theſe are all put on a level with debts by mere ſimple contract, and all paid *pari paſſu*. Nay, ſo far is this matter carried, that, by the expreſs proviſion of the ſtatutes, debts not due at the time of the dividend made, as bonds or notes of hand, payable at a future day, ſhall be paid equally with the reſt, allowing a diſcount or drawback in proportion. And inſurances and obligations upon bottomry or reſpondentia, *bona fide*, made by the bankrupt, though forfeited after the commiſſion is awarded, ſhall be looked upon in the ſame light as debts contracted before any act of bankruptcy.

Within 18 months after the commiſſion iſſued, a ſecond and final dividend ſhall be made, unleſs all the effects were exhauſted by the firſt. And if any ſurplus remains after paying the creditor his full debt, it ſhall be reſtored to the bankrupt. This is a caſe which ſometimes happens to men in trade, who involuntarily, or at leaſt unwarily, commit acts of bankruptcy, by abſconding and the like, while their effects are more than ſufficient to pay their creditors. And if any ſupicious or malevolent creditor will take the advantage of ſuch acts, and ſue out a commiſſion, the bankrupt has no remedy, but muſt quietly ſubmit to the effects of his own imprudence: except that, upon ſatisfaction made to all the creditors, the commiſſion may be ſuperſeded. This caſe may alſo happen when a knave is deſirous of defrauding his creditors, and is compelled, by a commiſſion, to do them that juſtice which otherwiſe he wanted to evade. And therefore, though the uſual rule is, that all intereſt on debts carrying intereſt ſhall ceaſe from the time of iſſuing the commiſſion, yet in caſe of a ſurplus left after payment of every debt, ſuch intereſt ſhall again revive, and be chargeable on the bankrupt or his repreſentatives.

COMMISSION of Lunacy, iſſues out of the court of chancery, whether a perſon repreſented to be a lunatic, be ſo or not. See LUNACY.

COMMISSION of Teinds, a court in Edinburgh, which came in place of a committee of the Scottiſh parliament, for erecting new pariſhes and valuing teinds for the ſupport of the clergy. It is veſted in the Lords of ſeſſion. See Law, n° clix. 11.

COMMISSION Officers. See OFFICERS.

COMMISSION, in commerce. See FACTORAGE.

COMMISSIONER, a perſon authoriſed by commiſſion, letters patent, or other lawful warrant to examine any matters, or execute any lawful commiſſion.

COMMISSIONER in the General Aſſembly of the church of Scotland. See ASSEMBLY *(General)*.

COMMISSIONERS of the Cuſtoms. See CUSTOMS.

COMMISSIONERS of Exciſe. See EXCISE.

COMMISSIONERS of the Navy. See NAVY.

Lords COMMISSIONERS of the Treaſury. See TREASURY and EXCHEQUER.

COMMISSURE, a term uſed by ſome authors, for the ſmall meatuſes or interſtices of bodies; or the little clefts between the particles; eſpecially when thoſe particles are broadiſh and flat, and lie contiguous to one another, like thin plates or lamellæ. The word literally ſignifies *a joining*, or connecting of one thing to another.

COMMISSURE, in architecture, &c. denotes the joint of two ſtones, or the application of the ſurface of the one to that of the other. See MASONRY.

Among anatomiſts, commiſſure is ſometimes alſo uſed for a ſuture of the cranium or ſkull.

COMMITMENT, in criminal law, is the ſending to priſon a perſon who has been guilty of any crime. This takes place where the offence is not bailable, or the party cannot find BAIL; muſt be by proper warrant, containing the cauſe of the commitment; and continues till put an end to by the courſe of law (ſee TRIAL); impriſonment being intended only for ſafe cuſtody, and not for puniſhment (See ARRESTMENT and BAIL). In this dubious interval between the commitment and trial, a priſoner ought to be uſed with the utmoſt humanity; and neither be loaded with needleſs fetters or ſubjected to other hardſhips than ſuch as are abſolutely requiſite for the purpoſe of confinement only: though what are ſo requiſite muſt too often be left to the diſcretion of the gaolers; who are frequently a mercileſs race of men, and, by being converſant in ſcenes of miſery, ſteeled againſt any tender ſenſation.

COMMITTEE, one or more perſons to whom the conſideration or ordering of a matter is referred, either by ſome court, or by the conſent of parties to whom it belongs.

COMMITTEE of Parliament, a certain number of members appointed by the houſe for the examination of a bill, making a report of an inquiry, proceſs of the houſe, &c. See PARLIAMENT.

Sometimes the whole houſe is reſolved into a committee; on which occaſion each perſon has a right to ſpeak and reply as much and as often as he pleaſes; an expedient they uſually have recourſe to in extraordinary caſes, and where any thing is to be thoroughly canvaſſed. When the houſe is not in a committee, each gives his opinion regularly, and is only allowed to ſpeak once, unleſs to explain himſelf.

The ſtanding committees, appointed by every new parliament, are thoſe of privileges and elections, of religion, of grievances, of courts of juſtice, and of trade, though only the former act.

COMMIXTION, in Scots law, is a method of acquiring property, by mixing or blending together different ſubſtances belonging to different proprietors. See LAW, Part III. N° clxii. 8.

COMMODATE, COMMODATUM, in the civil juriſprudence, the loan or free conceſſion of any thing moveable or immoveable, for a certain time, on condition of reſtoring again the ſame individual after a certain term. The commodate is a kind of loan; there is this difference, however, between a loan and a commodate, that the latter is gratis, and does not transfer the property: the thing muſt be returned in eſſence, and without impairment: ſo that things which conſume by uſe or time cannot be objects of a commodate, but of a loan; in regard they may be returned in kind, though not in identity. See LAW, Part III. N° clxxiii. 8.

COMMODIANUS (Gazæus), a Chriſtian author in the 4th century, who wrote a work in Latin verſe, intitled Inſtructions; the moral of which is excellent, but the verſe extremely heavy. M. Davies publiſhed a fine edition of it in 1711, at the end of Minucius Felix.

COMMODITY, in a general ſenſe, denotes all ſorts of wares and merchandizes whatſoever that a perſon deals or trades in.

Staple COMMODITIES, ſuch wares and merchandizes as are commonly and readily ſold in a market or exported abroad; being for the moſt part the proper produce or manufacture of the country.

COMMODORE, a general officer in the Britiſh marine, inveſted with the command of a detachment of ſhips of war deſtined on any particular enterpriſe, during which time he bears the rank of brigadier-general in the army, and is diſtinguiſhed from the inferior ſhips of his ſquadron by a broad red pendant tapering towards the outer end, and ſometimes forked. The word is corrupted from the Spaniſh, *comendador*.

COMMODORE is alſo a name given to ſome ſelect ſhip in a fleet of merchantmen, who leads the van in time of war, and carries a light in his top to conduct the reſt, and keep them together. He is always the oldeſt captain in the fleet he commands.

COMMODUS (L. Aurelius Antoninus), ſon of M. Antoninus, ſucceeded his father in the Roman empire. He was naturally cruel and fond of indulging his licentious propenſities. He wiſhed to be called Herculus; and, like that hero, he adorned his ſhoulders with a lion's ſkin, and armed his hand with a knotted club. He publicly fought with the gladiators, and boaſted of his dexterity in killing the wild beaſts in the amphitheatre. He required divine honours from the ſenate, and they were granted. He was wont to put ſuch an immenſe quantity of gold duſt in his hair, that when he appeared bare-headed in the ſunſhine, his head glittered as if ſurrounded with ſun-beams. Martia, one of his concubines, whoſe death he had prepared, poiſoned him; but as the poiſon did not quickly operate, he was ſtrangled by a wreſtler. He died in the 31ſt year of his age, and the 13th of his reign. It has been obſerved, that he never truſted himſelf to a barber; but always burnt his beard, in imitation of the tyrant Dionyſius. A. D. 192.

COMMON, COMMUNIS, ſomething that belongs to all alike; is owned or allowed by all; and not confined to this more than that. In which ſenſe, *common* ſtands oppoſed to *proper*, *peculiar*, &c. Thus, the earth is ſaid to be our *common* mother; in the firſt or golden age all things were in *common*, as well as the ſun and elements: the name animal is *common* to man and beaſt; that of ſubſtance to body and ſpirit.

COMMON, *Communia*, (i. e. *quod ad omnes pertinet*), in law ſignifies that ſoil, the uſe whereof is common to a particular town or lordſhip; or it is a profit that a man hath in the land of another perſon, uſually in common with others; or a right which a perſon hath to put his cattle to paſture into ground that is not his own. And there is not only common of paſture, but alſo common of piſcary, common of eſtovers, common of turbary, &c. And in all caſes of common, the law doth much reſpect the cuſtom of the place; for there the rule is, *conſuetudo loci eſt obſervanda*. See COMMONTY.

COMMON Council. See COUNCIL.

COMMON Law, that body of law received as rules in Great Britain, before any ſtatute was enacted in parliament to alter the ſame. See LAW, Part II. n° 36.

COMMON-PLACE Book, is a regiſter of what things occur, worthy to be noted, in the courſe of a man's thinking or ſtudy, ſo diſpoſed as that among a number of ſubjects any one may be eaſily found. The advantages of making a common-place book are many: it not only makes a man read with accuracy and attention, but induces him inſenſibly to think for himſelf, provided he conſiders it not ſo much as a regiſter of ſentiments that ſtrike him in the courſe of reading, but as a regiſter of his own thoughts upon various ſubjects. Many valuable thoughts occur even to men of no extraordinary genius. Theſe, without the aſſiſtance of a common-place book, are generally loſt both to himſelf and others. There are various methods of arranging common-place books; that of Mr Locke is as good as any that have hitherto been contrived.

The firſt page of the book you intend to take down their common-place in, is to ſerve as a kind of index to the whole, and to contain references to every place or matter therein: in the commodious contrivance of which index, ſo as it may admit of a ſufficient copia or variety of materials, without any confuſion, all the ſecret of the method conſiſts.

In order to this, the firſt page, as already mentioned, or, for more room, the two firſt pages that front each other, are to be divided, by parallel lines, into 25 equal parts; whereof every fifth line is to be diſtinguiſhed by its colour or other circumſtance. Theſe lines are to be cut perpendicularly by others, drawn from top to bottom; and in the ſeveral ſpaces thereof, the ſeveral letters of the alphabet, both capital and minuſcle, are to be duly wrote.

The form of the lines and diviſions, both horizontal and perpendicular, with the manner of writing the letters therein, will be conceived from the following ſpecimen; wherein, what is to be done in the book for all the letters of the alphabet, is here ſhown in the firſt four, *A*, *B*, *C*, and *D*.

A	*a*		*C*	*a*	
	e			*e*	
	i			*i*	
	o			*o*	
	u			*u*	
B	*a*		*D*	*a*	
	e	2, 3.		*e*	
	i			*i*	
	o			*o*	
	u			*u*	

The index of the common-place book thus formed, matters are ready for the taking down any thing therein.

In order to this, conſider to what head the thing you would enter is moſt naturally referred; and under which one would be led to look for ſuch a thing: in this head, or word, regard is had to the initial letter, and the firſt vowel that follows it; which are the characteriſtic letters whereon all the uſe of the index depends.

Suppoſe *(e. gr.)* I would enter down a paſſage that refers to the head *beauty*. *B*, I conſider, is the initial letter, and *e* the firſt vowel: then, looking upon the index for the partition *B*, and therein the line *e* (which is the place for all words whoſe firſt letter is *b*, and firſt vowel *e*; as *beauty*, *beneficence*, *bread*, *breeding*, *blemiſhes*), and finding no numbers already down to direct me to any page of the book where words of this characteriſtic have been entered, I turn forward to the firſt blank page I find (which, in a freſh book, as this is ſuppoſed to be, will be page 2d), and here write what I have occaſion for on the head *beauty*; beginning the head in the margin, and indenting all the other ſubſervient lines, that the head may ſtand out and ſhow itſelf: this done, I enter the page where it is wrote, *viz.* 2, in the index in the ſpace *B e*; from which time, the claſs *b e* becomes wholly in poſſeſſion of the 2d and 3d pages, which are conſigned to letters of this characteriſtic.

Had I found any page or number already entered in the ſpace *B e*, I muſt have turned to the page, and have wrote my matter in what room was left therein: ſo, if after entering the paſſage on beauty, I ſhould have occaſion for *benevolence*, or the like, finding the number 2 already poſſeſſed of the ſpace of this characteriſtic, I begin the paſſage on benevolence in the remainder of the page, which not containing the whole, I carry it on to page 3d, which is alſo for *b e*; and add the number 3 in the index.

Common Pleas, in England, is one of the king's courts now held conſtantly in Weſtminſter-hall, but in former times was moveable.

All civil cauſes, as well real as perſonal, are, or were formerly, tried in this court, according to the ſtrict law of the land. In perſonal and mixed actions it has a concurrent juriſdiction with the king's bench, but has no cognizance of pleas of the crown. The actions belonging to the court of common pleas come thither by original, as arreſts and outlawries; or by privilege, or attachment for or againſt privileged perſons; or out of inferior courts, not of record, by *pone*, *recordari*, *accedas ad curiam*, writ of falſe judgment, &c. The chief judge of this court is called *lord chief juſtice of the common pleas*, who is aſſiſted by three other judges. The other officers of the court are the *cuſtos brevium*, who is the chief clerk; three prothonotaries, and their ſecondaries; the clerk of the warrants, clerk of the eſſoins, 14 filazers, 4 exigentors, a clerk of the juries, the chirographer, the clerk of the king's ſilver, clerk of the treaſury, clerk of the ſeal, clerk of the outlawries, clerk of the inrolment of fines and recoveries, and clerk of the errors.

Common-Prayer is the liturgy in the church of England: (See Liturgy.) Clergymen are to uſe the public form of prayers preſcribed by the Book of Common Prayer: and refuſing to do ſo, or uſing any other public prayers, are puniſhable by ſtat. 1 Eliz. c. ii.

Common, in grammar, denotes the gender of nouns which are equally applicable to both ſexes: thus, *parens*, "a parent," is of the common gender.

Common, in geometry, is applied to an angle, line, or the like, which belongs equally to two figures.

Common Diviſor, a quantity or number which exactly divides two or more other quantities or numbers, without leaving any remainder.

COMMONALTY, the lower of the two diviſions of the civil ſtate. See *Civil State*.

The commonalty, in Britain, like the nobility, are divided into ſeveral degrees: and as the lords, though different in rank, yet all of them are peers in reſpect of their nobility; ſo the commoners, though ſome are greatly ſuperior to others, yet all are in law commonalty, in reſpect of their want of nobility.

1. The firſt name of dignity next beneath a peer was anciently that of *vidames*, *vice-domini*, or *valvaſors*: who are mentioned by ancient lawyers as *viri magnæ dignitatis*; and Sir Edward Coke ſpeaks highly of them. Yet they are now quite out of uſe; and our legal antiquarians are not agreed upon even their original or ancient office.

2. Now, therefore, the firſt perſonal dignity after the nobility is a knight of the order of St George, or of the garter, firſt inſtituted by Edw. III. A. D. 1344.

3. Next (but not till after certain official dignities, as privy-counſellors, the chancellors of the exchequer and duchy of Lancaſter, the chief juſtice of the king's bench, the maſter of the rolls, and the other Engliſh judges), follows a *knight banneret*; who indeed, by ſtatutes 5 Richard II. ſtat. 2. c. 4. and 14 Richard II. c. 11. is ranked next after barons; and his precedence before the younger ſons of viſcounts was confirmed to him by order of King James I. in the tenth year of his reign. But in order to intitle him to this rank, he muſt have been created by the king in perſon, in the

field, under the royal banners, in time of open war ; elſe he ranks after.

4. *Baronets* ; who are the next in order ; which title is a dignity of inheritance, created by letters patent, and uſually deſcendible to the iſſue-male. See BARONETS.

5. Next follow *knights of the Bath*. See BATH.

6. The laſt of theſe inferior nobility are *knights bachelors* ; the moſt ancient, though the loweſt, order of knighthood in Britain. See BACHELOR.

7. The above, with thoſe enumerated under the article NOBILITY, Sir Edward Coke ſays, are all the names of *dignity* in Britain ; *eſquires* and *gentlemen* being only names of *worſhip*. But before theſe laſt the heralds rank all colonels, ſerjeants at law, and doctors in the three learned profeſſions.

8. *Eſquires* and *gentlemen* are confounded together by Sir Edward Coke ; who obſerves, that every eſquire is a gentleman, and a gentleman is defined to be one *qui arma gerit*, “who bears coat-armour ;” the grant of which adds gentility to a man's family : in like manner as civil nobility among the Romans was founded in the *jus imaginum*, or having the image of one anceſtor at leaſt who had borne ſome curule office. It is indeed a matter ſomewhat unſettled what conſtitutes the diſtinction, or who is a real eſquire ; for it is not an eſtate, however large, that confers this rank upon its owner. Camedan, who was himſelf a herald, diſtinguiſhes them the moſt accurately ; and he reckons up four ſorts of them : 1ſt. The eldeſt ſons of knights, and their eldeſt ſons, in perpetual ſucceſſion. 2dly, The eldeſt ſons of younger ſons of peers, and their eldeſt ſons, in like perpetual ſucceſſion : both, which ſpecies of eſquires Sir Henry Spelman intitles *armigeri natalitii*. 3dly, Eſquires created by the king's letters patent, or other inveſtiture ; and their eldeſt ſons. 4thly, Eſquires by virtue of their office ; as juſtices of the peace and others who bear any office of truſt under the crown. To theſe may be added the eſquires of the knights of the bath, each of whom conſtitutes three at his inſtallation ; and all foreign, nay, Iriſh peers ; for not only theſe, but the eldeſt ſons of peers of Great Britain, though frequently titular lords, are only eſquires in the law, and muſt be ſo named in all legal proceedings.

9. As for *gentlemen*, ſays Sir Thomas Smith, they be made good cheap in this kingdom : for whoſoever ſtudieth the laws of the realm, who ſtudieth in the univerſities, who profeſſeth literal ſciences, and (to be ſhort) who can live idly and without manual labour, and will bear the part, charge, and countenance of a gentleman, he ſhall be called maſter, and ſhall be taken for a gentleman.

10. A *yeoman* is he that hath free land of 40s. by the year ; who is thereby qualified to ſerve on juries, vote for knights of the ſhire, and do any other act where the law requires one that is *probus et legalis homo*.

11. The reſt of the comonalty are *tradeſmen*, *artificers*, and *labourers* ; who (as well as all others) muſt, in purſuance of the ſtatue 1 Henry V. c. 5. be ſtyled by the name and addition of their eſtate, degree, or myſtery, in all actions and other legal proceedings.

COMMONER, or GENTLEMAN-COMMONER, in the univerſities, a ſtudent entered in a certain rank.

COMMONS, or HOUSE of COMMONS, a denomination given to the Britiſh lower houſe of parlaiment. See PARLIAMENT.

The commons conſiſt of all ſuch men of any property in the kingdom as have not ſeats in the houſe of lords, every one of whom has a voice in parliament, either perſonally or by his repreſentatives. In a free ſtate, every man, who is ſuppoſed a free agent, ought to be in ſome meaſure his own governor ; and therefore a branch at leaſt of the legiſlative power ſhould reſide in the whole body of the people. And this power, when the territories of the ſtate are ſmall, and its citizens eaſily known, ſhould be exerciſed by the people in their aggregate or collective capacity, as was wiſely ordained in the petty republics of Greece, and the firſt rudiments of the Roman ſtate. But this will be highly inconvenient when the public territory is extended to any conſiderable degree, and the number of citizens is increaſed. Thus when, after the ſocial war, all the burghers of Italy were admitted free citizens of Rome, and each had a vote in the public aſſemblies, it became impoſſible to diſtinguiſh the ſpurious from the real voter, and from that time all elections and popular deliberations grew tumultuous and diſorderly ; which paved the way for Marius and Sylla, Pompey and Cæſar, to trample on the liberties of their country, and at laſt to diſſolve the commonwealth. In ſo large a ſtate as Britain, therefore, it is very wiſely contrived, that the people ſhould do that by their repreſentatives which it is impracticable to perform in perſon ; repreſentatives choſen by a number of minute and ſeparate diſtricts, wherein all the votes are or may be eaſily diſtinguiſhed. The counties are therefore repreſented by knights, elected by the proprietors of lands ; the cities and boroughs are repreſented by citizens and burgeſſes, choſen by the mercantile or ſuppoſed trading intereſt of the nation ; much in the ſame manner as the burghers in the diet of Sweden are choſen by the corporate towns, Stockholm ſending four, as London does, other cities two, and ſome only one. The number of Engliſh repreſentives is 513, of Scots 45 ; in all 558 ; and every member, though choſen by one particular diſtrict, when elected and returned, ſerves for the whole realm : for the end of his coming thither is not particular but general ; not barely to advantage his conſtituents, but the commonwealth ; to adviſe his majeſty, as appears from the writ of ſummons, “de communi conſilio ſuper negotiis quibuſdam arduis et urgentibus, regem, ſtatum, et defenſionem regni Angliæ et eccleſiæ Anglicanæ concernentibus.” And therefore he is not bound, like a deputy in the United Provinces, to conſult with, or take the advice of, his conſtituent upon any particular point, unleſs he himſelf thinks it proper or prudent ſo to do.

The peculiar laws and cuſtoms of the houſe of commons relate principally to the raiſing of taxes, and the elections of members to ſerve in parliament. See TAXES and ELECTIONS

Doctors COMMONS. See COLLEGE *of Civilians*.

Proctor of the COMMONS. See PROCTOR.

COMMONTY, in Scots law, ſometimes ſignifies lands belonging to two or more common proprietors ; ſometimes a heath or muir though it ſhould belong in property to one, if there has been a promiſcuous poſſeſſion upon it by paſturage: and the act 1695, mentions commonties belonging in property to the king and to royal boroughs. See Law, Part III. N° clxxv. 16.

COMMONWEALTH. See Republic.

COMMOTE, an ancient term in Wales, denoting half a cantred, or hundred; containing 50 villages. See Hundred. Wales was anciently divided into three provinces; each of theſe ſubdivided into cantreds, and every cantred into two commotes or hundreds. Silveſter Girald, however, tells us in his itinerary, that a commote is but a quarter of a hundred.

COMMUNES, in botany, the name of a claſs in Linnæus's *methodus Calycina*, conſiſting of two plants, which, like teazel and dandelion, have a calyx or flower-cup common to many flowers or florets. Theſe are the aggregate or compound flowers of other ſyſtems.

COMMUNIBUS locis, a Latin term, in frequent uſe among philoſophical, &c. writers; implying ſome medium, or mean relation, between ſeveral places. Dr Keil ſuppoſes the ocean to be one quarter of a mile deep, *communibus locis, q. d.* at a medium, or taking one place with another.

Communibus Annis, has the ſame import with regard to years, that *communibus locis* has with regard to places. Mr Derham obſerves that the depth of rain, *communibus annis*, or one year with another, were it to ſtagnate on the earth, would amount in Townly in Lancaſhire, to $42\frac{1}{2}$ inches; at Upminſter in Eſſex, to $19\frac{1}{4}$; at Zurich, $32\frac{1}{4}$; at Piſa. $43\frac{1}{4}$; and at Paris to 19 inches.

COMMUNICATING, in theology, the act of receiving the ſacrament of the euchariſt. Thoſe of the reformed, and of the Greek church, communicate under both kinds; thoſe of the Romiſh, under only one. The oriental communicants receive the ſpecies of wine by a ſpoon, and anciently they ſucked it through a pipe, as has been obſerved by Beat. Rheanus on Tertullian.

COMMUNICATION, in a general ſenſe, the act of imparting ſomething to another.

Communication is alſo uſed for the connection of one thing with another, or the paſſage from one place to another: thus a gallery is a communication between two apartments.

Communication of motion, the act whereby a body at reſt is put into motion by a moving body; or, it is the acceleration of motion in a body already moving.

Lines of Communication, in military matters, trenches made to continue and preſerve a ſafe correſpondence between two forts or poſts; or at a ſiege, between two approaches, that they may relieve one another.

Canal of Communication. See Canal.

COMMUNION, in matters of religion, the being united in doctrine and diſcipline; in which ſenſe of the word, different churches are ſaid to hold communion with each other.

In the primitive Chriſtian church, every biſhop was obliged, after his ordination, to ſend circular letters to foreign churches, to ſignify that he was in communion with them. The three grand communions into which the Chriſtian church is at preſent divided, is that of the church of Rome, the Greek church, and the Proteſtant church; but originally all Chriſtians were in communion with each other, having one common faith and diſcipline.

Communion is alſo uſed for the act of communicating the ſacrament of the euchariſt, or the Lord's ſupper.

The fourth council of Lateran decrees, that every believer ſhall receive the communion, at leaſt, at Eaſter; which ſeems to import a tacit deſire, that they ſhould do it oftener; as, in effect, they did it much oftener in the primitive days. Gratian, and the maſter of the ſentences, preſcribe it as a rule for the laity, to communicate three times a-year, at Eaſter, Whitſuntide, and Chriſtmas. But in the 13th century, the practice was got on foot, never to approach the euchariſt except at Eaſter; and the council thought fit to enjoin it then by a law, leſt their coldneſs and remiſſneſs ſhould go farther ſtill. And the council of Trent renewed the ſame injunction, and recommended frequent communion without enforcing it by an expreſs decree.

In the ninth century, the communion was ſtill received by the laity in both kinds; or, rather, the ſpecies of bread was dipped in the wine, as is owned by the Romaniſts themſelves. (Acta SS. Benedict. Sæc. III.) M. de Marca obſerves, that they received it at firſt in their hands, Hiſt. de Bearn. and believes the communion under one kind alone to have had its riſe in the Weſt under pope Urban II. in 1096, at the time of the conqueſt of the Holy Land. And it was more ſolemnly enjoined by the council of Conſtance in 1414. The twenty-eighth canon of the council of Clermont enjoins the communion to be received under both kinds, diſtinctly; adding, however, two exceptions; the one of neceſſity, the other of caution, *niſi per neceſſitatem & cautelam*; the firſt in favour of the ſick, the ſecond of the abſtemious, or thoſe who had an averſion for wine.

It was formerly a kind of canonical puniſhment, for clerks guilty of any crime, to be reduced to *lay communion*, i. e. only to receive it as the laity did, viz. under one kind.

They had another puniſhment of the ſame nature, though under a different name, called *foreign communion*; to which the canons frequently condemned their biſhops and other clerks. This puniſhment was not any excommunication, or depoſition; but a kind of ſuſpenſion from the function of the order, and a degradation from the rank they held in the church. It had its name becauſe the communion was only granted to the criminal on the foot of a foreign clerk, i. e. being reduced to the loweſt of his order, he took place after all thoſe of his rank, as all clerks, &c. did in the churches to which they did not belong. The ſecond council of Agda orders every clerk that abſents himſelf from the church to be reduced to foreign communion.

Communion Service, in the liturgy of the church of England, the office for the adminiſtration of the holy ſacrament, extracted from ſeveral ancient liturgies, as thoſe of St Baſil, St Ambroſe, &c.

By the laſt rubric, part of this ſervice is appointed to be read every Sunday and holyday, after the morning prayer, even though there be no communicants.

COMMUNITY, denotes a ſociety of men living in the ſame place, under the ſame laws, the ſame regulations, and the ſame cuſtoms.

COMMUTATION, in law, the change of a penalty or puniſhment from a greater to a leſs; as when death is commuted for baniſhment, &c.

COMNENA (Ann), daughter of Alexus Comnenus emperor of the Eaſt; memorable for her great learning and virtue, and for her Hiſtory of the life and actions of her father, which is highly eſteemed. She flouriſhed about the year 1117. The hiſtory, which is in 15 books, was firſt publiſhed very imperfectly by Heſchelius in 1610; and afterwards printed in the collection of the Byzantine hiſtorians, with a diffuſe and incorrect Latin verſion by the Jeſuit Poſſinus, but with excellent notes by the learned Du Freſne.

COMO, a ſtrong and populous town of Italy, in the duchy of Milan, and in the Comaſco, with a biſhop's ſee. It was taken by the Imperialiſts in 1706, and is ſeated on a lake of the ſame name in E. Long. 8. 57. N. Lat. 45. 45.

Como, the lake ſo called, is the largeſt in Italy. It is ſituated in the duchy of Milan in the Comaſco, on the confines of Swiſſerland and the Griſons. It is 88 miles in circumference, yet is not above 6 miles over in any part.

COMORA iſlands, lie between the north end of the iſland of Madagaſcar and the coaſt of Zanguebar, from 10 to 15 degrees ſouth latitude. Authors differ greatly with regard to their number, ſome ſpeaking of three, others of five, and ſome of eight of theſe iſlands. They all abound in horned cattle, ſheep, hogs, and a variety of fruits common in warm countries. They are ſaid alſo to produce a kind of rice which turns of a violet colour when boiled. The moſt remarkable of them, and which the Europeans are beſt acquainted with, is the iſland of Johanna. See that article.

COMORIN, or Cape Comorin, the moſt ſoutherly promontory of the Hither India, lying north-weſt of the iſland of Ceylon.

COMORRA, a handſome and large town of Lower Hungary, and capital of a territory of the ſame name. It is ſo well fortified, that the Turks could never take it. The greateſt part of the inhabitants are Hungarians or Ruſſians, who are very rich, and are of the Greek religion. It is ſeated on the river Danube, in the iſland of Sihut. E. Long. 18. 25. N. Lat. 47. 50.

COMOSÆ, in botany, from *Como*. An order of plants in the former editions of Linnæus's Fragments of a Natural Method, conſiſting of the ſpiked willow or ſpiræa frutex, dropwort, and greater meadowſweet. Theſe, though formerly diſtinct genera, are by Linnæus collected into one, under the name of *ſpiræa*. The flowers growing in a head, reſemble a buſh, or tuft of hair, which probably gave riſe to the epithet *Comoſæ*.

COMPACT, in philoſophy, is ſaid of bodies which are of a cloſe, denſe, and heavy texture, with few pores, and thoſe very ſmall.

Compact, in a legal ſenſe, ſignifies an agreement, or contract ſtipulated between ſeveral parties.

COMPANION, one with whom a man frequently converſes.

As the human mind cannot always be on the ſtretch, nor the hands always employed in labour, recreation becomes both agreeable and neceſſary. Of all recreations, that of the company of a few choſen companions muſt be allowed to be the moſt manly and moſt improving: but as in thoſe hours of recreation we are moſt in danger of being miſled, being generally at ſuch ſeaſons more off our guard than uſual, the greateſt care ſhould be taken in making choice of which to aſſociate with; for according to our choice of them, both our character and diſpoſition will receive a tincture, as waters paſſing through minerals partake of their taſte and efficacy. This is a truth ſo univerſally received, that it is become a proverb both in the natural and moral world, That a man is known by his company. As by chemiſtry we learn, that diſcordant mixtures produce nothing but broil and fermentation till one of them gets the aſcendency of the reſt; ſo from ſcripture we learn, that two cannot walk together except they be agreed. From which we may ſee, how impoſſible it is for any one to be thought a perſon of real goodneſs and integrity, whilſt he chooſeth for his companions the abandoned and licentious.

By herding with ſuch, he will not only loſe his character, but his virtue; for whatever fallacious diſtinction he may be pleaſed to make between the men and their vices, in the end the firſt generally qualifies the laſt; and by ceaſing to hate them he will ſoon learn both to love and practiſe them. In ſhort, the ſociety of ſenſual men is peculiarly enſnaring. The malignity of their contagion doth not appear all at once. Their frolics firſt appear harmleſs; then, when partaken of, they leave a longing reliſh behind them; and one appointment makes way for another, one expence leads on to a ſecond; and ſo time and fortune are waſted away to very bad purpoſe. Then one appetite craves, and another muſt be gratified, till all become too importunate to be denied; which verifies what the wiſeſt of men long ſince ſaid, "That the beginning of ſin is like the breaking forth of waters, which when it once maketh an entrance, carrieth all before it with ruſhing impetuoſity." Some pangs of remorſe may be felt by the infatuated creature on his firſt degeneracy, and ſome faint reſolutions againſt being ſeduced any more; which will no ſooner be diſcovered by thoſe leaders to deſtruction, but all arts will be uſed to allure him back to bear them company in the broad beaten path to ruin. Of all which methods, none is more to be dreaded than raillery; for this is generally exerciſed with all its force, and too often proves fatal. Another method uſed to miſlead the young novice not yet hackneyed in vice, and no leſs dangerous than the other, is to call evil good, and good evil. Luſt and ſenſuality muſt paſs for love and gallantry; revenge and malice, for heroiſm. But ſteadineſs ſhould be ſhown, by holding ſuch peſts of ſociety in deriſion, and looking on them with contempt; by appearing unmoved by their ill founded banters, and unſtung by their impious jeſts.

Upon the whole, in order to eſcape the danger which attends the keeping of evil company, let thoſe you aſſociate with be perſons as carefully educated and as honeſtly diſpoſed as yourſelf; of a good moral character, not given to any known vice; whoſe lives are temperate, and whoſe expences are moderate: with ſuch company as theſe, you will neither get diſcredit, nor degenerate into exceſs. You will be a mutual check to each other; and your reputation will be ſo eſtabliſhed, that it will be the ambition of others to be admitted members of your ſociety. Select thoſe for your companions who are men of good ſenſe and underſtanding; and, if poſſible, who excel in ſome art, ſcience, or accompliſhment; that ſo, in the courſe of your acquaintance, your very hours of amuſement may contribute to your improvement; and for the moſt part ſuch are open and communicative, and take as much pleaſure in being heard as you to be informed. By purſuing ſuch a conduct, you will be an ornament and uſeful member of ſociety.

COMPANY, a collective term, underſtood of ſeveral perſons aſſembled together in the ſame place, or with the ſame deſign. The word is formed of the French *compagnie*, and that of *companio*, or *companies*, which, Chifflet obſerves, are found in the Salic law, tit. 66. and are properly military words, underſtood of ſoldiers, who, according to the modern phraſe, are comrades or meſs-mates, i. e. lodge together, eat together, &c. of the Latin *cum* "with," and *panis* "bread." It may be added, that in ſome Greek authors under the weſtern empire, the word κȣμπανια occurs in the ſenſe of ſociety.

COMPANY, in a familiar or faſhionable ſenſe, is uſed for an aſſemblage of perſons met for the purpoſe of converſation, paſtime, or feſtivity.

The love of company and of ſocial pleaſures is natural, and attended with ſome of the ſweeteſt ſatisfactions of human life; but, like every other love, when it proceeds beyond the limits of moderation, it ceaſes to produce its natural effect, and terminates in diſguſtful ſatiety. The foundation-ſtone and the pillar on which we build the fabric of our felicity, muſt be laid in our own hearts. Amuſement, mirth, agreeable variety, and even improvement, may be ſometimes ſought in the gaiety of mixed company, and in the uſual diverſions of the world; but if we found our general happineſs on theſe, we ſhall do little more than raiſe caſtles in the air, or build houſes on the ſand.

To derive the proper pleaſure and improvement from company, it ought to be ſelect, and to conſiſt of perſons of character, reſpectable both for their morals and their underſtandings. Mixed and undiſtinguiſhed ſociety tends only to diſſipate our ideas, and induce a laxity of principles and practice. The pleaſure it affords is of a coarſe, mixed, noiſy, and rude kind. Indeed, it commonly ends in wearineſs and diſguſt, as even they are ready to confeſs who yet conſtantly purſue it, as if their chief good conſiſted in living in a crowd.

Among thoſe, indeed, who are exempted by their circumſtances from profeſſional and official employments, and who profeſſedly devote themſelves to a life of pleaſure, little elſe ſeems to conſtitute the idea of it, but an unceaſing ſucceſſion of company, public or private. The dreſs, and other circumſtances preparatory to the enjoyment of this pleaſnre, ſcarcely leave a moment for reflection. Day after day is ſpent in the ſame toilſome round, till a habit is formed, which renders diſſipation neceſſary to exiſtence. One week without it would probably induce a lowneſs of ſpirits, which might terminate in deſpair and ſuicide. When the mind has no anchor, it will ſuffer a kind of ſhipwreck; it will ſink in whirpools, and be daſhed on rocks. What, indeed, is life or its enjoyments without ſettled principles, laudable purpoſes, mental exertions, and internal comfort? It is merely a vapour, or, to drop the language of figure on ſo ſerious a ſubject, it is a ſtate worſe than non-entity, ſince it poſſeſſes a reſtleſs power of action, productive of nothing but miſery.

It is recommended, therefore, to all who wiſh to enjoy their exiſtence (and who entertains not that wiſh?), that they ſhould acquire a power not only of bearing, but of taking a pleaſure in, temporary ſolitude. Every one muſt, indeed, ſometimes be alone. Let him not repine when he is alone, but learn to ſet a value on the golden moments. It is then that he is enabled to ſtudy himſelf and the world around him. It is then that he has an opportunity of ſeeing things as they are, and of removing the deceitful veil, which almoſt every thing aſſumes in the buſy ſcene of worldly employments. The ſoul is enabled to retire into herſelf, and to exert thoſe energies which are always attended with ſublime pleaſure. She is enabled to ſee the dependent, frail, and wretched ſtate of man as the child of nature; and incited by her diſcovery, to implore grace and protection from the Lord of the univerſe. They, indeed, who fly from ſolitude, can ſeldom be religious; for religion requires meditation. They may be ſaid to "live without God in the world;" not, it is true, from atheiſtical principles, but from a careleſſneſs of diſpoſition; a truly deplorable ſtate, the conſciouſneſs of which could not fail to cloud the gaiety of thoſe halcyon beings who ſport in the ſunſhine of unremitted pleaſure.

There is no doubt but that man is made for action, and that his duties and pleaſures are often moſt numerous and moſt important amidſt the buſy hum of men. Many vices, and many corrupt diſpoſitions, have been foſtered in a ſolitary life. Monkery is not favourable to human nature or human happineſs; but neither is unlimited diſſipation.

In ſhort, let there be a ſweet interchange of retirement and aſſociation, of repoſe and activity. A few hours ſpent every day by the votaries of pleaſure in ſerious meditation, would render their pleaſure pure, and more unmixed with miſery. It would give them knowledge, ſo that they would ſee how far they might advance in their purſuit without danger; and reſolution, ſo that they might retreat when danger approached. It would teach them how to live, a knowledge which indeed they think they poſſeſs already; and it would alſo teach them, what they are often too little ſolicitous to learn, how to die.

COMPANY, in a commercial ſenſe, is a ſociety of merchants, mechanics, or other traders, joined together in one common intereſt.

When there are only two or three joined in this manner, it is called a partnerſhip; the term *company* being reſtrained to ſocieties conſiſting of a conſiderable number of members, aſſociated together by a charter obtained from the prince.

The mechanics of all corporations, or towns incorporated, are thus erected into companies, which have charters of privileges and large immunities.

COMPANY ſeems mere particularly appropriated to thoſe grand aſſociations ſet on foot for the commerce of the remote parts of the world, and veſted by charter with peculiar privileges.

When companies do not trade upon a joint ſtock, but are obliged to admit any perſon, properly qualified, upon paying a certain fine, and agreeing to ſubmit to the regulations of the company, each member trading upon his own ſtock and at his own riſk, they are called *Regulated Companies*. When they trade upon a joint ſtock, each member ſharing in the common profit, or loſs in proportion to his ſhare in this ſtock, they are called *Joint-ſtock Companies*. Such companies, whether regulated or joint-ſtock, ſometimes have and ſometimes have not, excluſive privileges.

However injurious companies with joint-ſtock, and incorporated with excluſive privileges, may at this time be reckoned to nations in general, it is yet certain that they were the general parent of all foreign commerce; private traders being diſcouraged from hazarding their fortunes in foreign countries, until the method of traffic had been firſt ſettled by joint-ſtock companies. But ſince the trade of kingdoms and the number of traders have increaſed, and the methods of aſſurance of ſhipping and merchandize, and the navigation to all parts of the known world have become familiar, theſe companies, in the opinions of moſt men, have been looked upon in the light of monopolies; their privileges have therefore been leſſened from time to time, in order to favour a free and general trade: and experience has ſhown, that the trade of nations has advanced in proportion as monopolies have been diſcouraged. In ſhort, as all reſtrictions of trade are found to be hurtful, nothing can be more evident, than that no company whatſoever, whether they trade in joint ſtock or only under regulation, can be for the public good, except it may be eaſy for all or many of the ſubjects to be admitted into all or any of the ſaid companies, at any time, and for a very inconſiderable fine.

I. Regulated Companies reſemble, in every reſpect, the corporations of trades, ſo common in the cities and towns of all the different countries of Europe; and are a ſort of enlarged monopolies of the ſame kind. As no inhabitant of a town can exerciſe an incorporated trade, without firſt obtaining his freedom in the corporation; ſo in moſt caſes no ſubject of the ſtate can lawfully carry on any branch of foreign trade for which a regulated company is eſtabliſhed, without firſt becoming a member of that company. The monopoly is more or leſs ſtrict according as the terms of admiſſion are more or leſs difficult; and according as the directors of the company have more or leſs authority, or have it more or leſs in their power to manage in ſuch a manner as to confine the greater part of the trade to themſelves and their particular friends. In the moſt ancient regulated companies the privileges of apprenticeſhip were the ſame as in other corporations; and intitled the perſon who had ſerved his time to a member of the company, to become himſelf a member, either without paying any fine, or upon paying a much ſmaller one than what was exacted of other people. The uſual corporation ſpirit, wherever the law does not reſtrain it, prevails in all regulated companies. When they have been allowed to act according to their natural genius, they have always, in order to confine the competition to as ſmall a number of perſons as poſſible, endeavoured to ſubject the trade to many burthenſome regulations. When the law has reſtrained them from doing this, they have become altogether uſeleſs and inſignificant.

The regulated companies for foreign commerce, which at preſent ſubſiſt in Great Britain, are, The Hamburgh Company, The Ruſſian Company, the Eaſtland Company, The Turkey Company, and the African Company.

1. *The Hamburgh Company* is the oldeſt trading eſtabliſhment in the kingdom; though not always known by that name, nor reſtrained to thoſe narrow bounds under which it is now confined. It was firſt called the *Company of merchants trading to Calais, Holland, Zealand, Brabant, and Flanders:* then it acquired the general title of *Merchant-adventurers of England*; as being compoſed of all the Engliſh merchants who traded to the Low Countries, the Baltic, and the German occean. Laſtly, it was called the *Company of Merchant-adventurers of England trading to Hamburgh*.

This company was firſt incorporated by Edward I. in 1296; and eſtabliſhed again, by charter, in 1406, under the reign of king Henry IV. It was afterwards confirmed, and augmented with divers privileges by many of his ſucceſſors. Before the charter of Henry IV. all the Engliſh merchants who trafficked out of the realm, were left to their own diſcretion, and managed their affairs with foreigners as might be moſt for their reſpective intereſts, without any regard to the general commerce to the nation. Henry, obſerving this diſorder, endeavoured to remedy it, by uniting all the merchants in his dominions into one body; wherein, without loſing the liberty of trading each for himſelf, they might be governed by a company ſtill ſubſiſting; and be ſubject to regulations, which ſhould ſecure the general intereſt of the national commerce, without prejudice to the intereſt of particulars. With this view, he granted all the merchants of his ſtates, particularly thoſe of Calais, then in his hands, a power of aſſociating themſelves into a body politic, with directors and governors, both in England and abroad; to hold aſſemblies, both for the direction of buſineſs and the deciding of controverſies among merchants; make laws; puniſh delinquents; and impoſe moderate duties and taxes on merchandizes, and merchants, to be employed in the ſervice of the corporation. Thoſe few articles of the charter of Henry IV were afterwards much augmented by Henry VII. who firſt gave them the title of *Merchant-adventurers to Calais, Holland,* &c. gave them a power of proclaiming and continuing free fairs at Calais; and ordered, that to be reputed a member of the ſociety, each perſon pay twenty marks ſterling; and that the ſeveral members ſhould attend the general meetings, or courts, appointed by the directors, whether at London, Calais, or elſewhere.

A petition being made to queen Elizabeth, in 1564, for an explanation of certain articles in the charter of Henry VII. and a confirmation of the reſt granted by other kings; that princeſs, by a charter of the ſame year declares, that to end all diſputes, they ſhall be incorporated anew, under the title of the *Company of Merchant-adventures of England*; that all who were members of the former company ſhould, if they deſired it, admitted members of this; that they ſhould have a common ſeal; that they ſhould admit into their ſociety what other perſons, and on what terms, they pleaſed, and expel them again on miſbehaviour: that the city of Hamburgh and neighbouring cities ſhould be reputed within their grant, together with thoſe of the Low Countries, &c. in that of the former company: that no member ſhould marry out of the kingdom, nor purchaſe lands, &c. in any city beyond ſea; and that thoſe who do, ſhall be *ipſo facto*, excluded for ever. Twenty-two years after this firſt charter, queen Elizabeth granted them a ſecond; confirming the former, and further granting them a privilege of excluſion; with a power of erecting in each city within their grant a ſtanding council.

The revolutions which happened in the Low Countries towards the end of the ſixteenth century, and which laid the foundation of the republic of Holland, having hindered the company from continuing their commerce with their ancient freedom; it was obliged to turn it almoſt wholly to the ſide of Hamburgh, and the cities on the German ocean: from which change, ſome people took occcaſion to change its name to that of the *Hamburgh Company*; though the ancient title of *Merchant-adventurers* is ſtill retained in all their writings.

About the middle of the laſt century, the fine for admiſſion was fifty, and at one time one hundred pounds, and the conduct of the company was ſaid to be extremely oppreſſive. In 1643, in 1645, and in 1661. the clothiers and free traders of the weſt of England complained of them to parliament, as of monopoliſts who confined the trade and oppreſſed the manufactures of the country. Though thoſe complaints produced no act of parliament, they had probably intimidated the company ſo far as to oblige them to reform their conduct. The terms of admiſſion are now ſaid to be quite eaſy; and the directors either have it not in their power to ſubject the trade to any burdenſome reſtraint or regulations, or at leaſt have not of late exerciſed that power.

2. *The Ruſſia Company* was firſt projected towards the end of the reign of king Edward VI. executed in the firſt and ſecond years of Philip and Mary; but had not its perfection till its charter was confirmed by act of parliament, under queen Elizabeth, in 1566. It had its riſe from certain adventurers, who were ſent in three veſſels on the diſcovery of new countries; and to find out a north-eaſt paſſage to China: theſe, falling into the White Sea, and making up to the port of Archangel, were exceedingly well received by the Muſcovites; and at their return, ſolicited letters patent to ſecure to themſelves the commerce of Ruſſia, for which they had formed an aſſociation.

By their charter, the aſſociation was declared a body politic, under the name of the *Company of Merchant-adventurers of England, for the diſcovery of lands, territories, iſlands, &c. unknown, or unfrequented.* Their privileges were, to have a governor, four conſuls, and twenty-four aſſiſtants, for their commerce: for their policy, to make laws, inflict penalties, ſend out ſhips to make diſcoveries, take poſſeſſion of them in the kings name, ſet up the banner royal of England, plant them; and laſtly, the excluſive privilege of trading to Archangel, and other ports of Muſcovy, not yet frequented by the Engliſh.

This charter, not being ſufficiently guarded, was confirmed by parliament in the eighth year of queen Elizabeth; wherein it was enacted, that in regard the former name was too long, they ſhould be called *Company of Engliſh Merchants for diſcovering new trades*; under which name, they ſhould be capable of acquiring and holding all kind of lands, manors, rents, &c. not exceeding a hundred marks *per ann.* and not held of her majeſty; that no part of the continent, iſland, harbour, &c. not known or frequented before the firſt enterprize of the merchants of their company, ſituated to the north, or north-weſt, or north-eaſt of London, nor any part of the continent, iſlands, &c. under the obedience of the emperor of Ruſſia, or in the countries of Armenia, Media, Hyrcania, Perſia, or the Caſpian ſea, ſhould be viſited by any ſubjects of England, to exerciſe any commerce, without the conſent of the ſaid company, on pain of confiſcation. The ſaid company ſhall uſe no ſhips in her new commerce but thoſe of the nation; nor tranſport any cloths, ſerges, or other woollen ſtuffs, till they have been dyed and preſſed. That in caſe the company diſcontinue of itſelf to unload commodities in the road of the abbey of S. Nicolas, in Ruſſia, or ſome other port, on the north coaſts of Ruſſia, for the ſpace of three years, the other ſubjects of England ſhall be allowed to traffic to Narva, while the ſaid company diſcontinues its commerce into Ruſſia, only uſing Engliſh veſſels.

This company ſubſiſted with reputation almoſt a whole century, till the time of the civil wars. It is ſaid, the czar then reigning, hearing of the murder of king Charles I. ordered all the Engliſh in his ſtates to be expelled: which the Dutch taking the advantage of, ſettled in their room. After the Reſtoration, the remains of the company re-eſtabliſhed part of their commerce at Archangel, but never with the ſame ſucceſs as before; the Ruſſians being now well accuſtomed to the Dutch merchants and merchandize.

This company ſubſiſts ſtill, under the direction of a governor, four conſuls, and aſſiſtants. By the 10th and 11th of William III. c. 6. the fine for admiſſion was reduced to 5l.

3. The *Eaſtland Company* was incorporated by queen Elizabeth. Its charter is dated in the year 1579. By the firſt article the company is erected into a body politic, under the title of the *Company of Merchants of the Eaſt*; to conſiſt of Engliſhmen, all real merchants, who have exerciſed the buſineſs thereof, and trafficked thro' the Sound, before the year 1568, into Norway, Sweden, Poland, Livonia, Pruſſia, Pomerania, &c. as alſo Revel, Coningſberg, Dantzick, Copenhagen, &c. excepting Narva, Muſcovy, and its dependencies. Moſt of the following articles grant them the uſual prerogatives of ſuch companies; as a ſeal, governor, courts, laws, &c.

The privileges peculiar to this company are, that none ſhall be admitted a member who is already a member of any other company; nor any retail-dealer at all. That no merchant qualified be admitted without paying ſix pounds thirteen ſhillings and ſix-pence. That a member of another company, deſiring to renounce the privileges thereof, and to be received into that of the Eaſt, ſhall be admitted *gratis*; provided he procures the ſame favour for a merchant of the Eaſt willing to fill his place. That the merchant adventurers who never dealt in the Eaſt, in the places expreſſed in the charter, may be received as members of the company on paying forty marks; that, notwithſtanding this union of the Adventurers of England with the company of the Eaſt, each ſhall retain its rights and privileges. That they ſhall export no cloths but what are dyed and preſſed, except a hundred pieces *per annum*, which are allowed them *gratis*. This charter, was confirmed by Charles II. in 1629, with this addition, that no perſon, of what quality ſoever, living in London, ſhould be admitted a member, unleſs he were free of the city. This company was complained of as a monopoly, and firſt curtailed by legal authority in 1672; and ſince the declaration of rights in 1689, exiſt only in name; but ſtill continue to elect their annual officers, who are a governor, a deputy, and twenty-four aſſiſtants.

4. *The Turkey or Levant Company*, had its riſe under queen Elizabeth, in 1581. James I. confirmed its charter in 1605, adding new privileges. During the civil wars, there happened ſome innovations in the government of the company; many perſons having been admitted members, not qualified by the charters of queen Elizabeth and king James, or that did not conform to the regulations preſcribed. Charles II. upon his reſtoration, endeavoured to ſet it upon its ancient baſis; to which end, he gave them a charter, containing not only a confirmation of their old one, but alſo ſeveral new articles of reformation. By this, the company is erected into a body politic, capable of making laws, &c. under the title of the *Company of Merchants of England trading to the ſeas of the Levant*. The number of members is not limited, but is ordinarily about three hundred. The principle qualification required is, that the candidate be a freeman of London, and a wholeſale merchant, either by family or by ſerving an apprenticeſhip of ſeven years. Thoſe under twenty-five years of age pay 25l ſterling at their admiſſion; thoſe above, twice as much. This fine was reduced by act of parliament, in 1753, to 20 l. and the privilege of admiſſion extended to every Britiſh ſubject. Each makes oath at his entrance not to ſend any merchandizes to the Levant but on his own account; and not to conſign them to any but the company's agents or factors. This reſtriction is likewiſe enlarged by the abovementioned ſtatute.

The company has a court or board at London, which is compoſed of a governor, deputy-governor, and fifteen directors or aſſiſtants: who are all actually to live in London or the ſuburbs. They have alſo a deputy-governor in every city and port, where there are any members of the company. The aſſembly at London ſends out the veſſels, regulates the tariff for the price at which the European merchandizes ſent to the Levant are to be ſold, and for the quality of thoſe returned. It raiſes taxes on merchandizes, to defray impoſitions, and the common expences of the company; preſents the ambaſſador which the king is to keep at the Porte, elects two conſuls for Smyrna and Conſtantinople, &c.

One of the beſt regulations of the company is, not to leave the conſuls, or even ambaſſador, to fix the impoſition on veſſels for defraying the common expences (a thing fatal to the companies of moſt other nations); but to allow a penſion to the ambaſſador and conſuls, and even to the chief officers, as ſecretary, chaplain, interpreters, and janizaries, that there may no be any pretence for their raiſing any ſum at all on the merchants or merchandizes.

In extraordinary caſes, the conſuls, and even the ambaſſador, have recourſe to two deputies of the company, reſiding in the Levant; or, if the affair be very important, they aſſemble the whole body. Here are regulated the preſents to be given, the voyages to be made, and every thing to be deliberated; and on the reſolutions here taken, the deputies appoint the treaſurer to furniſh the moneys, &c. required.

The ordinary commerce of this company employs from 20 to 25 veſſels, carrying from 25 to 30 pieces of cannon. The merchandiſes exported thither are, cloths of all kinds and colours, pewter, lead, pepper, cochineal, and a great deal of ſilver, which they take up at Cadiz: the returns are in raw ſilk, galls, camlets, wools, cottons, Morocco leather, aſhes for making glaſs and ſoap, and ſeveral gums and medicinal drugs. The commerce to Smyrna, Conſtantinople, and Scanderoon, is not eſteemed much leſs conſiderable than that of the Eaſt India company; but is, doubtleſs, more advantageous to Britain; becauſe it takes off much more of the Britiſh manufactures than the other, which is chiefly carried on in money. The places reſerved for the commerce of this company are, all the ſtates of Venice, in the gulf of Venice; the ſtate of Raguſa; all the ſtates of the grand ſeignor, and the ports of the Levant and Mediterranean; excepting Carthagena, Alicant, Barcelona, Valencia, Marſeilles, Toulon, Genoa, Leghorn, Civita Vecchia, Palermo, Meſſina, Malta, Majorca, Minorca, and Corſica; and other places on the coaſts of France, Spain, and Italy.

5. *The Company of Merchants trading to Africa*, eſtabliſhed in 1750. Contrary to the former practice with regard to regulated companies, who were reckoned unfit for ſuch ſort of ſervice, this company was ſubjected to the obligation of maintaining forts and garriſons. It was expreſsly charged at firſt with the maintenance of all the Britiſh forts and garriſons that lie between Cape Blanc and the Cape of Good Hope, and afterwards with that of thoſe only which lie between Cape Rouge and the Cape of Good Hope. The act which eſtabliſhes this company (the 23d of George II. c. 31.) ſeems to have had two diſtinct objects in view; firſt, to reſtrain effectually the oppreſſive and monopolizing ſpirit which is natural to the directors of a regulated company; and, ſecondly, to force them as much as poſſible to give an attention, which is not natural to them, towards the maintenance of forts and garriſons.

For the firſt of theſe purpoſes, the fine for admiſſion is limited to forty ſhillings. The company is prohibited from trading in their corporate capacity, or upon a joint ſtock; from borrowing money upon common ſeal, or from laying any reſtraints upon the trade which may be carried on freely from all places, and by all perſons being Britiſh ſubjects, and paying the fine. The government is in a committee of nine perſons who meet at London, but who are choſen annually by the freemen of the company at London, Briſtol, and Liverpool; three from each place. No committee-man can be continued in office for more than three years together. Any committee-man might be removed by the board of trade and plantations; now by a committee of council, after being heard in his own defence. The committee are forbid to export negroes from Africa, or to import any African goods into Great Britain. But as they are charged with the maintenance of forts and garriſons, they may for that purpoſe export from Great Britain to Africa goods and ſtores of different kinds. Out of the money which they ſhall receive from the company, they are allowed a ſum not exceeding eight hundred pounds for the ſalaries of their clerks and agents at London, Briſtol, and Liverpool; the houſe-rent of their office at London; and all other expences of management, commiſſion, and agency, in England. What remains of this ſum, after defraying thoſe different expences, they may divide among themſelves, as compenſation for their trouble, in what manner they think proper. "By this conſtitution, it might have been expected (Dr Smith obſerves), that the ſpirit of monopoly would have been effectually reſtrained, and the firſt of theſe purpoſes ſufficiently anſwered. It would ſeem, however, that it had not. Though by the 4th of George III. c. 20. the fort of Senegal, with all its dependencies, had been veſted in the company of merchants trading to Africa, yet in the year following (by the 5th of George III. c. 44.), not only Senegal and its dependencies, but the whole coaſt from the port of Sallee, in South Barbary, to Cape Rouge, was exempted from the juriſdiction of that company, was veſted in the crown, and the trade to it declared free to all his majeſty's ſubjects. The company had been ſuſpected of reſtraining the trade, and of eſtabliſhing ſome ſort of improper monopoly. It is not, however, very eaſy to conceive how, under the regulations of the 23d George II. they could do ſo. From the printed debates of the houſe of commons (not always the moſt authentic records of truth), it appears, however, that they have been accuſed of this. The members of the committee of nine being all merchants, and the governors and factors, in their different forts and ſettlements, being all dependent upon them, it is not unlikely that the latter might have given peculiar attention to the conſignments and commiſſions of the former, which would eſtabliſh a real monopoly."

For the ſecond purpoſe mentioned, the maintenance of the forts and garriſons, an annual ſum has been allotted to them by parliament, generally about 13,000l. For the proper application of this ſum, the committee is obliged to account annually to the curſitor baron of exchequer; which account is afterwards to be laid before parliament. "But parliament (continues our author), which gives ſo little attention to the application of millions, is not likely to give much to that of 13,000l. a year; and the curſitor baron of exchequer, from his profeſſion and education, is not likely to be profoundly ſkilled in the proper expence of forts and garriſons. The captains of his majeſty's navy, indeed, or any other commiſſioned officers, appointed by the board of admiralty, may enquire into the condition of the forts and garriſons, and report their obſervations to that board. But that board ſeems to have no direct juriſdiction over the committee, nor any authority to correct thoſe whoſe conduct it may thus enquire into; and the captains of his majeſty's navy, beſides, are not ſuppoſed to be always deeply learned in the ſcience of fortification. Removal from an office, which can be enjoyed only for the term of three years, and of which the lawful emoluments, even during that term, are ſo very ſmall, ſeems to be the utmoſt puniſhment to which any committee-man is liable; for any fault, except direct malverſation, or embezzlement either of the public money or of that of the company, and the fear of that puniſhment, can never be a motive of ſufficient weight to force a continual and careful attention to a buſineſs to which he has no other intereſt to attend. The committee are accuſed of having ſent out bricks and ſtones from England for the reparation of Cape Coaſt Caſtle on the coaſt of Guinea, a buſineſs for which parliament had ſeveral times granted an extraordinary ſum of money. Theſe bricks and ſtones too, which had thus been ſent upon ſo long a voyage, were ſaid to have been of ſo bad a quality, that it was neceſſary to rebuild from the foundation the walls which had been repaired with them. The forts and garriſons which lie north of Cape Rouge, are not only maintained at the expence of the ſtate, but are under the immediate government of the executive power; and why thoſe which lie ſouth of that Cape, and which too are, in part at leaſt, maintained at the expence of the ſtate, ſhould be under a different government, it ſeems not very eaſy even to imagine a good reaſon."

The above company ſucceeded that called *The Royal African Company*, which traded upon a joint ſtock with an excluſive privilege. Though England began to trade to Africa as early as the year 1536, and ſeveral voyages were made to Guinea in 1588, and ſome following years, for the importation of gold and elephants teeth, nothing like a company was formed till the year 1588, when queen Elizabeth granted a patent of excluſive privilege to certain perſons for ten years. In 1618, king James I. eſtabliſhed a company by charter, which was ſoon diſſolved. Another company was erected by charter of Charles I. in 1631, which met with little ſucceſs; but the demand for negroes in the Engliſh American plantations increaſing, a third company was eſtabliſhed by a charter granted 1662, in favour of the duke of York; ſecuring to him the commerce of all the country, coaſts, iſlands, &c. belonging to the crown of England, or not poſſeſſed by any other Chriſtian prince; from Cape Blanco in 20° N. Lat. to the Cape of Good Hope in 34° 34′ S. Lat. The charter was ſoon after returned into the king's hands by the duke, and revoked, by conſent of the parties aſſociated with him in the enterprize; in conſequence of which, the fourth and laſt excluſive company was eſtabliſhed and incorporated by letters patent in 1672, under the title of the *Royal African Company*. A capital was ſoon raiſed of 111,000l. and this new company improved their trade, and increaſed their forts; but after the Revolution in 1689, this trade was laid open. In 1698, all private traders to Africa were obliged by ſtat. 9 and 10 Will. to pay ten *per cent.* in order to aſſiſt the company in maintaining their forts and factories. But notwithſtanding this heavy tax, the company were ſtill unable to maintain the competition; their ſtock and credit gradually declined.

In 1712, their debts had become ſo great, that a particular act of parliament was thought neceſſary, both for their ſecurity and for that of their creditors. It was enacted, that the reſolution of two-thirds of theſe creditors in number and value, ſhould bind the reſt, both with regard to the time which ſhould be allowed to the company for the payment of their debts, and with regard to any other agreement which it might be thought proper to make with them concerning thoſe debts. In 1730, their affairs were in ſo great diſorder, that they were altogether incapable of maintaining their forts and garriſons; the ſole purpoſe and pretext of their inſtitution. From that year till their final diſſolution, the parliament judged it neceſſary to allow the annual ſum of ten thouſand pounds for that purpoſe. In 1732, after having been for many years loſers by the trade of carrying negroes to the Weſt Indies, they at laſt reſolved to give it up altogether; to ſell to the private traders to America the negroes which they purchaſed upon the coaſt: and to employ their ſervants in a trade to the inland parts of Africa for gold duſt, elephants teeth, dyeing drugs, &c. But their ſucceſs in this more confined trade was not greater than in their former extenſive one. Their affairs continued to go gradually to decline, till at laſt being in every reſpect a bankrupt company, they were diſſolved by act of parliament, and their forts and garriſons veſted in the preſent *Regulated Company of Merchants trading to Africa*.

II. JOINT-STOCK Companies, eſtabliſhed either by royal charter or by act of parliament, differ in ſeveral reſpects, not only from regulated companies, but from private copartneries. 1. In a private copartnery, no partner, without the conſent of the company, can transfer his ſhare to another perſon, or introduce a new member into the company. Each member, however, may, upon proper warning, withdraw from the copartnery, and demand payment from them of his ſhare of the common ſtock. In a joint-ſtock company, on the contrary, no member can demand payment of his ſhare from the company; but each member can, without their conſent, transfer his ſhare to another perſon, and thereby introduce a new member. The value of a ſhare in a joint-ſtock is always the price which it will bring in the market; and this may be either greater or leſs, in any proportion, than the ſum which its owner ſtands credited for in the ſtock of the company. 2. In a private copartnery, each partner is bound for the debts contracted by the company to the whole extent of his fortune. In a joint-ſtock company, on the contrary, each partner is bound only to the extent of his ſhare.

The trade of a joint-ſtock company is always managed by a court of directors. This court indeed is frequently ſubject, in many reſpects, to the controul of a general court of proprietors. But the greater part of thoſe proprietors ſeldom pretend to underſtand any thing of the buſineſs of the company; and when the ſpirit of faction happens not to prevail among them, give themſelves no trouble about it, but receive contentedly ſuch half yearly or yearly dividend as the directors think proper to make to them. This total exemption from trouble and from riſk, beyond a limited ſum, encourages many people to become adventurers in joint-ſtock companies, who would upon no account hazard their fortunes in any private copartnery. Such companies, therefore, commonly draw to themſelves much greater ſtocks than any private copartnery can boaſt of. The trading ſtock of the South Sea company, at one time, amounted to upwards of thirty-three millions eight hundred thouſand pounds. The directors of ſuch companies, however, being the managers rather of other peoples money than of their own, it cannot well be expected that they ſhould watch over it with the ſame anxious vigilance with which the partners in a private copartnery frequently watch over their own. Like the ſtewards of a rich man, they are apt to conſider attention to ſmall matters as not for their maſter's honour, and very eaſily give themſelves a diſpenſation from having it. Negligence and profuſion, therefore, muſt always prevail, more or leſs, in the management of the affairs of ſuch a company. It is upon this account that joint-ſtock companies for foreign trade have ſeldom been able to maintain the competition againſt private adventurers. They have, accordingly, very ſeldom ſucceeded without an excluſive privilege; and frequently have not ſucceeded with one. Without an excluſive privilege they have commonly miſmanaged the trade. With an excluſive privilege they have both miſmanaged and confined it.

The principal joint-ſtock companies preſently ſubſiſting in Great Britain are, the *South Sea* and the *Eaſt India* companies; to which may be added, though of very inferior magnitude, the *Hudſon's Bay* company.

1. *The South-Sea Company*. During the long war with France in the reign of queen Anne, the payment of the ſailors of the royal navy being neglected, they received tickets inſtead of money, and were frequently obliged, by their neceſſities, to ſell theſe tickets to avaricious men at a diſcount of 40 and ſometimes 50 *per cent*. By this and other means, the debts of the nation unprovided for by parliament, and which amounted to 9,471,321l. fell into the hands of theſe uſurers. On which Mr Harley, at that time chancellor of the Exchequer, and afterwards earl of Oxford, propoſed a ſcheme to allow the proprietors of theſe debts and deficiences 6 *per cent. per annum*, and to incorporate them for the purpoſe of carrying on a trade to the South Sea; and they were accordingly incorporated under the title of "the Governor and Company of Merchants of Great Britain trading to the South Seas, and other parts of America, and for encouraging the Fiſhery," &c.

Though this company ſeem formed for the ſake of commerce, the miniſtry never thought ſeriouſly, during the courſe of the war, about making any ſettlement on the coaſt of South America, which was what flattered the expectations of the people; nor was it ever carried into execution by this company.

Some other ſums were lent to the government in the reign of queen Anne, at 6 *per cent*. In the third of George I. the intereſt of the whole was reduced to 5 *per cent*. and the company advanced two millions more to the government at the ſame intereſt. By the ſtatute of the 6th of George I. it was declared, that they might redeem all or any of the redeemable national debts; in conſideration of which, the company were empowered to augment their capital according to the ſums they ſhould diſcharge: and for enabling them to raiſe ſuch ſums for purchaſing annuities, exchanging for ready money new exchequer bills, carrying on their trade, &c. they might, by ſuch means as they ſhould think proper, raiſe ſuch ſums of money as in a general court of the company ſhould be judged neceſſary. The company were alſo empowered to raiſe money on the contracts, bonds, or obligations under their common ſeal, on the credit of their capital ſtock. But if the ſub-governor, deputy-governor, or other members of the company, would purchaſe lands or revenues of the crown upon account of the corporation, or lend money by loan or anticipation on any branch of the revenue, other than ſuch part only on which a credit of loan was granted by parliament, ſuch ſub-governor, or other member of the company, ſhould forfeit treble the value of the money ſo lent.

The fatal South Sea ſcheme, tranſacted in the year 1720, was executed upon the laſt mentioned ſtatute. The company had at firſt ſet out with good ſucceſs, and the value of their ſtock, for the firſt five years, had riſen faſter than that of any other company; and his majeſty, after purchaſing 10,000l. ſtock, had condeſcended to be their governor. Things were in this ſituation, when, taking advantage of the above ſtatute, the South Sea bubble was projected. The pretence was, to raiſe a fund for carrying on a trade to the South Sea, and purchaſing annuities, &c. paid to the other companies: and propoſals were printed and diſtributed, ſhowing the advantages of this deſign. The ſum neceſſary for carrying it on, together with the profits that were to ariſe from it, were divided into a certain number of ſhares, or ſubſcriptions, to be purchaſed by perſons diſpoſed to adventure therein. And the better to carry on the deception, the directors engaged to make very large dividends; and actually declared, that every 100l. original ſtock would yield 50l. *per annum*: which occaſioned ſo great a riſe of their ſtock, that a ſhare of 100l was ſold for upwards of 800l. This was in the month of July; but before the end of September it fell to 150l. by which multitudes were ruined, and ſuch a ſcene of diſtreſs occaſioned, as is ſcarcely to be conceived. But the conſequences of this infamous ſcheme are too well known; moſt of the directors were ſeverely fined, to the loſs of nearly all their property; ſome of them had no hand in the deception, nor gained a farthing by it; but it was agreed, they ought to have oppoſed and prevented it.

The South Sea company never had any forts or garriſons to maintain, and therefore were entirely exempted from one great expence, to which other joint-ſtock companies for foreign trade are ſubject. But they had an immenſe capital divided among an immenſe number of proprietors. It was naturally to be expected, therefore, that folly, negligence, and profuſion, ſhould prevail in the whole management of their affairs.

Their ſtock-jobbing ſpeculations were ſucceeded by mercantile projects, which, Dr Smith obſerves, were not much better conducted. The firſt trade which they engaged in, was that of ſupplying the Spaniſh Weſt Indies with negroes, of which (in conſequence of what was called the Aſſiento contract granted them by the treaty of Utrecht) they had the excluſive privilege. But as it was not expected that much profit could be made by this trade, both the Portugueſe and French companies, who had enjoyed it upon the ſame terms before them, having been ruined by it, they were allowed, as compenſation, to ſend annually a ſhip of a certain burden to trade directly to the Spaniſh Weſt Indies. Of the ten voyages which this annual ſhip was allowed to make, they are ſaid to have gained conſiderably by one, that of the Royal Caroline in 1731, and to have been loſers, more or leſs, by almoſt all the reſt. Their ill ſucceſs was imputed, by their factors and agents, to the extortion and oppreſſion of the Spaniſh government; but was, perhaps, principally owing to the profuſion and depredations of thoſe very factors and agents; ſome of whom are ſaid to have acquired great fortunes even in one year. In 1734, the company petitioned the king, that they might be allowed to diſpoſe of the trade and tunnage of their annual ſhip, on account of the little profit which they made by it, and to accept of ſuch equivalent as they could obtain from the King of Spain.

In 1724, this company had undertaken the whale-fiſhery. Of this indeed they had no monopoly; but ſo long as they carried it on, no other Britiſh ſubjects appear to have engaged in it. Of the eight voyages which their ſhips made to Greenland, they were gainers by one, and loſers by all the reſt. After their eighth and laſt voyage, when they had ſold their ſhips, ſtores, and utenſils, they found that their whole loſs, upon this branch, capital and intereſt included, amounted to upwards of L. 237,000.

In 1722, this company petitioned the parliament to be allowed to divide their immenſe capital of more than L. 33,800,000, the whole of which had been lent to government, into two equal parts: The one half, or upwards of L. 16,900,000, to be put upon the ſame footing with other government annuities, and not to be ſubject to the debts contracted, or loſſes incurred, by the directors of the company, in the proſecution of their mercantile projects; the other half to remain, as before, a trading ſtock, and to be ſubject to thoſe debts and loſſes. The petition was too reaſonable not to be granted. In 1733, they again petitioned the parliament, that three-fourths of their trading ſtock might be turned into annuity ſtock, and only one-fourth remain as trading ſtock, or expoſed to the hazards ariſing from the bad management of their directors. Both their annuity and trading ſtocks had, by this time, been reduced more than L. 2,000,000 each, by ſeveral different payments from government; ſo that this fourth amounted only to L. 3,662,784, 8s. 6 d. In 1748, all the demands of the company upon the king of Spain, in conſequence of the Aſſiento contract, were, by the treaty of Aix-la-Chapelle, given up for what was ſuppoſed an equivalent. An end was put to their trade with the Spaniſh Weſt Indies, the remainder of their trading ſtock was turned into an annuity ſtock, and the company ceaſed in every reſpect to be a trading company.

This company is under the direction of a governor, ſub-governor, deputy governor, and 21 directors; but no perſon is qualified to be governor, his majeſty excepted, unleſs ſuch governor has in his own name and right, L. 5000 in the trading ſtock; the ſub-governor is to have L. 4000 the deputy-governor L. 3000, and a director L. 2000, in the ſame ſtock. In every general court, every member having in his own name and right L. 500 in trading ſtock, has one vote ; if L. 2000 two votes ; if L. 3000 three votes ; and if L. 5000 four votes.

2. *The Eaſt India Company.* The firſt, or as it is called the Old Eaſt India Company, was eſtabliſhed by a charter from queen Elizabeth in 1600 ; but for ſome time the partners ſeem to have traded with ſeparate ſtocks, though only in the ſhips belonging to the whole company. In 1612, they joined their ſtocks into one common capital ; and though their charter was not as yet confirmed by act of parliament, it was looked upon in that early period to be ſufficiently valid, and no body ventured to interfere with their trade. At this time their capital amounted to about L. 740,000, and the ſhares were as low as L 50 ; their trade was in general ſucceſsful, notwithſtanding ſome heavy loſſes, chiefly ſuſtained through the malice of the Dutch Eaſt India company. In proceſs of time, however, it came to be underſtood that a royal charter could not by itſelf convey an excluſive privilege to traders, and the company was reduced to diſtreſs by reaſon of the multitude of interlopers who carried off the moſt of their trade. This continued during the latter part of the reign of Charles II. the whole of that of James II. and part of William III. when in 1698 a propoſal was made to parliament for advancing the ſum of L. 2,000,000 to government, on condition of erecting the ſubſcribers into a new company with excluſive privileges. The old company endeavoured to prevent the appearance of ſuch a formidable rival, by offering govenment L. 700,000, nearly the amount of their capital, at that time ; but ſuch were the exigencies of the ſtate at that time, that the larger ſum, tho' at eight *per cent.* intereſt, was preferred to the ſmaller at one half the expence.

Thus were two Eaſt India Companies erected in the ſame kingdom, which could not but be very prejudicial to each other. Through the negligence of thoſe who prepared the act of parliament alſo, the new company were not obliged to unite in a joint-ſtock. The conſequence of this was, that a few private traders, whoſe ſubſcriptions ſcarce exceeded L 7200, inſiſted on a right of trading ſeparately at their own riſk. Thus a kind of third company was eſtabliſhed ; and by their mutual contentions with one another, all the three were brought to the brink of ruin. Upon a ſubſequent occaſion, in 1730, a propoſal was made to parliament for putting the trade under the management of a regulated company, and thus laying it in ſome meaſure open. This, however was oppoſed by the company, who repreſented in ſtrong terms the miſchiefs likely to ariſe from ſuch a proceeeding. “ In India (they ſaid), it raiſed the price of goods ſo high, that they were not worth the buying ; and in England, by overſtocking the market, it ſunk the price to ſuch a degree, that no profit could be made of them.” Here Dr Smith remarks, that by a more plentiful ſupply, to the great advantage and conveniency of the public, it muſt have reduced very much the price of India goods in the Engliſh market, cannot well be doubted ; but that it ſhould have raiſed very much their price in the Indian market, ſeems not very probable, as all the extraordinary demand which that competition could occaſion, muſt have been but as a drop of water in the immenſe ocean of Indian commerce. The increaſe of demand, adds he, though in the beginning it may ſometimes raiſe the price of goods, never fails to lower it in the long run. It encourages production, and thereby increaſes the competition of the producers, who, in order to underſell one another, have recourſe to new diviſions of labour and new improvements of art, which migh never otherwiſe have been thought of. The miſerable effects of which the company complained, were the cheapneſs of conſumption and the encouragement given to production, preciſely the two effects which it is the buſineſs of political economy to promote. The competition, however, of which they gave this doleful account, had not been allowed to continue long. In 1702 the two companies were, in ſome meaſure, united by an indenture tripartite, to which the queen was the third party ; and in 1708, they were, by act of parliament perfectly conſolidated into one company by their preſent name of The United Company of Merchants trading to the Eaſt Indies. Into this act it was thought worthy to inſert a clauſe, allowing the ſeparate traders to continue their traffic till Michaelmas 1711, but at the ſame time empowering the directors, upon three years notice, to redeem their capital of L. 7200, and thereby convert the whole capital of the company into a joint-ſtock. By the ſame act, the capital of the company, in conſequence of a new loan to government, was augmented from L.2,000,000 to L. 3,200,000. In 1743, another million was advanced to government. But this being raiſed, not by a call upon the proprietors, but by ſelling annuities and contracting bond-debts, it did not augment the ſtock upon which the proprietors could claim a dividend. Thus, however, their trading ſtock was augmented ; it being equally liable with the other L. 3,200,000, to the loſſes ſuſtained, and debts contracted, by the company in the proſecution of their mercantile projects. From 1708, or at leaſt from 1711, this company being freed from all competitors, and fully eſtabliſhed in the monopoly of the Engliſh commerce to the Eaſt Indies, carried on a ſucceſsful trade ; and from their profits made annually a moderate dividend to their proprietors. Unhappily, however, in a ſhort time an inclination for war and conqueſts began to take place among their ſervants ; which, though it put them in poſſeſſion of extenſive territories and vaſt nominal revenues, yet embarraſſed their affairs in ſuch a manner, that they have not to this day been able to recover themſelves. The particulars of theſe wars are given under the articles BRITAIN, and INDOSTAN. Here it will be ſufficient to obſerve, that they originated during the war in 1741 through the ambition of M. Dupleix the French governor of Pondicherry, who involved the company in the politics and diſputes of the Indian princes. After carrying on hoſtilities for ſome time with various ſucceſs, they at laſt loſt Madras, at that time the principal ſettlement in the Eaſt Indies, but it was reſtored by the treaty of Aix-la-Chapelle. During the war of 1755, they acquired the revenues of a rich and extenſive territory, amounting, as was then ſaid, to near L.3,000,000 *per annum*.

Smith's Wealth of Nations, vol.iii. p. 134.

For ſeveral years they remained in quiet poſſeſſion of the revenue ariſing from this territory, though it certainly never anſwered the expectations that had ben formed concerning it. But in 1767 the Britiſh miniſtry laid claim to the territorial poſſeſſions of the company

company, and the revenue ariſing from them, as of right belonging to the crown; and the company, rather than yield up their territories in this manner, agreed to pay government a yearly ſum of L. 400,000. They had before this gradually augmented their dividend from about ſix to ten *per cent.*: that is, on their capital of L. 3200,000, they had raiſed it from L. 192,000 to L.320,000 a-year. About this time alſo they were attempting to raiſe it ſtill further, viz. from 10 to 12½ *per cent.*; but from this they were prevented by two ſucceſſive acts of parliament, the deſign of which was to enable them to make a more ſpeedy payment of their debts, at this time eſtimated at more than ſix or ſeven millions Sterling. In 1769 they renewed their agreement with government for five years more, ſtipulating, that during the courſe of that period they ſhould be allowed gradually to augment their dividend to 12½ *per cent.*; never increaſing it, however, more than one *per cent.* annually. Thus their annual payments could only be augmented by L. 608,000 beyond what they had been before their late territorial acquiſitions. By accounts from India in the year 1768, this revenue, clear of all deductions and military charges, was ſtated at L. 2,048,747. At the ſame time they were ſaid to poſſeſs another revenue, ariſing partly from lands, but chiefly from the cuſtoms eſtabliſhed at their different ſettlements, amounting to about L.439,000. The profits of their trade, too, according to the evidence of their chairman before the houſe of commons amounted to at leaſt L. 400,000 *per annum*; their accountant made it L.500,000; and the loweſt account ſtated it at leaſt equal to the higheſt dividend paid to their proprietors. Notwithſtanding this apparent wealth, however, the affairs of the company from this time fell into diſorder; inſomuch that in 1773 their debts were augmented by an arrear to the treaſury in the payment of the L. 400,000 ſtipulated; by another to the cuſtomhouſe for duties unpaid; by a large ſum borrowed from the bank; and by bills drawn upon them from India to the amount of more than L. 1,200,000. Thus they were not only obliged to reduce their dividend all at once to ſix *per cent.* but to apply to government for aſſiſtance. A particular account of this tranſaction is given under the article Britain. Here it may be mentioned in general, that the event proved very unfavourable to the company, as they were now ſubjected to an interference of government altogether unknown before. Several important alterations were made in their conſtitution both at home and abroad. The ſettlements of Madras Bombay, and Calcutta, which had hitherto been entirely independant of one another, were ſubjected to a governor-general, aſſiſted by a council of four aſſeſſors. The nomination of the firſt governor and council, who were to reſide at Calcutta, was aſſumed by parliament; the power of the court of Calcutta, which had gradually extended its juriſdiction over the reſt, was now reduced and confined to the trial of mercantile cauſes, the purpoſe for which it was originally inſtituted. Inſtead of it a new ſupreme court of judicature was eſtabliſhed, conſiſting of a chief juſtice and three judges to be appointed by the crown. Beſides theſe alterations, the ſtock neceſſary to intitle any proprietor to vote at the general courts was raiſed from L.500 to L. 1000. To vote on this qualification, too, it was neceſſary that he ſhould have poſſeſſed it, if acquired by his own purchaſe and not by inheritance, for at leaſt one year, inſtead of ſix months, the term requiſite formerly. The court of 24 directors had before been choſen annually; but it was now enacted, that each director ſhould for the future be choſen for four years; ſix of them, however, to go out of office by rotation every year, and not to be capable of being rechoſen at the election of the ſix new directors for the enſuing year. It was expected that, in conſequence of theſe alterations, the courts both of the proprietors and directors would be likely to act with more dignity and ſteadineſs than formerly. But this was far from being the caſe. The company and its ſervants ſhowed the utmoſt indifference about the happineſs or miſery of the people who had the misfortune to be ſubjected to their juriſdiction. This indifference, too, was more likely to be increaſed than diminiſhed by ſome of the new regulations. The houſe of commons, for inſtance, had reſolved, that when the L.1,600,000 lent to the company by government ſhould be paid, and their bond-debts reduced to L. 1,500,000, they might then, and not till then, divide eight *per cent.* upon their capital; and that whatever remained of their revenues and nett profits at home ſhould be divided into four parts; three of them to be paid into the exchequer for the uſe of the public, and the fourth to be reſerved as a fund, either for the further reduction of their bond-debts, or for the diſcharge of other contingent exigencies which the company might labour under. But it could ſcarce be expected that, if the company were bad ſtewards and bad ſovereigns when the whole of their nett revenue and profits belonged to themſelves, they would be better when three fourths of theſe belonged to other people. The regulations of 1773, therefore, did not put an end to the troubles of the company, Among other inſtitutions, it had been at this time enacted, that the preſidency of Bengal ſhould have a ſuperiority over the other preſidencies in the country; the ſalary of the chief juſtice was fixed at L.8000 *per annum*, and thoſe of the other judges at L. 6000 each. In conſequence of this act, Sir Elijah Impey, who was created a baronet on the occaſion, ſet ſail, with three other judges, for India in the year 1774. The powers with which they were inveſted were very extraordinary. They had the title of His Majeſty's Supreme Court of Judicature in India. Civil law, common law, eccleſiaſtical, criminal, and admiralty juriſdiction, belonged of right to them. They were empowered to try Europeans on perſonal actions, and to aſſeſs damages, without a jury. Every native, either directly or indirectly in the ſervice of the company, or in their territories, was made ſubject to their juriſdiction, with a view to prevent the Europeans from eluding juſtice under the pretence of employing natives in the commiſſion of their crimes; ſo that in fact they were abſolute lords and ſovereigns of the whole country.

Such exceſſive and unlimited powers conferred on any ſmall number of men, could not but be extremely diſagreeable to the Europeans, who had been accuſtomed to enjoy a liberty almoſt equally unbounded before; nor was it to be ſuppoſed that the judges, thus ſuddenly raiſed from the rank of ſubjects to the height of deſpotiſm, would always uſe their power in an unexceptionable manner. The deſign of the eſtabliſhment was to preſerve the commerce and revenues of the company from depredation, by ſubjecting its ſervants to the controul of the court; to relieve the ſubject from oppreſſion by facilitating the means of redreſs; and to fix a regular courſe of juſtice for the ſecurity of liberty and property. Inſtead of conſidering the circumſtances of the country, however, or the manners and cuſtoms of the natives, the judges now precipitately introduced the Britiſh laws in their full extent, without the leaſt modification to render them agreeable to the Aſiatics, who had been accuſtomed to others of a quite different nature; nor did they even pay the leaſt regard to the religious inſtitutions or habits to which the Indians are ſo obſtinately attached, that they would ſooner part with life itſelf than break through an article of them.

Beſides this it was ſaid, that, on the firſt arrival of the judges, they endeavoured to extend their authority beyond even what the Britiſh legiſlature had allowed them. Hence they were frequently at variance with the council; and complaints of their conduct were repeatedly ſent to England by the ſervants of the company. Theſe produced a letter in 1777 from the directors to Lord Weymouth, ſecretary of ſtate for the ſouthern department. In this they ſtated, that the ſupreme court of India had extended its juriſdiction to thoſe whom it did not appear to have been the intention of the king or parliament to ſubject to its authority. It had alſo taken cognizance of matters which, they apprehended, belonged properly to other courts. That the judges conſidered the criminal law of England as in force, and binding on the natives of Bengal, though utterly repugnant to the laws and cuſtoms by which they had hitherto been governed; and that the juriſdiction exerciſed by the ſupreme court was incompatible with the powers given by parliament to the governor-general and council, obſtructed the adminiſtration of goverment, and tended to alienate the minds of the natives; all which they feared would prevent the eſtabliſhment of the government of India upon any ſettled or permanent foundation.

This letter not having produced any effect, the diſcontents of India, both in the Europeans and natives, continued and increaſed. The deciſions of the judges were ſuch as by no means did them honour. A number of adventurers had alſo emigrated along with them, in hopes of enriching themſelves under the new conſtitution. Some of theſe were of the loweſt ſort of people, who had rendered it in a manner impoſſible for them to remain in England on account of their vices or extravagance. Many ſuch perſons had enrolled themſelves among the domeſtics of the judges, or had become their immediate dependents; and ſome of theſe were permitted to aſſume the characters of attorneys, court-officers, under ſheriffs, and bailiffs. It may eaſily be ſuppoſed, that people of ſuch characters would find it for their intereſt to promote ſuits in the ſupreme court: and in this ſome of them employed themſelves with great ſucceſs. The conſequence of all this was, that on the 4th of December 1780, a petition was preſented againſt the ſupreme court by a great number of Britiſh inhabitants in the kingdoms of Bengal, Bahar, and Orixa. In this, complaint was made of the indiſcriminate manner in which the Judges of the ſupreme court attempted to exerciſe the Engliſh laws in that country, at the ſame time that they refuſed the undoubted right of every Britiſh ſubject, viz. that of trial by jury. They intreated the houſe “to reflect on the innumerable hardſhips which muſt enſue, and the univerſal confuſion which muſt be occaſioned, by giving to the voluminous laws of England a boundleſs retroſpective power in the midſt of Aſia, and by an application of thoſe laws made for the freeſt and moſt enlightened people on earth, the principle of whoſe conſtitution was founded on virtue and liberty, to tranſactions with the natives of India, who had, from time immemorial, lived under a deſpotic government founded on fear and reſtraint. What muſt be the terrors of individuals to find their titles to property, and their tranſactions with the natives previous to the eſtabliſhment of this court of judicature, tried by the ſtandard of the Engliſh law, and by men educated under its forms, and unavoidably imbibing its prejudices, when no ſuch laws could be known to or practiſed by natives or Europeans then reſiding in the country, and that at a time when there were few perſons of legal knowledge in the country to adviſe or aſſiſt them? No tyranny could be more fatal in its conſequences, than that a court, inveſted with all the authority of one of the firſt courts in England, ſhould alſo poſſeſs undefined powers and juriſdiction, of which its judges were the ſole interpreters, and at ſuch an immenſe diſtance from the mother country. This was in truth the ſituation of the Britiſh ſubjects in India at that time; for the judges of the ſupreme court could at pleaſure determine on the denomination of a civil jury, the degree of guilt incurred by any offence, the ſtatute by which it ſhould be tried, what penalties ſhould be inflicted, as well as who were and who were not amenable to the juriſdiction of the court.

“Beſides their other powers alſo, the judges of the ſupreme court were allowed to ſit as a court of chancery, and in that capacity to reviſe, correct, reſcind, or confirm the deciſions paſſed by themſelves as a court of law; and, by another part of their conſtitution, they were allowed to ſtop execution in criminal caſes until his Majeſty's pleaſure was known. The petitioners conceived, that there muſt be ſome fundamental error in that inſtitution, which required a more than ordinary degree of temper, integrity, and ability, to carry its purpoſes into execution; and they did not heſitate to declare, that to adminiſter the powers appertaining to the inſtitution of the ſupreme court, without committing flagrant acts of injuſtice, and doing great detriment to the public, required more equity, moderation, diſcernment, and enlightened abilities, than they could hope to find in any ſet of men.” They concluded with earneſtly ſoliciting parliament, that a trial by jury might be granted to the Britiſh ſubjects in Bengal, in all caſes where it was eſtabliſhed by law in England; that the retroſpective powers of the ſupreme court might be limited to the time of its eſtabliſhment in Bengal; that it ſhould be defined beyond the power of diſcretional diſtinction, who the perſons were that properly came under the juriſdiction of the court, and who did not; that it ſhould be expreſsly declared what ſtatutes ſhould, and what ſhould not, be in force in Bengal; that diſtinct and ſeparate judges for the law and equity ſides of the court ſhould be appointed; and that a power of delaying executions in criminal caſes until his Majeſty's pleaſure was known, ſhould be lodged in the governor and council.

This petition was ſoon followed by another ſigned by Warren Haſtings, Eſq; governor-general, Philip Francis and Edward Wheeler, Eſqs; counſellors for the government and preſidency of Fort-William in Bengal; in which they repreſented, "that though the juriſdiction of the ſupreme court of judicature at Calcutta, as well as the powers granted to the governor-general and council, were clearly limited by parliament and the king's letters patent, yet the chief juſtice and judges of that court had exerciſed authority over perſons not legally within their juriſdiction, and had illegally and improperly adviſed and admitted ſuits againſt the governor-general and council; that they had attempted to execute their writs upon natives of high rank in the kingdom of Bengal, who were not within their juriſdiction: the governor and council therefore had found themſelves under a neceſſity of oppoſing them, and of affording protection to the country and people, who were placed under their own immediate inſpection, and freeing them from the terrors of a new and uſurped dominion. They had even been obliged to make uſe of a military force, in order to reſiſt the proceedings of the judges and their officers: And they declared, that no other conduct could have ſaved thoſe provinces and the intereſts of the company, or of the Britiſh nation itſelf, from the ruin with which they were threatened. They alſo declared themſelves to be of opinion, that the attempt to extend, to the inhabitants of theſe provinces, the juriſdiction of the ſupreme court of judicature, and the authority of the Engliſh law, which were ſtill more intolerable than the law itſelf, would be ſuch a conſtraint on the minds of the people of thoſe provinces, by the difference of ſuch laws and forms from their laws, that they might at laſt inflame them, notwithſtanding their known mildneſs and patience, into an open rebellion." The petition was concluded, by ſoliciting an indemnity from the legal conſequences of the reſiſtance they had been obliged to make to that court.

While the Britiſh were thus expreſſing their diſpleaſure againſt the conduct of theſe judges, the natives were thrown into the utmoſt conſternation and deſpair by the acts of oppreſſion and violence committed by them. A proſecution for forgery had been commenced againſt Nundcomar, a bramin of the firſt rank in Bengal. The crime was not capital by the laws of Indoſtan, and had been committed many years before; yet with the utmoſt cruelty and injuſtice was this man condemned and executed on the Britiſh ſtatute, by which forgery is made capital; a ſtatute which, at the commiſſion of the crime, he had never heard of, nor could ever dream that he would be ſubjected to its power. What rendered this execution the more remarkable was, that, at the very time when charge of forgery was brought againſt him, Nundcomar had been employed in exhibiting an accuſation againſt Mr Haſtings. This, together with the hurry in which the court were to have him put to death (for the court refuſed to allow him a reſpite till his Majeſty's pleaſure was known), made the natives conclude, that he was executed, not on account of the forgery, but for having ventured to prefer an accuſation againſt an Engliſh governor. In other reſpects they were terrified to ſuch a degree, that many of them ran into the river on ſeeing a bramin put to death with ſuch circumſtances of ignominy.

The alarm excited by the execution of Nundcomar was kept up by freſh deciſions of the ſupreme court. Among thoſe the Patna cauſe, as it is commonly called, was one of the moſt remarkable. An adventurer, named Shahaz Beg Cawn, had come from Cabul in Perſia to Bengal, where he entered himſelf in the ſervice of the company, and was preferred to the command of a body of horſe. Having gained a competent fortune, and obtained from the Mogul a grant of lands called an *Ultumghaw* in the province of Bahar, he retired from the army, and ſettled in Patna. About this time, when advanced in years, he married a woman of low rank, named *Nadara Begum*, by whom he had no children. His brother, Allum Beg, came likewiſe to Patna; and on his leaving the place ſome time after, committed the care of one of his ſons, named *Behader Beg*, to his brother Shahaz Beg Cawn. On the death of the latter in 1776, a diſpute enſued concerning the inheritance betwixt the widow and Behader Beg. The widow having taken poſſeſſion of the whole property of Shahaz, the nephew, as adopted ſon and heir, gave in a petition to the provincial council at Patna, on the 2d of January 1777, ſetting forth his claim. In this petition he ſtated, that the widow was removing and ſecreting the effects of the deceaſed; and concluded with a prayer, that orders ſhould be given to prevent their removal; to recover ſuch as had already been carried away; and that the cadi or Indian judge ſhould be directed to aſcertain his right. As the parties were Mahometants, the council of courſe referred the cauſe to the cadi and two mufties, the proper officers for determining it according to the eſtabliſhed laws of the country. Theſe having inquired into the matter, reported, that the title-deeds, on which the widow pretended to found her right, appeared to be forged; and that, even if they had appeared in the life-time of Shahaz, they were ſtill informal, on account of a point of the Mahometan law, which requires, that to make deeds of gift valid, poſſeſſion ſhould be entered into at the time of executing or delivering them over; but that, as no poſſeſſion of this kind had been given, the eſtate ought to be divided according to the Mahometan law; viz. one-fourth to the wife, and three-fourths to the nephew, as the repreſentative of his father Allum Beg, who was conſidered as the more immediate heir of the deceaſed. This deciſion was confirmed by the council of Patna, with the following exception in favour of the widow, that the heir at law ſhould pay her one-fourth of the rents of the ultumghaw, or royal grant, for her ſupport during life. The widow, however, refuſed to ſubmit to the deciſion, or to deliver up the effects of her huſband; in conſequence of which compulſatory methods were uſed; when, by the advice of ſome Engliſh lawyers, an action of treſpaſs was brought, according to the law of England, againſt the cadi and two mufties for their proceedings againſt her, laying the damages at about 66,000 l. Sterling. This proceſs being brought before the ſupreme court, was by them conducted in ſuch a manner as muſt entail everlaſting infamy on the actors. They began with obliging the cadi and mufties to find bail in no leſs than 40,000 pounds for their appearance, which was immediately given by the council at Patna. The ſupreme court then having entered into the merits of the cauſe, and decided the matter in the moſt rigorous manner, according to all the forms of Engliſh law, aſſeſſed the cadi and mufties in damages no leſs than 30,000l. Sterling. Their houſes and effects were ſeized by the ſheriff's officers, and publicly put up to ſale: the cadi, who was upwards of 60 years of age, and had been in office for many years with great applauſe, died on his way to the common gaol at Calcutta, to which the nephew and two mufties were conveyed, being a diſtance of no leſs than 400 miles from their former reſidence at Patna. A ſuit, however, was commenced againſt the widow, on account of having forged the title-deeds by which ſhe claimed her huſband's eſtate; but it was ſuppreſſed on account of ſome informality.

Another deciſion, by which the ſupreme court likewiſe incurred much cenſure, was that againſt Jaggernaut, the principal public officer of a Mahometan court at Dacca. The action was brought at the inſtigation of an Engliſh attorney, in behalf of one Khyne, a ſervant or meſſenger, who had been fined and impriſoned for a miſdemeanor, in which Jaggernaut had concurred in virtue of his office as judge of the Nizamut (the name of the Mahometan court juſt mentioned). The ſheriff-officers attempted to arreſt the judge as he ſat on the tribunal; which could not fail to produce much diſturbance. Jaggernaut, with his officers, denied the authority of the ſupreme court over the Nizamut, and refuſed to comply with the writ. The Engliſh ſheriff-officers proceeded to force; and a violent ſcuffle enſuing. Jaggernaut's father was wounded in the head with a ſword by one of the under-ſheriff's attendants, while his brother-in-law was very dangerouſly wounded with a piſtol bullet by the under-ſheriff himſelf. The immediate conſequence of this was an abſolute refuſal of the judge to take cognizance of any criminal matters; and this was intimated in a letter from the council at Dacca to the Engliſh governor and council of India; wherein they declared that all criminal juſtice was at a ſtand.

The ſupreme court, having proceeded in this arbitrary and oppreſſive manner for ſome time, at length attempted to extend their juriſdiction over the hereditary Zemindars of Bengal. Theſe are a kind of tributary lords, or great landholders, who are anſwerable to the company for the revenues or rents of the diſtricts; and excepting the circumſtances of remitting their revenues to the company, have not the leaſt connection with the Engliſh in any reſpect. At the time we ſpeak of, however, a writ, upon an action of debt, was iſſued out to arreſt one of theſe Zemindars in his palace. Timely notice, however, was given, by one of the company's collectors, of this attempt to the governor and council, and application made to protect a man of ſuch quality from the diſgrace of an arreſt. They being unanimouſly of opinion that the Zemindar was not within the juriſdiction of the court of Calcutta, deſired him to pay no regard to the writ. The court, however, determined to enforce their proceſs by a writ of ſequeſtration; upon which the natives, who are ſuperſtitiouſly attached to their Zemindars, roſe in his defence, and inſulted the ſheriff's officers. The latter having obtained a reinforcement, the Zemindar's palace was entered by 86 men armed with bludgeons, cutlaſſes, and muſkets; the apartment of his women, always held inviolably ſacred by the Aſiatics; was broken open; his temple profaned; and the image, which was the object of his worſhip, put into a baſket, and carried off with ſome common lumber. This rouſed the attention of the governor and council; who, from a full conviction of the ruinous tendency of theſe proceedings, determined at laſt to oppoſed force by force. They accordingly ſent a party of military to apprehend the ſheriff's people, and they were all conducted priſoners to Calcutta. The judges ordered attachments againſt the officer who commanded the troops, and againſt two other ſervants of the company; while the governor and council endeavoured to juſtify their proceedings, by writing to England as already mentioned.

Beſides all this, the natives themſelves teſtified their diſapprobation of the conduct of the ſupreme court in very ſtrong terms. A petition to his Britannic majeſty was ſent by the natives of Patna; in which are the following remarkable paſſages: “When the ordinances of this court of judicature were iſſued, as they were all contrary to the cuſtoms, modes, uſages, and inſtitutions of this country, they occaſioned terror in us; and day by day, as the powers of this court have become more eſtabliſhed, our ruin, uneaſineſs, diſhonour, and diſcredit, have accumulated; till at laſt we are reduced to ſuch a ſituation, that we conſider death to us as infinitely preferable to the dread we entertain of the court: for from this court no credit or character is left to us, and we are now driven to the laſt extremity. Several who poſſeſſed means and ability, deeming flight as their only ſecurity, have baniſhed themſelves from the country; but bound as we are by poverty and inability, and fettered by the deareſt ties of conſanguinity, we do not all of us poſſeſs the means of flight, nor have we power to abide the oppreſſion of this court.”—“If, which God forbid! it ſhould ſo happen, that this our petition ſhould not be accepted, and ſhould be rejected at the chamber of audience, thoſe amongſt us who have power and ability, diſcarding all affection for our families, will fly to any quarter we can; whilſt the remainder, who have no means or ability, giving themſelves up with pious reſignation to their fate, will ſit down in expectation of death.”

Theſe repeated complaints could not but be taken notice of in parliament. On the 12th of February 1781, General Smith made a motion in the houſe of commons, that the petition from the Britiſh inhabitants of Bengal, Bahar, and Orixa, ſhould be taken into conſideration by a ſelect committee, conſiſting of 15 perſons, choſen by ballot. In the introduction to his motion, he ſtated briefly the bad conduct of the ſupreme court in the particulars already related; and concluded, that the affairs of Bengal required the immediate attention and conſideration of parliament. The matter was accordingly debated; when, after various propoſals, a motion was at length made by General Smith, for leave to bring in a bill “to explain and amend ſo much of an act paſſed in the 13th year of his preſent majeſty, for the better regulation of the Eaſt

India company, as related to the adminiſtration of juſtice in Bengal; and alſo to indemnify the governor and council of Bengal for having reſiſted by force of arms the execution of an order of the ſupreme court of judicature in that kingdom." Leave was accordingly given to bring in the bill. The houſe having reſolved itſelf into a committee, Lord North obſerved, "that it had been much his wiſh that an agreement for the renewal of the company's charter had been made in an amicable manner; and that voluntary propoſitions ſhould have come from themſelves, offering terms for the benefit of the excluſive trade and the territorial acquiſitions. No ſuch terms, however, had been propoſed, nor any agreement made. A negociation had indeed taken place between him and the chairman and deputy-chairman; but the propoſitions made by them were neither ſuch as the public might expect, nor had the company any right to them. With regard to the territorial poſſeſſions, he was clearly of opinion, that they of right belonged to the public; though how far it might be proper to allow the revenue of them to remain in the poſſeſſion of the company was quite another matter. In his opinion, it would be proper to allow it to remain in their hands as long as they poſſeſſed an excluſive trade, but he never would conſent to forego the claim of the public. He made a motion, therefore, that it was the opinion of the committee, that three-fourths of the ſurplus of the net profits of the Eaſt India company, ever ſince the company's bond-debt was reduced to L. 1,500,000, and the company's dividends have been eight *per cent. per annum*, belong to the public; and that L.600,000 in lieu thereof, and in diſcharge of all claims on the part of the public, be paid into his majeſty's exchequer by inſtalments, in ſuch manner, and at ſuch times, as ſhall be agreed on." This propoſal was vehemently oppoſed by the minority. Mr Burke called it the daring effort of a miniſter determined on rapine and plunder, without regard to truth, honour, or juſtice. Mr Huſſey reprobated the idea of taking L. 600,000 from the company in their circumſtances at that time. He produced a paper full of arithmetical calculations, which he read to the houſe; aſſerting that they contained an exact ſtate of the amount of the company's exports and imports, the expences of their trade at home, and the balance of profit of each year, for many years paſt, diſtinguiſhing the territorial from the commercial income and expences. From theſe he ſhowed, that the commercial and territorial revenues of the company had, upon an average for 16 years, conſtituted a ſum equivalent to a proportion of 16 *per cent.*; that 9 *per cent.* of this had ariſen from the commercial profits accruing to the company; and therefore, that there had not been 8 *per cent.* divided upon that part of the profits to which the public had any claim or pretenſion. The acceſſion of territorial poſſeſſions, he obſerved, had brought along with it additional expences; and the public had already received a very large ſhare of the company's profits. He declared it to be his opinion, that the company ſhould always make it a rule to give as ample and full relief to the public burdens as their ſituation would allow; and if they did this, he ſaw no reaſon why the miniſter ſhould expect any more. Mr Dempſter reminded the houſe of the conſequences of violating the American charters; and added, that to tear from the company by force what was not ſtipulated in any act of parliament, would be a breach of public faith diſgraceful to the nation, and ſuch as would damp the ſpirit of enterprize and adventure which had been productive of ſuch happy effects.—Notwithſtanding theſe remonſtrances, however, the bill was at laſt paſſed into a law; only with this mitigation, that the company ſhould pay only L.400,000, inſtead of L.600,000 demanded originally by the miniſter.—Another bill was alſo paſſed the ſame year, in conſequence of the motion made by General Smith. This act declared, that the governor-general and council of Bengal were not ſubject to the juriſdiction of the ſupreme court, and indemnified the former for the reſiſtance they had made to the orders of that court. It enacted alſo, that no perſon ſhould be ſubject to the juriſdiction of that court on account of his being a landholder or farmer of land in the provinces of Bengal, Bahar, or Orixa; that no judicial officers in the country courts ſhould be liable to actions in the ſupreme court for their deciſions; and the two mufties, with Behader Beg, who were then in priſon, in conſequence of the deciſion of that court in the Patna cauſe, were ordered to be ſet at liberty.

The debates on this ſubject were attended with the moſt violent charges againſt the miniſter, and aſſertions the moſt humiliating and diſgraceful to the Britiſh nation. Mr Townſhend affirmed, that it was from the miniſter's ſcreening the delinquents who came from India that all the evils in that quarter had originated; and if matters were ſuffered to go on in that country as they had done for ſome time paſt, the conduct of the Britiſh in the Eaſt Indies muſt be viewed in a light ſtill more deteſtable than that of the Spaniards in America. It was reported, that the nabob of Arcot had ſeveral members in the houſe of commons! If it were true, that by ſending over a ſum of money to England he could ſeat eight or ten members in that houſe, then Mr Townſhend declared, that in his opinion they were the moſt abject and contemptible beings in the world.—The bill for regulating the powers of the ſupreme court, alſo, though ſo evidently founded in reaſon and juſtice, did not paſs without oppoſition, particularly from Mr Dunning; who was thought on this occaſion to have allowed his regard for his friend Sir Elijah Impey, the chief juſtice, to bias him too much.

The regulations juſt mentioned did not yet put an end to the troubles of the Eaſt India company, nor allay the ferment which had been ſo effectually excited. Their affairs were ſtill a ſubject of parliamentary diſcuſſion; and in the month of April 1782, a motion was made by Mr Dundas, then Lord Advocate of Scotland, for taking into conſideration the ſeveral reports concerning affairs, which had been made by the ſecret committee appointed to inquire into them during the laſt and preſent ſeſſion of parliament. In his ſpeech on this occaſion, he remarked, that the opinion of Lord Clive had been againſt keeping too extenſive a territory in that country. Inſtead of this, he had reſtored Sujah Dowlah to the poſſeſſion of his country; conſidering the Britiſh territories in Hindoſtan, with theſe on the coaſts of Coromandel and Bombay, as ſufficient for all the purpoſes by which this country could be benefited; but inſtead of adhering to the maxims of ſound policy laid down by his Lordſhip, they had become ſo ambitious of extending their territories, that they had involved themſelves in a war with almoſt all India. He then conſidered the finances of the company. The revenue of Bombay, he ſaid, fell ſhort of the neceſſary civil and military eſtabliſhment by L. 200,000 a-year, which was annually drawn from Bengal. With regard to that of Madras, it appeared, on an average of 12 years, from 1767 to 1779, that there had been eight years of war and only four of peace; and that, during the whole time of war, the revenue had not been able to ſupport the civil and military eſtabliſhments; though, in time of peace, it was able to do nearly one-half more. Bengal, however, was the moſt lucrative of all the Eaſt India ſettlements; but ſuch had been the expences of the Mahratta war, that the governor-general had been obliged to contract a very large debt, inſomuch that it was doubtful whether the inveſtments for England ſhould be wholly or partially ſuſpended. Mr Haſtings, he ſaid, had in many inſtances proved himſelf a very meritorious ſervant: but he wiſhed that every one of their ſervants would conſider himſelf as bound in the firſt place to prove a faithful ſteward to the company; not to fancy that he was an Alexander or Aurengzebe, and prefer frantic military exploits to the improvement of the trade and commerce of his country.—General Smith obſerved, that by the evidence produced to the committee, it appeared that there had been a variety of great abuſes in India. Sir Elijah Impey, his majeſty's chief juſtice in that country, had ſo far derogated from the character of a judge, as to accept of a place from the company; by which means he was brought under their controul, and conſequently allowed himſelf to be deprived of that independence which he ought to poſſeſs as a judge. Juſtice had been ſo partially adminiſtered, that ſeveral worthy and reſpectable perſons had been impriſoned, ſome had been ruined, and others died in jail. From all which conſiderations he moved, that the affairs of the company ought to be taken into conſideration by a committee of the whole houſe. Some hints were thrown out by Mr Dundas, that the territorial poſſeſſions in the Eaſt ought to be taken from the company entirely, and put under the direction of the crown; but this was oppoſed by Mr Fox, as furniſhing miniſters with ſuch ample means of corruption and undue influence, as might overthrow the conſtitution entirely. For this reaſon, he thought it would be more prudent to leave the appointment of its own ſervants to the company; but at the ſame time to keep a watchful eye over them, in order to be able to puniſh and remove thoſe who ſhould be found delinquent.

The houſe having reſolved itſelf into a committee, a motion was made by General Smith, "That Warren Haſtings, Eſq; governor-general of Bengal, and Sir Elijah Impey, the chief juſtice, appear to have been concerned, the one in giving, the other in receiving, an office not agreeable to the late act for regulating the company's affairs; which unjuſtifiable tranſaction was attended with circumſtances of evil tendency and example." Reſolutions were alſo paſſed for aſcertaining more diſtinctly the powers of the governor-general and council of Bengal; and votes of cenſure againſt Laurence Sullivan, Eſq; chairman of the Eaſt India company, for having neglected to tranſmit to India an act for explaining and amending the act for regulating the affairs of the company, and for the relief of certain perſons impriſoned at Calcutta. Among the number of this gentleman's tranſgreſſions, alſo, was his impoſing an oath of ſecrecy on Mr Wilkes, one of the company's clerks; and eſpecially his reſtraining him from giving information to a ſelect committee of the houſe of commons.

Mr Dundas having made ſeveral motions tending to criminate Sir Thomas Rumbold, formerly governor of Bengal, a bill was brought in, and paſſed into a law, for reſtraining him and Peter Perring, Eſq; from going out of the kingdom for the ſpace of one year, for diſcovering their eſtates, &c. An addreſs was alſo preſented to the king, requeſting him to recal Sir Elijah Impey from India, in order to anſwer for high crimes and miſdemeanors. A number of other reſolutions were now paſſed by the houſe, in conſequence of motions by Mr Dundas, and which were founded on the reports of the Secret Committee. Among theſe it was reſolved, "That the orders of the Court of Directors of the Eaſt India Company, which have conveyed to their ſervants abroad a prohibitory condemnation of all ſchemes of conqueſt and enlargement of dominion, by preſcribing certain rules and boundaries for the operation of their military force, were founded no leſs in wiſdom and policy than in juſtice and moderation. That every tranſgreſſion of theſe orders, without evident neceſſity, by any of the ſeveral governments in India, has been highly reprehenſible, and tended in a great degree to weaken the force and influence, and to diminiſh the influence of the company in thoſe parts. That every interference of the company as a party in the domeſtic or national quarrels of the country powers, and all new engagements with them in offenſive alliance, have been wiſely and providentially forbidden by the company in their commands to their adminiſtrations in India. That every unneceſſary deviation from theſe rules ſhould be ſeverely reproved and puniſhed. That the maintenance of an inviolable character for moderation, good faith, and ſcrupulous regard to treaty, ought to have been the ſimple grounds on which the Britiſh government ſhould have endeavoured to eſtabliſh an extenſive influence, ſuperior to that of other Europeans; and that the danger and diſcredit ariſing from the forfeiture of this pre-eminence, could not be compenſated by the temporary ſucceſs of any plan of violence and injuſtice. That ſhould any relaxation take place, without ſufficient cauſe, in thoſe principles of good government on the part of the directors themſelves, it would bring upon them, in a heavier degree, the reſentment of the legiſlative power of their country. That the conduct of the company, and their ſervants in India, in various inſtances ſpecified, was contrary to policy and good faith; the company's ſervants, in their preſidency of Bombay, had been guilty of notorious inſtances of diſobedience to the orders of their employers, particularly in forming an alliance with Ragobah, or Ragonaut Row: that they had undertaken, without any adequate military force, or certainty of a ſufficient revenue, and without proper communication with the ſuperior government upon which they were to depend for ſanction and ſupport, to reinſtate the uſurper above mentioned, and thereby to involve themſelves in a war with the ruling miniſters of the Mahratta ſtate, while Ragobah himſelf was not in the mean time able to give the company any ſecure poſſeſſion of the grants he had made to them for the purchaſe of their aſſiſtance. That it was the opinion of the houſe, that all the diſaſters in which the Britiſh empire in the Eaſt was involved, had proceeded from the unjuſtifiable manner in which the Mahrattas had been treated, and the conduct of the Madras preſidency in other reſpects ſpecified. That it is the opinion of this houſe, that it muſt be reckoned among the additional miſchiefs ariſing chiefly from the improvident war with the Mahrattas, that the military force of the Carnatic had been weakened by reinforcements ſent to the Malabar coaſt; that the Bengal goverment had been under a neceſſity of ſupporting, on their confines, the army of a power confederated againſt them(A); that they had been under the neceſſity of ſuing for the mediation of the ſame power; had ſubmitted to a refuſal, and purchaſed at laſt an uncertain, becauſe apparently an unauthoriſed, treaty, on moſt extravagant and diſhonourable conditions, with Chimnagee the rajah of Berar's ſon: and, finally, that being burdened with the expences of a variety of diſtant expeditions, while there allies were in diſtreſs, and their tributaries under oppreſſion, there was alſo an alarming deficiency in the reſources of revenue and commerce, by the accumulation of their debt, and the reduction of their infeſtment. That it was the opinion of the houſe, that an attempt made by the government-general, in the beginning of January 1781, to form an engagement of alliance, offenſive and defenſive, with the Dutch Eaſt India company, in the manner ſtated by the proceedings of their council, was unwarranted, impolitic, extravagant, and unjuſt.

Theſe ſevere cenſures extended even to the directors themſelves, whoſe conduct on ſome occaſions was declared to be indefenſible, as well as that of their ſervants and agents. It was alſo reſolved, "That Warren Haſtings, Eſq; governor-general of Bengal, and William Hornſby, Eſq; preſident of the council of Bombay, having, in ſundry inſtances, acted in a manner repugnant to the honour and policy of this nation, and thereby brought great calamities on India, and enormous expences on the India company, it was the duty of the directors to purſue all legal and effectual means for the removal of the ſaid governor-general and preſident from their offices, and to recal them to Britain."

The commons having thus ſeriouſly entered into a conſideration of Eaſt India affairs, ſoon found ſtill more abundant reaſon for cenſure. It was diſcovered, that corruption, fraud, and injuſtice, had pervaded every department. It had become an object with the ſervants of the company to oppreſs the natives by every poſſible method. They monopolized every article of trade, and ſeemed to have no other principle of commerce but lawleſs violence: the Court of Directors ſent out inſtructions; but for the moſt part without any effect. Though the delegated adminiſtration of India ought to have preſerved the ſtricteſt obedience to that of Britain; yet, being at ſo great a diſtance from the ſeat of ſupreme authority, and being poſſeſſed of endleſs means of abuſe, it had become corrupt in an extreme degree. Inſtead of being ſubſervient to government at home, the adminiſtration of India affected independence. The maxims of Mr Haſtings were arbitrary; and he ſeemed to have no inclination to obey. He treated with ſovereign contempt the authority of the Court of Directors; and the confuſion produced by the diſputes between them were foſtered by the body of India proprietors, who were diſpoſed to act as a check upon the directors. The neceſſity of new regulations in the government of India was univerſally admitted; and a bill for this purpoſe was accordingly brought in by Mr Dundas. His propoſitions were, that the governor and council of Bengal ſhould have a controuling power and juriſdiction over the inferior preſidencies of India; and he was of opinion, that the governor-general ſhould be inveſted with a power to act even againſt the will and opinion of the council, whenever he ſhould imagine that, by ſo doing, he could contribute to the public good; though, in theſe caſes, he alone ſhould be reſponſible for the event. With regard to the inferior governors, though he did not think it proper that they ſhould be authoriſed to act contrary to the advice of the council, he was of opinion, that they ought to have a right of negativing every propoſition, until application was made to the governor-general and council of Bengal. With regard to the Zemindaries, and other tenures of land, he obſerved, that when Hindoſtan had been conquered by the Moguls, a tribute was impoſed upon the Zemindars; and while they continued to pay this tribute, they accounted themſelves to be the real proprietors and maſters of the lands they poſſeſſed. The people called *Ryots*, to whom theſe Zemindaries were let out, conſidered themſelves likewiſe as ſecure in their poſſeſſions, while they performed the articles of their reſpective contracts. Of late, however, theſe rights had been infringed; and the Mogul came to conſider himſelf as the abſolute maſter of all the ſoil of Indoſtan: which maxim he was inclined to deſtroy, and erect upon it another, that might ſecure the land-holders in their property. He propoſed to ſecure the nabob of Arcot and rajah of Tanjore in their territories, by making an act of parliament in favour of the latter; but was of opinion, that the debts of theſe princes ought not to be too nicely inquired into, as the greateſt part of them originated in corruption. He was clearly of opinion, however, that Governor Haſtings ought to be recalled; and that ſteps ought to be taken to prevent the court of proprietors from preſuming to act in contradiction to parliament. Lord Cornwallis appeared to be the moſt proper ſucceſſor to Mr Haſtings. His perſonal honour, and that of his anceſtors, were pledges for his good behaviour; and being independent in his fortune, he could have no view of repairing his eſtate out of the ſpoils of India; and from his profeſſion, he could add to the character of governor that of com-

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(A) The power here alluded to was Movdajee Booſla, Rajah of Berar. See INDOSTAN.

commander in chief; he would not, however, inſiſt on his name being filled up in the bill, as that would reſt more properly with government.

Mr Haſtings was defended by Governor Johnſtone, who endeavoured to ridicule the arguments and propoſals of Mr Dundas. He obſerved, to the honour of the former, that he had been able to conclude a peace with the Mahrattas; and while he enlarged on his talents for negociation, he admired the reſources with which he had ſupplied the expences of the war. It ought to be conſidered, that Mr Haſtings was in a ſituation the moſt difficult, and that no man could have ſuſtained it with more fortitude and ability. His enemies had dealt in inſinuation and invective; but when the hour of trial came, they would find that their charges would be refuted with equal eaſe. He was defended alſo by Mr Dempſter, who adviſed the houſe ſeriouſly to think before they paſſed a vote for the removal of Mr Haſtings. His exertions had been extraordinary; and it would then be as ridiculous to ſuperſede him, as it would have been to recal General Elliot, when the Spaniſh batteries were playing againſt Gibraltar. He was not, however, an advocate for all the meaſures of Mr Haſtings; his errors might be numerous: but no cenſure of him ſhould be eſtabliſhed before they were pointed out and explained.

Mr Dundas having now obtained leave to bring in his bill, another was moved for by Sir Henry Fletcher, "That leave be given to bring in a bill to diſcharge and indemnify the united company of merchants trading to the Eaſt Indies, from all damages, intereſt, and loſſes, in reſpect to their not making regular payment of certain ſums due to the public, and to allow farther time for ſuch payment; to enable the company alſo to borrow a certain ſum of money, and to make a dividend to the proprietors of four *per cent.* at midſummer 1783." He endeavoured to ſhow, that the public had derived very conſiderable advantages from the company; that their dividend had been L. 8, 4s. annually during the time of peace, and L. 7, 15s. *per cent.* during war; they were by no means in a ſtate of inſolvency, as ſome members had endeavoured to prove, their preſent application proceeding only from a temporary embarraſſment. A new diſpute took place concerning Mr Haſtings, who was warmly attacked by Mr Burke, and defended by Governor Johnſtone. The former enlarged on the bloodſhed, ravages, and rapacity, which had taken place in India. The eſtabliſhed ſyſtem of the ſervants of the company, he ſaid, was rapine and robbery. The Mahratta war was occaſioned by their refuſal to be robbed; the famine at Madras was occaſioned by the miſconduct of the Engliſh government in India; and he ſet forth in ſtrong colours the manner in which the Indian princes and princeſſes had been plundered. He inſtanced, that Mr Haſtings had raiſed L. 800,000 in Bengal by private loan; and uſed it as an argument, that the company had ceaſed to exiſt, and that their commerce was nothing more than an inſtrument for procuring immenſe fortunes to individuals, totally deſtitute of conſcience or principle.

All this was excuſed by Governor Johnſtone. He regarded the ſum of L. 800,000 as merely trifling, when the number of civil and military ſervants on the Bengal government was conſidered. The famine at Madras was owing to the modes of war which prevailed in the Eaſt; as the enemy there marked their courſe by deſolation. He concluded with cenſuring the manner in which Mr Haſtings had been ſpoken of; and inſiſted that his high reputation ought to have guarded him from ſuch inſults. Mr Burke replied by an intimation of his deſign to impeach Mr Haſtings on his return; whom he called the greateſt delinquent that had ever violated in India the rights of humanity and juſtice.

It was obſerved by Lord John Cavendiſh, that the territorial acquiſitions of the company were a fruitful ſource of grievance; and it would have been more for their advantage to have confined themſelves to their original character of merchants. However, as the territorial acquiſitions had been obtained, it was proper to take means for their preſervation; as otherwiſe they would not revert to the natives, but fall into the hand of their natural enemies the French.

In the houſe of peers the cauſe of the company was ably defended by Earl Fitzwilliam. He maintained, that their ſituation was deſperate, and bankruptcy inevitable, unleſs relief was inſtantly afforded. A report of their being in an inſolvent ſtate had gone abroad; and nothing was better calculated to preſerve and ſupport their credit than a large dividend ſanctioned by act of parliament. The expenditure on their ſettlements had far exceeded their revenue; of conſequence their ſervants had drawn bills, which they were unable to anſwer without a temporary ſupply. Thus the exiſtence of the company might be ſaid to depend on the bill; and he hoped no objections could be raiſed ſtrong enough to deſtroy it.

On the 18th of November 1783, Mr Fox propoſed his celebrated Eaſt India bill, which for ſome time attracted the attention of the nation at large in a very conſiderable degree. By this it was intended to take from the India proprietors and directors the entire adminiſtration of their territorial and commercial affairs. It took from them alſo their houſe in Leadenhall-ſtreet, together with all books, papers, and documents, veſting the entire management, the appointment of all officers and ſervants, the rights of peace and war, and the diſpoſal of the whole revenue, in the hands of certain commiſſioners. Theſe were, in the firſt inſtance, to be appointed by the whole legiſlature, but afterwards by the crown; and were to hold their offices by the ſame tenure as the judges in England, viz. during their good behaviour; and could be removed only by an addreſs from one of the houſes of parliament. They were required to come to a deciſion upon every queſtion within a limited time, or aſſign a ſpecific reaſon for their delay. They were never to vote by ballot; and, almoſt in every caſe, were to enter the reaſon of their vote on their journals. They were alſo to ſubmit, once every ſix months, an exact ſtate of their accounts to the court of proprietors; and at the beginning of every ſeſſion, a ſtate of their accounts and eſtabliſhments to both houſes of parliament. Their number was limited to ſeven; but they were to be aſſiſted by a board of nine perſons, each of them poſſeſſed of L. 2000 company's ſtock; who, as well as the commiſſioners, were to be appointed in the firſt inſtance by parliament, and ever afterwards by the court of proprietors. They were alſo to be removeable at the pleaſure of any five commiſſioners, and were diſqualified from ſitting in the houſe of commons. The whole ſyſtem of government thus propoſed, was to continue for the ſpace of three or five years.

This was accompanied with another bill, the profeſſed deſign of which was to preclude all arbitrary and deſpotic proceedings from the adminiſtration of the company's territorial poſſeſſions. By this the powers of the governor-general and ſupreme council were aſcertained more exactly than had hitherto been done; it deprived the governor-general of all power of acting independent of his council; proſcribed the delegation of any truſt; and declared every Britiſh power in the Eaſt incompetent to the acquiſition or exchange of any territory in behalf of the company, to the acceding to any treaty of partition, the hiring out of the company's troops, the appointing to office any perſon removed for miſdemeanour, or to the hiring out any property to a civil ſervant of the company. By this alſo monopolies were entirely aboliſhed; and illegal preſents recoverable by any perſon for his ſole benefit. The principal part of the bill, however, related to the Zemindars, or native landholders, who were now to be ſecured by every poſſible means in the poſſeſſion of their reſpective inheritances, and defended in all caſes from oppreſſion. Laſtly, a mode was preſented for terminating the diſputes between the nabob of Arcot and the rajah of Tanjour; diſqualifying every perſon in the ſervice of the company from ſitting in the Houſe of Commons during his continuance in their ſervice, and for a certain ſpecified time after his demiſſion.

During the courſe of the debates on this bill, Mr Fox ſet forth the affairs of the company as in the moſt deſperate ſituation. They had aſked leave, he ſaid, the year before, to borrow L. 500,000 upon bonds; had petitioned for L. 300,000 in exchequer bills; and for the ſuſpenſion of a demand of L. 700,000 due to government for cuſtoms. He took notice alſo, that according to an act of parliament ſtill in force, the directors could not, by their own authority, accept bills to the amount of more than L. 300,000; under which circumſtances it would no doubt ſurpriſe the houſe to be informed, that bills were now coming over for accceptance to the amount of L. 2,000,000. It was evidently, therefore, and indiſpenſably neceſſary, that government ſhould interfere in the affairs of the company to ſave them from certain bankruptcy. He ſtated their actual debt at no leſs than L. 11,200,000, while their ſtock in hand did not exceed L. 3,200,000. There was therefore a deficiency of L. 8,000,000; a moſt alarming ſum when compared with the company's capital. Unleſs ſpeedily aſſiſted, therefore, they muſt inevitably be ruined; and the ruin of a company of merchants ſo extenſive in their concerns, and of ſuch importance in the eyes of all Europe, could not but give a very ſevere blow to the national credit. On the other hand, the requiſite aſſiſtance was a matter of very extenſive conſideration. It would be abſolutely neceſſary to permit the acceptance of the bills to the abovementioned amount; and to do this without regulating their affairs, and reforming the abuſes of their government, would only be to throw away the public money.

The conduct of the company's ſervants, and of the company itſelf, was now arraigned by Mr Fox in the moſt ſevere terms; and their miſconducts were pointed out under the following heads:

1. With regard to Mr Haſtings.—The chairman of the committee had moved in the houſe of commons, that it was the duty of the company to recal that gentleman; to which motion the houſe had agreed. In obedience to this reſolution, the directors had agreed that Mr Haſtings ſhould be recalled: but ſuppoſing this to be a matter rather beyond their juriſdiction, they had ſubmitted their determination to a court of proprietors, who reſcinded the reſolution of the directors; and after this the whole affair came to be laid before the houſe of commons. In the mean time every thing was anarchy and confuſion in the Eaſt, owing to this unſettled conduct with regard to the governor; as the whole continent had been made acquainted with the reſolution of the houſe for recalling him, while that of the proprietors for continuing him in his office was kept a ſecret. The proprietors had alſo been guilty of another contradiction in this reſpect, as they had voted their thanks to Mr Haſtings for his conduct in India. Hence Mr Fox was led to comment on the nature of the company's connections with their ſervants abroad, as well as on the character of the company themſelves. Among the former, he ſaid, there were a few, who, being proprietors themſelves, endeavoured to promote the trade of the company, and increaſe its revenues. The views of the reſt were otherwiſe directed; and from the difference in ſpeculation between the two parties, the former were inclined to ſupport that governor who enabled them to make large dividends; and who, for that reaſon, after having peculated for his own advantage, was obliged to do the ſame for the benefit of the proprietors. The latter, therefore, could not better gratify their wiſhes, than by ſupporting a governor who had in his power ſo many opportunities of providing for his friends.

2. The next charge was againſt the ſervants of the company, whom he accuſed of a regular and ſyſtematic diſobedience to the orders of the proprietors.—The ſupreme council of Bengal, he ſaid, had reſolved, in oppoſition to Mr Haſtings, to ſend two gentlemen, Mr Fowke and Mr Briſtow, the one to reſide with the Nabob of Oude, the other at Benares. Mr Haſtings, however, refuſed to ſend them: the directors tranſmitted the moſt poſitive orders to carry the vote of the ſupreme council into execution; but ſtill Mr Haſtings diſobeyed; alleging in his defence, that he could not employ perſons in whom he had no confidence. Afterwards, however, Mr Haſtings ſeemed to contradict himſelf in a very curious manner. He granted Mr Fowke a contract, with a commiſſion of 15 *per cent.*; which, he obſerved, was a great ſum, and might operate as a temptation to prolong the war. "But (added he) the entire confidence I have in the integrity and honour of Mr Fowke, amounts to a full and perfect ſecurity on that head."

To this Mr Fox added ſome other inſtances of a ſimilar kind; but though he ſupported theſe and the projected bill with all the argument and eloquence for which he is ſo remarkable, he found it impoſſible to make his ſcheme agreeable to the majority of the houſe. The ſtrongeſt opponent was Mr William Pitt, who inſiſted chiefly on the two following topics. 1. Its infringement, or rather annihilation of the company's charter; and, 2. The new and unconſtitutional influence it tended to create.—He owned indeed, that India ſtood in need of a reform, but not ſuch a one as broke through every principle of juſtice and reaſon. The charter of the company was a fair purchaſe from the public, and an equal compact for reciprocal advantages between the proprietors and the nation at large; but if it was infringed in the manner propoſed by the bill, what ſecurity could other trading companies have that they ſhould not be treated in the ſame manner? nay, what ſecurity could there be for Magna Charta itſelf? The bill, he ſaid, amounted to a confiſcation of property. It had been ſuggeſted indeed, that it was not a bill of disfranchiſement, becauſe he did not take from the proprietors their right to an excluſive trade: but this was not the only franchiſe of the proprietors. A freehold might have a franchiſe annexed to it, the latter of which might be taken away, and yet the property of the former remain; in which caſe it could not be denied that the freeholders would have great cauſe to complain. The caſe was exactly parallel with the India ſtock. Perſons poſſeſſed of this to a certain amount, were intitled to a vote upon every important queſtion of the company's affairs: and on this account the purchaſe money was more conſiderable. But, by the bill in queſtion, this privilege was to be taken away: which plainly amounted to a disfranchiſement.

The great objection to this bill, however, ſeemed to be a ſuſpicion that it was a ſcheme of Mr Fox to gratify his own perſonal ambition as a miniſter, he being at this time ſecretary of ſtate. On this account he was deſerted even by the patriotic members, who, upon former occaſions, had ſo ſtrenuouſly ſupported his cauſe.—Mr Dundas accuſed him of attempting to create a fourth eſtate in the kingdom, the power and influence of which might overturn the crown and ſubvert the conſtitution of Britain. A petition was preſented from the proprietors, and another from the directors of the company, repreſenting the bill as ſubverſive of their charter, and confiſcating their property, without either charge of delinquency, trial, or conviction. They prayed, therefore, that the acts of delinquency preſumed againſt them might be ſtated in writing, and a reaſonable time allowed them to deliver in their anſwer; and that they might be heard by counſel againſt the bill. About the ſame time the directors gave in a ſtate of the company's affairs, differing in the moſt extraordinary manner from that given by Mr Fox. In this they repreſented the creditor ſide of the account as amounting to L. 14,311,173, and they brought themſelves in debtors to the amount of L. 10,342,693: ſo that of conſequence there was a balance in their favour of L. 3,968,481. This was vehemently conteſted by the ſecretary, who ſaid he could bring objections to the ſtatement of the directors to the amount of more than L. 12,000,000 Sterling. He then entered into a particular diſcuſſion of the articles ſtated in the director's account, and made good his aſſertion. Objections to his method of calculation, however, were made on the part of the company; ſo that nothing could certainly appear to the public but that the company were at that time much diſtreſſed, and would fail entirely unleſs powerfully ſupported by government.

Mr Fox now proceeded to a particular refutation of the arguments brought againſt the bill; in which indeed he diſplayed an aſtoniſhing force of argument and acuteneſs of reaſoning. The objection drawn from the validity of the company's charter, he ſet aſide, by ſhowing that the company had abuſed their power, and that it was therefore neceſſary to take it from them. This he ſaid always had been the caſe, and muſt be the caſe, in a free nation; and he brought the example of James II. who, on account of the abuſe of his power, had been deprived of it by the nation at large. The caſe was the ſame with the company. They had made a bad uſe of their power, and therefore the nation at large ought to deprive them of it. It had been objected by the country gentlemen, that the bill augmented the influence of the crown too much; and by Mr Dundas, that it reduced it to nothing. Both theſe objections, he ſaid, were overturned by the circumſtance of making the commiſſioners hold their office only during good behaviour. Thus, when conſcious that they were liable to puniſhment if guilty, but ſecure in caſe they faithfully diſcharged their truſt, they would be liable to no ſeduction, but would execute their functions with glory to themſelves, and for the common good of their country and of mankind. He then drew a compariſon betwixt his own bill and that of Mr Dundas already mentioned. The bill of the latter, he ſaid, had created a deſpotic authority in one man over ſome millions of his fellow-creatures; not indeed in England, where the remedy againſt oppreſſion was always at hand: but in the Eaſt Indies, where violence, fraud, and miſchief every where prevailed. Thus the bill propoſed by Mr Dundas afforded the moſt extenſive latitude for malverſation, while his own guarded againſt it with every poſſible care; as was inſtanced in its confiding in no integrity; truſting in no character; and annexing reſponſibility not only to every action, but even to the *inaction* of the powers it created.

After having expatiated for a conſiderable time, the ſecretary was ſeconded by Mr Burke, whoſe force of oratory was chiefly directed, as indeed it uſually has been when ſpeaking of India affairs, on the monſtrous abuſe of the company's power in that quarter. He affirmed that there was not in India a ſingle prince, ſtate, or potentate, with whom the company had *come into contact*, whom they had not ſold; that there was not a ſingle treaty they had ever made which they had not broken; and that there was not a prince or ſtate that had ever put any confidence in the company who had not been ruined. With regard to the firſt article Mr Burke inſtanced the ſale of the Great Mogul himſelf; or the Rohillas; the nabob of Bengal; the polygars of the Mahratta empire; Ragobah the pretender to that empire; and the Subah of Decan.—The ſecond article was proved by a review of the tranſactions from the beginning to the end of the Mahratta war. With regard to the third, *viz.* the ruin of ſuch princes as put any confidence in the company or their ſervants, he deſired them to look into the hiſtory and ſituation of the nabob of Oude. In the year 1779, this country had been viſited by a famine; a calamity which had been known to relax the ſeverity even of the moſt rigorous government; yet in this ſituation the preſident of Bengal had put an abſolute negative upon the repreſentation of the prince; adding, That perhaps expedients might be found for affording him a gradual relief; but their effect muſt be diſtant. This diſtant relief, however, never arrived, and the country was ruined.

Our limits cannot allow a particular detail of the charges againſt the company on the one hand, or the defences on the other. In general, it muſt appear, that ſuch ſevere and heavy charges could not be advanced without ſome foundation, though perhaps they may have been conſiderably exaggerated by the orators who brought them. The picture drawn by Mr Burke on this occaſion indeed was ſhocking. "The Arabs, Tartars, and Perſians, had conquered Indoſtan with vaſt effuſion of blood; while the conqueſt of the Engliſh had been acquired by artifice and fraud, rather than by open force. The Aſiatic conquerors, however, had ſoon abated of their ferocity; and the ſhort life of man had been ſufficient to repair the waſte they had occaſioned. But with the Engliſh the caſe had been entirely different. Their conqueſts were ſtill in the ſame ſtate they had been 20 years ago. They had no more ſociety with the people than if they ſtill reſided in England; but, with the view of making fortunes, rolled in one after another, wave after wave; ſo that there was nothing before the eyes of the natives but an endleſs proſpect of new flights of birds of prey and paſſage, with appetites continually renewing for a food that was continually waſting. Every rupee gained by an Engliſhman in India was for ever loſt to that country. With us there were no retributory ſuperſtitions, by which a foundation of charity compenſated, for ages, to the poor, for the injuſtice and rapine of a day. With us no pride erected ſtately monuments, which repaired the miſchiefs pride had occaſioned, and adorned a country out of its own ſpoils. England had erected no churches, no hoſpitals, no palaces, no ſchools (the trifling foundation at Calcutta excepted); England had built no bridges, made no high roads, cut no navigations, dug no reſervoirs. Every other conqueror of every other deſcription had left ſome monument either of ſtate or beneficence behind him; but were we to be driven out of India this day, nothing would remain to tell that it had been poſſeſſed, during the inglorious period of our dominion, by any thing better than the ouran outang or the tiger!"

All this eloquence, however, was at preſent entirely ineffectual, and the bill was finally rejected: much confuſion and altercation enſued, which terminated in a change of miniſtry and diſſolution of parliament. On the 26th of May 1784, a petition from the company was preſented to the houſe of commons, praying for ſuch relief as the nature of their affairs might ſeem to demand. This was followed on the 24th of June by a bill for allowing the company to divide four *per cent.* for the half year concluding with midſummer 1784. This having paſſed, after ſome debate, a new bill was propoſed by Mr Pitt for relieving the company in the mean time, and regulating their affairs in time to come. A bill to this purpoſe had deen brought in during the laſt ſeſſion of the former parliament by the ſame gentleman, which he wiſhed to bring to a compariſon with that of Mr Fox, of which an account has already been given. In this bill he began with laying it down as a principle, that "the civil and military government of India, or, in other words, the imperial dominion of our territories in the Eaſt, ought to be placed under other controul than that of the merchants in Leaden-hall ſtreet; and this controul could be no other than the executive branch of the conſtitution. The commerce of the company, however, ought to be left as free from reſtrictions as poſſible; and, laſtly, capricious effects from the government of India upon the conſtitution of Britain, were to be carefully avoided. A controul in the executive branch of the legiſlature over the government of India had indeed been eſtabliſhed by the regulation bill of 1773; but the former interference of miniſters had not been beneficial, becauſe it had not been active and vigilant. He now propoſed, therefore, that a board ſhould be inſtituted expreſsly for the purpoſe. This board was to be appointed by the king, and to conſiſt of the ſecretary of ſtate for the home department, the chancellor of the exchequer, and a certain number of the privy council. To this board the diſpatches of the company were to be ſubmitted, and were not to be ſent to India until they were counterſigned by them. To prevent queſtions concerning the commercial and political concerns of the company, it was propoſed, that the diſpatches upon the former ſubject ſhould be ſubmitted to the board; and that, in caſe of any difference, an appeal ſhould be made to the king in council. Though he (Mr Pitt) had not thought proper to accept of the propoſal of the company to yield the appointment of foreign councils to the crown, he was nevertheleſs clearly of opinion, that the commander in chief ought to be appointed by the king. He propoſed alſo that this commander ſhould have a vote in council next to the preſident; that the king ſhould be empowered to beſtow the reverſion of his office; that the king might recal the governor-general, the preſidents, and any members of their councils. He yielded the appointment of all officers, with the ſingle exceptions he had ſtated, to the court of directors, ſubject, however, to the approbation of the king; and that, in caſe of a negative, the directors ſhould proceed to a ſecond choice, and ſo on. He deprived the court of proprietors of their privilege of reſcinding or altering the proceedings of their court of directors; and with reſpect to the foreign government, he was of opinion, that their authority ſhould compriſe in it a conſiderable diſcretion, accompanied with the reſtraint of reſponſibility. He propoſed, that there ſhould be a reviſion of the eſtabliſhments in India with a view to retrenchments; that appointments ſhould take place by gradation; and that a new and ſummary tribunal ſhould be erected for the trial of offences committed in that country. With regard to the Zemindaries, though he could not help paying a compliment to Mr Fox, on his intention of reſtoring them to their proper owners, he yet thought that a general and indiſcriminate reſtitution was as bad as an indiſcriminate confiſcation. He therefore propoſed, that an inquiry ſhould be inſtituted for the purpoſe of reſtoring ſuch as had been irregularly and unjuſtly deprived, and that they ſhould in time to come be ſecured againſt violence.

In the bill of 1784 few alterations were made; and theſe uniformly tended to enlarge the powers of the board of controul. They were permitted, in caſes of emergency, to concert original meaſures, as well as to reviſe, correct, and alter thoſe of the directors. In matters relative to peace or war, where ſecrecy was a principal object, they were allowed to ſend their orders directly to India, without any communication with the directors; to the commander in chief, without any communication with the preſidencies: and the number of perſons conſtituting the different councils of Bengal, Fort St George, and Bombay, was determined.—The governor-general and council of Bengal were to have an abſolute power to originate orders to the inferior preſidencies, in ſuch caſes as did not interfere with the directions already received from Britain; adding a power of ſuſpenſion in caſe of diſobedience. The ſupreme council were forbidden, unleſs any of the Indian princes ſhould have firſt commenced or meditated hoſtilites, to enter upon war, or form an offenſive treaty, without orders from home. The inferior councils were forbidden in all caſes to form alliances; and in caſes of urgency, were commanded to inſert a proviſional clauſe, rendering the permanency of the alliance dependent on the confirmation of the governor-general.

Various ſalutary regulations were propoſed concerning the behaviour of the company's ſervants, againſt whom ſo great complaints had been made. Inquiry was ordered to be made by the different preſidencies into the expulſions that might have been made of any of the hereditary farmers, and of the oppreſſive rents and contributions that might have been extorted from them; and meaſures were directed to be taken for their relief and future tranquillity. A ſimilar examination was ordered into the different eſtabliſhments in the Indian ſettlements: a report of which was to be laid annually before parliament. The company were prohibited from ſending out a greater number of cadets or writers than what were abſolutely neceſſary; and it was likewiſe provided, that the age of ſuch as were ſent out, ſhould not be leſs than 15, nor more than 22 years. It was likewiſe provided, that promotions ſhould be made in the order of ſeniority, unleſs in extraordinary caſes; for which the preſidencies ſhould make themſelves ſpecifically reſponſible. Crimes committed by Engliſh ſubjects in any part of India, were made amenable to every Britiſh court of juſtice, in the ſame manner as if they had been committed in Britain. Preſents, unleſs ſuch as were abſolutely ceremonial, or given to a counſellor at law, a phyſician, a ſurgeon, or a chaplain, were abſolutely prohibited, under the penalty of confiſcation of the preſent, and an additional fine at the diſcretion of the court. Diſobedience of orders, unleſs abſolutely neceſſary, and pecuniary tranſactions prejudicial to the intereſts of the company, were declared to be high crimes and miſdemeanors. The company were forbidden to interfere in favour of any perſon legally convicted of any of the above crimes, or to employ him in their ſervice for ever. The governors of the different preſidencies were permitted to impriſon any perſon ſuſpected of illicit correſpondence, and were ordered to ſend them to England with all convenient ſpeed. Every perſon ſerving, or who ſhould hereafter ſerve, in India, was alſo required, on his return to England, to give an exact account, upon oath, to the court of exchequer, of his property, within two months after his arrival; one copy of which was to be kept in the court of exchequer, and the other at the India-houſe. The board of controul, the court of directors, or any three of the proprietors whoſe ſtock ſhould amount together to 1000 l. were allowed to move the court of exchequer to examine the validity of the account. In caſe of an apparently well founded accuſation, the court of exchequer were allowed to examine the party upon oath, and even to impriſon him until the interrogatories propoſed to him ſhould be anſwered. The whole property of a perſon who ſhould neglect to give in ſuch an account within the time limited, or who ſhould have been guilty of a miſrepreſentation in that account to the amount of 2000 l. ſterling, was ordered to be confiſcated; ten *per cent.* to be paid to the accuſer, and the remainder to be equally divided between the public and the company. Every perſon who had once been employed in India, but had afterwards reſided in Europe for five years, unleſs ſuch reſidence had been expreſsly on account of his health, was declared incapable of every being ſent out to India again.

As a farther curb on the company's ſervants, the attorney-general or court of directors was authoriſed to file an information in the court of King's bench againſt any perſon for crimes committed in India. That court was empowered alſo to impriſon or admit the accuſed to bail immediately. It was then ordered, that within 30 days a certain number of peers ſhould be choſen by the houſe of lords, and of the members of the houſe of commons by that houſe, to conſtitute a court for the trial of the accuſed. The court was finally to conſiſt of three judges appointed by the crown, four peers, and ſix members of the houſe of commons; and the accuſed had a right to a peremptory challenge. From this court there was no appeal; and it was empowered to adjudge the party incapable of ever ſerving the company; to puniſh by fine or impriſonment; and in order to proportion the fine to the property of the convict, the court of exchequer might, at the requiſition of the attorney-general, or of the company, examine him upon oath concerning the ſum he was worth. A refuſal to anſwer was to be puniſhed with confiſcation of property, and impriſonment during pleaſure.

With regard to the treatment of delinquents in India, Mr Pitt obſerved, that at that time we had it not in our power to puniſh them. Either a new proceſs muſt therefore be inſtituted, or offences, equally ſhocking to humanity, and contrary to every principle of religion and juſtice, muſt be permitted to continue unchecked. Every perſon therefore who went hereafter, would know the predicament in which he ſtood; and would underſtand, that by ſo doing he agreed to give up ſome of the moſt valuable privileges of an Engliſhman: yet in this he would do no more than a very numerous and honourable body of men, the military, did daily, without the leaſt heſitation, or the ſmalleſt impeachment of their character.

This bill, ſo tremendous in its appearance to the company's ſervants, was vehemently oppoſed by the minority. Mr Francis obſerved, that it went upon two principles, *viz.* the abuſe of power abroad, and the want of it at home. To remedy theſe, Mr Pitt had propoſed to augment the power abroad, and to diminiſh that at home. He condemned the unlimited power of the commiſſioners, and even pretended to ſuppoſe that there muſt have been ſome miſtake in the ſtructure of the clauſe; it being impoſſible to think that it was intended to ſet aſide the directors at home and the government abroad, in order to throw the whole power into the hands of a military commander. Though he approved of the clauſe by which ſchemes of conqueſt and extenſion of territory were condemned, he remarked, that it was eſſentially defective in other reſpects; as alluding to facts and offences which were not deſcribed, and to criminals whom, ſo far from puniſhing, it did not venture to deſcribe. With reſpect to the affair of preſents, he confeſſed that his opinion was rather ſingular. He was for an unlimited prohibition to men in high ſtations; but in the ordinary tranſactions of buſineſs, he was of opinion that they were uſeful, without giving room for any juſt apprehenſions. The government of India, as it was now conſtituted, was a government of favour, and not of juſtice; and nothing would be done for the natives unleſs the perſons who forwarded their affairs were gratified. In the mean time, however, the exception in favour of preſents of ceremony was founded upon ideas which he knew to be fallacious, and was even calculated to render the prohibition itſelf uſeleſs and ineffectual. For the purpoſe of receiving preſents of ceremony, all occaſions would be ſufficiently ſolemn. He warmly cenſured alſo the power of impriſonment given to the reſpective preſidencies, and he condemned the inſtitution of the new court of judicature as unneceſſary, arbitrary, and dangerous.

By Mr Fox the bill was ſo highly diſapproved of, that he objected to the houſe going into a committee upon it. He endeavoured to ſhow, that inſtead of diminiſhing, it was calculated to increaſe the calamities of the Eaſt; and inſtead of reforming, to prepetuate the abuſes ſo much complained of. The board of controul, he ſaid, provided for a weak government at home by a diviſion of power; and if there were a receipt or a noſtrum for making a weak government, it was by giving the power of contriving meaſures to one, and the nomination of the perſons who were to execute them to another. The negative given to the commiſſioners operated as a complete annihilation of the company, and the chartered rights ſo much vaunted of. The bill was a ſcheme of dark and deluſive art, and took away the rights of the company by ſlow and gradual ſap. The firſt ſtep was originally to contrive meaſures without the knowledge of the company; and the next, to convey orders ſecretly to India, at the very time perhaps that the commiſſioners were openly giving countenance to orders of a quite different tendency ſent from the directors. With regard to the new tribunal, he conſidered it as in truth a ſcreen for delinquents; ſince no man was to be tried but on the accuſation of the company or of the attorney-general; in which caſe he had only to conciliate government in order to remain in perfect ſecurity.

The oppoſition of Mr Fox's party againſt this bill proved as fruitleſs as their efforts had been in favour of the other. The houſe divided on the ſpeaker's leaving the chair; when the motion was carried by a majority of 215. Still however, all parts of the bill were warmly debated. In the courſe of converſation upon this ſubject, Mr Dempſter expreſſed a wiſh that the king could be requeſted to ſend over one of his ſons to become ſovereign of that country. They might then enter into a federal union, and enjoy all the benefits that could be derived from the inhabitants of the Eaſt by Europeans, *viz.* thoſe of commerce. The clauſes relative to the native princes and hereditary farmers were all withdrawn at the motion of Mr Dundas; and under the head of preſents, the exception in favour of thoſe of ceremony was withdrawn. That clauſe, which inſiſted on all perſons returning from India to give an account of the value of their eſtates upon oath, was ſeverely cenſured by Mr Dempſter and Mr Eden; and after ſome debate was entirely withdrawn, as was alſo the idea of making the perſon take the oath when required by the board of controul. Mr Pitt then propoſed, that perſons who had paſſed five years in India, and accumulated no more than L. 5000 for that time, or double that ſum for the next five years, ſhould be exempted from all proſecution on the ſcore of their fortunes. But on a ſuggeſtion by Mr Atkinſon, that, in caſe of ſickneſs, it might not be practicable for a perſon arriving from India to give in an account upon oath in the ſpace of two months; on which ſuggeſtion, a power was granted to the court of exchequer for extending the term from time to time as they ſhould think proper. It had been the original idea of the chancellor, that this juriſdiction ſhould take place in twelve months; and it had been objected, that thus perſons would be deprived of the trial by jury, without time being granted them to chooſe whether they would ſubmit to the condition. Mr Pitt now moved, that no account upon oath ſhould be required of any perſon who ſhould arrive from India before the firſt of January 1789. This amendment was likewiſe cenſured by oppoſition, as holding out an indemnity to peculators, and a warning for them to return within the aſſigned period. It was remarked by Mr Sheridan, that by the bill before the houſe, a perſon who took the oath would be liable all his lifetime to a proſecution for perjury. He could therefore make no ſettlement of his fortune; he could not ſell or mortgage his eſtate, as nobody would have any thing to do with a property which was ſtill liable to conteſt and forfeiture. This repreſentation produced another amendment, limiting the commencement of a proſecution to the period of three years. The clauſe prohibiting the return of any perſon to India under certain conditions, was alſo mitigated by two amendments from the chancellor; one of them exempting the officers of the king from its operation; and the other permitting the reſtoration of any perſon with the conſent of the directors, and three-fourths of the court of proprietors.

With theſe amendments the bill finally paſſed the houſe of commons on the 28th of July. On being carried up to the houſe of lords, it met with a very vigorous oppoſition; the principal ſpeakers againſt it being Lord Stormont and the Earl of Carliſle. The former animadverted upon the principle of ſeniority eſtabliſhed by it; which he ſaid was particularly ill-ſuited to the critical poſture of their affairs at preſent in India; and he aſſerted, that had ſuch a clauſe been in effect at the time that Lord Clive firſt entered into the company's ſervice, there would not

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have been an inch of the territorial poſſeſſions at preſent belonging to Britain. It would damp the ardour of emulation, check the riſing ſpirit of the youth now in Aſia, and that at a time when the moſt extraordinary talents were neceſſary to raiſe them from their inauſpicious and ruined condition. He objected alſo to the power of recal in the board of controul; which, he ſaid, was by no means a ſufficient check upon the company's ſervants in India. The diſtance of time and place, he ſaid, were ſo great, that a recal from India could not have the leaſt effect. But theſe remonſtrances had very little weight with the houſe; the bill being finally paſſed on the 9th of Auguſt.

Some years after this, however, a declaratory law was found neceſſary, in conſequence of a controverſy which had ariſen between the board of controul and the company. It had been reſolved, in the month of October 1787, when his Majeſty had reaſon to be alarmed, and to look with more than common anxiety to the ſafety and preſervation of every part of the Britiſh dominions, to ſend out four additional regiments for the better protection of their Indian poſſeſſions; nor was the deſign taken up as a temporary, but with a view to a permanent eſtabliſhment of his Majeſty's troops in India. At that time, no unwillingneſs to receive the regiments on board the company's ſhips, and provide for their ſupport in India, had been intimated by the court of directors; but, on the contrary, the meaſure had been conſidered as a wiſe one, and the ſuggeſtion of it had given univerſal ſatisfaction. Since, however, the threatening ſtorm had been diſperſed, far different ſentiments prevailed. Some of the directors, at leaſt, were of opinion, that unleſs they made a requiſition to government for further military aſſiſtance, they had it in their option to bear, or to refuſe to bear, the expence of any additional regiments of his Majeſty's army which might be ſent to India; and this opinion ſeemed to be, in a great meaſure, grounded on the act of 1781, by which the Eaſt India company were bound to pay for ſuch of his Majeſty's troops as had, by their requiſition, been ſent to India. This idea had been much agitated without doors, and the directors had thought proper to conſult different counſel of eminence on the ſubject.

In this buſineſs two queſtions naturally aroſe—Firſt, Whether the king had a right to ſend his troops to any part of his dominions? and, ſecondly, If he ſent them to India, who ought to defray the expence? That his Majeſty had an undoubted right, by his royal prerogative, to direct the diſtribution of his army, no one could, with any colour of reaſon, diſpute. The only point, therefore, which offered itſelf for diſcuſſion was, whether, if his Majeſty, by virtue of his prerogative, thought proper to ſend four additional regiments to India, the expence of ſending them, and their ſupport, ought to be provided for out of the revenues of India, which they protected? It was certainly the opinion of miniſters, that by the act of 1784, the authority and power of the court of directors, touching the military and political concerns of India, and alſo the collection, management, and application of the revenues of the territorial poſſeſſions, was transferred to the board of controul, which might direct the appropriation of theſe revenues in the manner that to them ſhould appear to be moſt for the public advantage; but as doubts had been entertained by others, and the opinions of counſel, confirming thoſe doubts, had been taken, all of which had gone abroad into the world, it was conſidered as a neceſſary meaſure to call upon the different branches of the legiſlature to remove thoſe doubts in the moſt effectual way by a bill. It was certainly very evident, that, on the preſent occaſion, the four regiments might, on board the company's ſhips, be ſent out to India at a very inconſiderable expence; whereas, if tranſports had been ſpecially provided for that purpoſe, the expence muſt have been enormous. To oblige the company, therefore, to pay the expence out of their Indian revenues, as had already been intimated to them by the commiſſioners of controul, the chancellor of the exchequer moved, on the 5th of February 1788, "That leave be given to bring in a bill for removing any doubts reſpecting the power of the commiſſioners for the affairs of India."

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In explanation of this bill, and in anſwer to the remarks of oppoſition, Mr Pitt deſired to remind the houſe that he had provoked the diſcuſſion of the bill, and had earneſtly ſolicited them to bring it to the teſt of the moſt ſevere and ſcrupulous inveſtigation. He found that it would be diſputed, whether by the act of 1784 the board of controul had any right of ſuperintendence over the revenue? Would it be contended that parliament meant to leave the finances in the hands of the company, who had been declared unfit to be truſted with them? Was it likely, that, when they provided for the better management of the political and military concerns, they had paid no attention to the circumſtance upon which theſe concerns inſeparably depended? The board of controul had already proceeded to reduce the enormous eſtabliſhments in India; their right of interference in that reſpect had never been queſtioned; and what indeed would be the conſequence of denying this right? The court of directors, if they had it in their power, as the expiration of their charter drew near, and it was doubtful whether their monopoly would be renewed, would certainly make it their firſt object to ſwell the amount of their imports, and would neglect the care of the territorial and political ſtate of India. The duty of adminiſtration was to look, firſt, to the proſperity and happineſs of the natives; ſecondly, to the ſecurity of the territorial poſſeſſions; thirdly, to the diſcharge of the debts due to the perſons who had advanced their money, and enabled the company to ſtruggle with their late difficulties; and, in the laſt place, to the commercial benefit of the proprietors. Was it probable that the court of directors would act upon that ſcale? Could it have been intended to confide in their diſcretion? It had been ſaid, that the powers attributed to the board of controul were the ſame in ſubſtance as had before been given to the ſecretaries of ſtate and the lords of the treaſury. But the fact was otherwiſe. The court of directors had been obliged to communicate their diſpatches previous to their going to India: but there was no obligation upon the ſecretary of ſtate to give any directions concerning them. The reſponſibility had ordinarily reſted under the former government, with the court of directors; under the preſent it was wholly veſted with the board of controul.

An objection had been ſtated, that the declaratory bill conveyed to the king the power of maintaining an army without the conſent of parliament. No propoſition (Mr Pitt obſerved) could be more adverſe to his intentions than that which was thus imputed to him. But in reality the troops in queſtion had already been recognized by parliament when they voted the eſtimate for raiſing them ; and the number of king's regiments ſerving in India would always be to be aſcertained by the company belonging to each, which remained in England for the purpoſe of recruiting, and the expence of which would be to be provided for by parliament.

Mr Pitt acknowledged, that it had been the object of the act of 1784 to aſſume the power of ſuperintendence and controul, without aſſuming the power of patronage. In the preſent bill he declared, that every thing had been done which his underſtanding had ſuggeſted for the diminution of patronage. The regiments in queſtion belonged to the crown ; and of courſe it could not be ſuppoſed that the ſovereign could entirely depart from his prerogative of naming his own officers. But the king had acted with the moſt gracious attention to the company, and to the merits of the officers who had grown grey in their ſervice ; having relinquiſhed nearly half the patronage of the regiments, and leaving the diſpoſal of theſe commiſſions to the court of directors. The company indeed alleged that they had 600 officers unemployed ; but the king could not forget that he had 2800 officers upon half-pay, not perhaps more meritorious, but certainly not leſs ſo, than thoſe in the company's ſervice, and many of whom had actually ſerved with diſtinction in India. Such had been the forbearance he had thought it proper to exerciſe upon the ſubject of patronage. But if, by the objection that had been ſtarted, it was intended to refer to the great political patronage, this he did not deny that he had at all times intended to aſſume. Men who were reſponſible for the government of a country, ought undoubtedly to have the appointment of thoſe whom they were to entruſt with the execution of their orders. But it would be admitted that the patronage left to the company was very conſiderable, when the great extent of their military eſtabliſhment was properly recollected. Mr Pitt added, that the objections that were ſtarted on this head would poſſibly throw difficulties in the way of the conſolidation of the two armies in India ; an object on many accounts deſirable, and which in ſome way or other muſt be attempted. If it ſhould be thought adviſable to make the whole army royal, then undoubtedly the patronage of the crown would be greatly increaſed. He believed, however, that the meaſure was neceſſary ; and there was ſcarcely any thing to which he would not aſſent, to remove the apprehenſions of the nation reſpecting the undue uſe of this patronage. For the bill now before the houſe, Mr Pitt profeſſed himſelf ready to propoſe clauſes that ſhould annihilate every ſuſpicion of danger.

The ſpeech of Mr Pitt produced a favourable effect upon the country gentlemen ; and the clauſes which he had alluded to being moved, were received without any debate. Theſe provided, That no king's troops, beyond the number which was now propoſed, ſhould be ſent to India under the authority of any exiſting law : That no increaſe of ſalary ſhould be given to any of the ſervants of the company, without the diſpatches for that purpoſe being laid before both houſes of parliament thirty days previous to their being ſent ; and that no gratuity ſhould be given, the propoſal for which did not originate with the court of directors. A fourth clauſe was added to theſe by the miniſter, which had not preciſely the ſame object : it directed, that an account of the revenues and diſburſements of the company ſhould be laid before parliament at a certain aſſigned period in the courſe of every year.

The bill was carried up to the houſe of lords on the 14th of March, read a firſt time on the following day, which was Saturday, and propoſed for a ſecond reading on the enſuing Monday. This precipitation was made the ſubject of a petition, offered by certain proprietors, and preſented to the houſe by the Duke of Norfolk, in which they requeſted a delay of three days, till a general meeting could be held of the proprietors of the Eaſt India company. To this ſuggeſtion it was objected by Lord Thurlow and Lord Hawkeſbury, that the ſhips of the Eaſt India company were now detained in port at the enormous expence of three or four hundred pounds *per diem*. By Lord Stormont and Lord Loughborough it was replied, that no expence, however great, ought to weigh in the conſideration of the preſent queſtion. The bill decided upon a matter of private right, and parliament could not juſtly refuſe to hear the petitioners. The houſe divided upon the queſtion, contents 32, not contents 75. A motion of Lord Porcheſter was rejected by a ſimilar majority, for referring a queſtion to the twelve judges reſpecting the true meaning and intent of the act of 1784.

The Duke of Richmond ſaid, that he was peculiarly circumſtanced on the preſent occaſion, ſince he had never been pleaſed with any of the bills for the government of India that had yet been brought into parliament. He had ever been of opinion, that the concerns of the Eaſt were truſted in the beſt hands when they were veſted in the company itſelf. He had oppoſed the bill of 1783, becauſe it flagrantly violated the charter of the company, and placed an immenſe power in the hands of a commiſſion, that was not reſponſible, ſo far as he could find, either to the king or the parliament. He had oppoſed the act of 1784, becauſe it gave to the crown an enormous addition of power. But he could not admit that that act was in any degree ſo violent and deſpotical as the bill which preceded it. The declaratory meaſure now under conſideration muſt neceſſarily have his complete approbation. It conſiſted of two diſtinct parts ; its expoſition of the act of 1784, and certain enacting clauſes containing checks and reſtraints upon the extenſive patronage that the government of the Eaſt naturally gave. To the former part he muſt inevitably agree. That the act of 1784 gave to the board of controul complete authority, had always been his opinion. For that reaſon he had oppoſed it : but, entertaining that opinion, he muſt juſtify the preſent bill, which in his mind was a true declaration of the fact. He could not but equally approve of the reſtraints that were propoſed upon the exerciſe of patronage. Patronage was inſeparable from power. But when he ſaw the in-

induſtry with which it was limited, and miniſters were tied down from the abuſe of it; when he ſaw that it was not to be uſed otherwiſe than for the good of the ſervice, he could not view the preſent meaſure with the ſame jealouſy with which he was accuſtomed to regard propoſitions for extending the power of the crown.

The bill, however, underwent a ſevere diſcuſſion in this as it had done in the other houſe; but at length paſſed.

In May following a petition was preſented to the houſe of commons by the company, ſtating certain pecuniary embarraſſments which they apprehended to take place on the firſt of March 1790, owing to the arrears of the war, to the government claim of L. 500,000, to the debt incurred in China, and to the advances neceſſary to be made for the purpoſes of the China trade. In compliance with their petition, Mr Pitt moved on the following day that they ſhould be empowered to borrow a ſum not exceeding L. 1,200,000. He at the ſame time obſerved, that in all probability the company in 1791 would have upwards of L. 3,000,000 Sterling more than ſufficient to diſcharge their debts. The meaſure was carried thro' both houſes without oppoſition.

3. *Hudſon's Bay Company.* The vaſt countries which ſurround Hudſon's Bay abound with animals whoſe furs and ſkins are excellent, being far ſuperior in quality to thoſe found in leſs northerly regions. In 1670, a charter was granted to a company, which does not conſiſt of above nine or ten perſons, for the excluſive trade to this bay; and they have acted under it ever ſince with great benefit to themſelves. The company employ four ſhips and 130 ſeamen. They have ſeveral forts, *viz.* Prince of Wales's fort, Churchill river, Nelſon, New Severn, and Albany, which ſtand on the weſt ſide of the bay, and are garriſoned by 186 men. The French, in May 1782, took and deſtroyed theſe forts, and the ſettlements, &c. valued at 500,000 l. They export commodities to the value of 16,000 l. and bring home returns to the value of 29,340 l. which yield to the revenue 3374 l. This includes the fiſhery in Hudſon's Bay. This commerce, ſmall as it is, affords immenſe profits to the company, and even ſome advantages to Great Britain in general; for the commodities they exchange with the Indians for their ſkins and furs, are all manufactured in Britain; and as the Indians are not very nice in their choice, ſuch things are ſent of which they have the greateſt plenty, and which, in the mercantile phraſe, are drugs with them. Though the workmanſhip too happens to be in many reſpects ſo deficient that no civilized people would take it off their hands, it may be admired among the Indians. On the other hand, the ſkins and furs brought from Hudſon's Bay, enter largely into the Britiſh manufactures, and afford materials for trading with many nations of Europe to great advantage. Theſe circumſtances tend to prove inconteſtably the immenſe benefit that would redound to Great Britain, by throwing open the trade to Hudſon's Bay, ſince even in its preſent reſtrained ſtate it is ſo advantageous. This company, it is probable, do not find their trade ſo advantageous now as it was before the Engliſh got poſſeſſion of Canada. The only attempt made to trade with Labrador has been directed towards the fiſhery, the annual produce of which exceeds 49,000 l.

The above are the principal trading companies preſently ſubſiſting in Great Britain; but to the number might have been added one of vaſt importance, the *Scotch Darien Company*, had it not been for the crooked and puſillanimous policy of the Engliſh miniſtry at the time. For an account of which, ſee the article DARIEN.

Greenland COMPANY. See GREENLAND.

Banking COMPANIES. See BANK.

Of eſtabliſhments ſimilar to the above in other countries, the following, belonging to the Dutch and French, may be mentioned as the moſt important.

I. DUTCH Companies. 1. Their Eaſt India company had its riſe in the midſt of the ſtruggle which that people had for their liberty: for the Spaniards having forbidden all commerce with them, and ſhut up all their ports, neceſſity inſpired ſome Zealanders to ſeek a new north-eaſt paſſage to China.

This enterpriſe proving unſucceſsful to three ſeveral armaments in 1594, 1595, and 1596, a ſecond company was formed under the name of the *Company of remote Parts:* which, in 1595, took the ordinary route of the Portugueſe to the Indies, and returned in two years and a half's time with little gain but good hopes.

This company, and a new one juſt eſtabliſhed at Amſterdam, being united, equipped other fleets; and theſe occaſioned other companies at Amſterdam, Rotterdam, in Zealand, &c. inſomuch that the ſtates ſoon began to apprehend they might be prejudicial to each other. Under this concern, they called all the directors of the ſeveral companies together; who all conſented to an union, the treaty whereof was confirmed by the States in 1602; a very remarkable epocha, as being that of the moſt ſolid and celebrated eſtabliſhment of commerce that ever was in the world.

Its firſt capital was ſix millions ſix hundred thouſand guilders. It had ſixty directors, divided into ſeveral chambers; twenty in that of Amſterdam, twelve in that of Zealand, fourteen in that of Delft and Rotterdam, and a like number in thoſe at Sluys and Horn. As each grant expires, the company is obliged to procure a new one, which it has already done five times ſince the firſt, paying a conſiderable ſum each time. The laſt application was in 1773, when the company, after ſtating that its trade had declined, ſolicited the ſtates-general to grant a diminution of the ſum formerly paid for the renewal of the charter. Upon this repreſentation, their high mightineſſes, in order to have time to enquire into the matter, prolonged the charter for three years, upon the old eſtabliſhment; and finding upon examination, that the company had really ſuſtained great loſſes, and its trade conſiderably declined, they acted with the ſpirit of a wiſe commercial commonwealth, by complying with the company's requeſt. They therefore, in 1776, granted them a new charter for 30 years, on the ſame terms as the former, on the immediate payment of 2,000,000 of florins, inſtead of 3,000,000 which they paid before; and the ſum of 360,000 florins yearly; which annual payment they were allowed to make either in money or merchandize. In conſequence of this indulgence, the ſtock of the company roſe in a ſhort time no leſs than 19 per cent.

Their factories, reſidences, &c. in the Eaſt Indies, are very numerous; reaching from the Perſian gulph to the coaſt of China: the principal is that of Batavia, the centre of their commerce: here reſides their general, with the ſtate and ſplendor of a ſovereign prince; making war and peace with the eaſtern kings and emperors at pleaſure.

The other more conſiderable factories are, Taiouam on the coaſt of China, Nangiſac in Japan, Malacca, Surat, Amboyna, Banda, Siam, Moluccas, &c. ſeveral on the coaſt of Coromandel, and at Iſpahan, Cape of Good Hope, &c. in all, they number 40 factories and 25 fortreſſes. They have the whole trade of the ſpicery in their own hands.

2. Their *Weſt India Company* was eſtabliſhed in 1621, with an excluſive privilege to trade 24 years along the coaſts of Africa, between the tropic of Cancer and the Cape of Good Hope; and in America from the ſouth point of Newfoundland, through the ſtraits of Magellan, that of Le Maire, or others, to the ſtraits of Anian, both in the North and South Sea. The directors are divided into five chambers (as in the Eaſt India company), out of which 19 are choſen for the general direction of affairs. In 1647, the company renewed its grant for 25 years; but it was ſcarce able to hold out the term, on account of its great loſſes and expences in taking the bay of Todos los Santos, Fernambuc, and the greateſt part of Brazil, from the Portegueſe. The weakneſs of this company, which had ſeveral times in vain attempted to be joined to that of the Eaſt Indies, occaſioned its diſſolution at the expiration of its grant.

In 1674, a new company, compoſed of the ancient proprietors and their creditors, was ſettled in the ſame rights and eſtabliſhment with the former; and ſtill ſubſiſts, though conſiderably decayed. Their firſt capital was about ſix millions of florins. Its principal eſtabliſhments are, one at Cape Verd, another on the Gold Coaſt of Africa, at Tobago, Curaſſao, &c. in America.

II. French Companies. 1 Their *Eaſt India Company* was eſtabliſhed in 1664 with an excluſive privilege to trade for 50 years in all the ſeas of the Eaſt Indies and South Sea. No adventurer to be admitted without 1000 livres in ſtock; and foreigners who have 20,000 livres in ſtock to be reputed regnicoles.

The patent grants them the iſland of Madagaſcar; and the king to be at one-fifth of the expence of the three firſt armaments, without intereſt: the principal to be refunded in ten years; or, if the company find it loſes on the whole, the loſs to fall on the king's ſide.

The capital fund of the company, which was moſtly furniſhed by the king, was ſeven or eight millions of livres, but was to have been fifteen millions.

In effect, though no means were wanting to ſupport the company, yet it ſtill drooped and ſtill ſtruggled; till having ſubſiſted ten years without any change in its form, and being no longer able to diſcharge its engagements, there were new regulations concerted, but to little purpoſe. At length, things not being diſpoſed for a new Eaſt India company, nor much good to be expected from the old one, in 1708 the miniſtry allowed the directors to treat with the rich traders of St Malo, and reſign to them their privilege under certain conditions. In the hands of theſe laſt, the company began to flouriſh. See *India* Company, below.

Its chief factory is at Pondicherry, on the coaſt of Coromandel. This is the reſidence of the director-general; the other factories are inconſiderable. The merchandizes which the company brings into France are, ſilks, cottons, ſpices, coffee, rice, ſaltpetre; ſeveral kinds of gums and drugs, wood, wax, printed calicoes, muſlins, &c.

2. Their *Weſt India Company* was eſtabliſhed in 1664. Their charter gave them the property and ſeigniory of Canada, Acadia, the Antilles iſlands, Iſle of Cayenne, and the Terra Firma of America, from the river of the Amazons to that of Oroonoko; with an excluſive privilege for the commerce of thoſe places, as alſo of Senegal and the coaſts of Guinea, for 40 years, only paying half the duties. The ſtock of the company was ſo conſiderable, that in leſs than ſix months 45 veſſels were equipped; wherewith they took poſſeſſion of all the places in their grant, and ſettled a commerce: yet this only ſubſiſted nine years. In 1674, the grant was revoked, and the countries above reunited to the king's dominions as before; the king reimburſing the actions of the adventurers. This revocation was owing partly to the poverty of the company, occaſioned by its loſſes in the wars with England, which had neceſſitated it to borrow above a million, and even to alienate its excluſive privilege for the coaſts of Guinea: and partly to its having in good meaſure anſwered its end; which was to recover the commerce of the Weſt Indies from the Dutch, who had torn it from them: for the French merchants, being now accuſtomed to traffic to the Antilles, by permiſſion of the company, were ſo attached to it, that it was not doubted they would ſupport the commerce after the diſſolution of the company.

3. Their *Miſſiſſippi Company* was firſt eſtabliſhed in 1684 in favour of the Chevalier de la Salle; who having projected it in 1660, and being appointed governor of the fort of Frontignac at the mouth of that river, travelled over the country in the year 1683, and returned to France to ſolicit the eſtabliſhment. This obtained, he ſet ſail for his new colony with four veſſels loaden with inhabitants, &c. but entering the Gulph of Mexico, he did not, it ſeems, know the river that had coſt him ſo much fatigue, but ſettled on another river unknown, where his colony periſhed by degrees; ſo that in 1685 there were not 100 perſons remaining. Making ſeveral expeditions to find the Miſſiſſippi, he was killed in one of them by a party who mutinied againſt him; whereupon the colony was diſperſed and loſt. M. Hiberville afterwards ſucceeded better. He found the Miſſiſſippi, built a fort, and ſettled a French colony there; but he being poiſoned, it is ſaid, by the intrigues of the Spaniards, who feared ſuch a neighbour, in 1712 M. Crozat had the whole property of trading to the French territories called *Louiſiana* granted him for 15 years.

4. *Company of the Weſt*. In 1717, the Sieur Crozat ſurrendered his grant; and in the ſame year a new

company was erected under the title of *Company of the Weſt*: to which, beſides every thing granted to the former company, was added the commerce of beaver, enjoyed by the Canada company from the year 1706, but expiring in 1717. In this eſtabliſhment, an equal view was had to the finances and the commerce of the nation, and accordingly, part of the conditions of its eſtabliſhment regarded the ſettling of a colony, a trade, &c. the other the vending part of the bills, called *bills of ſtate*, which could no longer ſubſiſt on their preſent footing. The former are no more than are uſual in ſuch eſtabliſhments: for the latter, the actions are fixed at 500 livres, each payable in bills of ſtate; the actions to be eſteemed as merchandize, and in that quality to be bought, ſold, and trafficked. The bills of ſtate, which make the fund of the actions, to be converted into yearly revenue. To put the finiſhing hand to the company, in 1717 its fund was fixed at an hundred millions of livres; which being filled, the caſh was ſhut up.

5. *India Company*. The junction of the former company with that of Canada was immediately followed by its union with that of Senegal, both in the year 1718, by an arret of council; which at the ſame time granted the new company the commerce of beavers, and made itſelf miſtreſs of the negro or Guinea trade to the French colonies in America.

Nothing was now wanting to its perfection but an union with the Eaſt India company, and with thoſe of China and St Domingo; which was effected, with the two firſt in 1719, and with the third in 1720. This union of the Eaſt India and China company with the company of the Weſt, occaſioned an alteration of the name; and it was henceforth called the *India Company*.

The reaſons of the union were, the inability of the two former to carry on their commerce; the immenſe debts they had contracted in the Indies, eſpecially the Eaſt company, complaints whereof had been ſent to court by the Indians, which diſcredited the company ſo that they durſt not appear any longer at Surat; the little care they took to diſcharge their engagements; and their having transferred their privilege to the private traders of St Malo, in conſideration of a tenth in the profits of the returns of their ſhips.

The ancient actions of the company of the Weſt, which were not at par when this engraftment was projected, before it was completed, were riſen to 300 *per cent.*; which unexpected ſucceſs gave occaſion to conclude the new actions of the united companies would not bear leſs credit. The concourſe of ſubſcribers was ſo great, that in a month's time there were above fifty millions ſubſcribed for: the firſt twenty-five million actions which were granted to the India company, beyond the hundred millions of ſtock allowed the company of the Weſt, being filled as ſoon as the books were opened: to ſatisfy the earneſtneſs of the ſubſcribers, the ſtock was increaſed by ſeveral arrets to three hundred millions. Credit ſtill increaſing, the new actions roſe to 1200 *per cent.* and thoſe of the ancient company of the Weſt to 1900 *per cent.*; an exorbitant price, to which no other company ever roſe. Its condition was now ſo flouriſhing, that in 1719 it offered the king to take a leaſe of all his farms for nine years, at the rate of three millions five hundred thouſand livres *per annum* more than had been given before; and alſo to lend his majeſty twelve hundred millions of livres to pay the debts of the ſtate. Theſe offers were accepted; and the king, in conſideration hereof, granted them all the privileges of the ſeveral grants of the companies united to that company to the year 1770; on condition, however, of diſcharging all the debts of the old Eaſt India company, without any deduction at all. The loan of twelve hundred millions not being ſufficient for the occaſions of the ſtate, was augmented three months afterwards, with three hundred millions more; which, with the former loan, and another of one hundred millions before, made ſixteen hundred millions, for which the king was to pay intereſt at the rate of three *per cent.*

The Duke of Orleans, in February 1720, did the company the honour to preſide in their aſſembly, where he made ſeveral propoſals to them on the part of the king: the principal of theſe was, that they ſhould take on them the charge and adminiſtration of the royal bank. This was accepted of; and Mr Law, comptroller-general of the finances, was named by the king inſpector-general of the India company and bank united.

This union, which, it was propoſed, ſhould have been a mutual help to both thoſe famous eſtabliſhments, proved the fatal point from whence the fall of both commenced: from this time, both the bank bills and the actions of the company began to fall. In effect, the firſt periſhed abſolutely; and the other had been drawn along with it but for the prudent precautions taken for its ſupport.

The firſt precaution was the revoking the office of inſpector-general, and the obliging Mr Law to quit the kingdom: the ancient directors were diſcarded, and new ones ſubſtituted; and, to find the bottom of the company's affairs, it was ordered they ſhould give an account of what they had received and diſburſed both on the account of the company and of the bank, which they had had the management of near a year. Another precaution to come at the ſtate of the company was by endeavouring to diſtinguiſh the lawful actionaries from the Miſſiſippi extortioners; whoſe immenſe riches, as well as their criminal addreſs in realizing their actions either into ſpecie or merchandize, were become ſo fatal to the ſtate; in order, if poſſible, to ſecure the honeſt adventurers in their ſtock. To this end, an inquiſition was made into their books, &c. by perſons appointed by the king; and the new directors, or, as they were called, *regiſſeurs*, began ſeriouſly to look about for their commerce abroad. Their affairs, however, declined, and at lenth ſunk into a ruined and bankrupt ſtate about the year 1769. The king immediately ſuſpended their excluſive privileges, and laid the trade to the eaſt open to all his ſubjects; conſigning, at the ſame time, the affairs of the company to the care of the miniſtry to adjuſt and ſettle. But the various ſchemes which were then formed for the reſtoration of the old company and the eſtabliſhment of a new one, were accompanied with ſuch unſurmountable difficulties, as to prove wholly ineffectual. Nor was the laying open of the trade attended immediately with the ſucceſs that was expected; the merchants being very ſlow in engaging in it, though the king, by way of en-

encouragement, lent them ſome of his own ſhips to convey their commodities to the Eaſt; and the garriſon and civil eſtabliſhments continued to be ſupported in their exiſting form by the crown. The meaſure, however, proved in time ſucceſsful; ſo that for a courſe of years previous to 1785, the annual importation from India was conſiderably greater than during any former period. But whether it were that they regarded this proſperity as precarious; or that they aimed at a more extenſive ſucceſs; or that they wiſhed, in imitation of Britain, for territorial acquiſitions in that climate, and believed an incorporated ſociety the beſt inſtrument of obtaining them; the French court was induced to liſten to propoſals for eſtabliſhing a new Eaſt India company. Their privilege was for ſeven years, with the ſpecial proviſo, that years of war which might occur in the interim ſhould be excluded from the computation.

In the preamble of the act of the 14th April 1785, by which the ſcheme was adopted, it was alleged, “that the commodities of Europe not having of late years been regulated by any common ſtandard, or proportioned to the demands of India, had on the one hand ſold at a low price; while, on the other, the competition of the ſubjects of France had raiſed the price of the objects of importation: that, upon their return home, a want of ſyſtem and aſſortment had been univerſally complained of, the market being glutted with one ſpecies of goods, and totally deſtitute of another: that theſe defects muſt neceſſarily continue as long as the trade remained in private hands; and that, on their account, as well as that of the capital required, the eſtabliſhment of a new company was abſolutely neceſſary.”

Theſe reaſonings did not appear altogether ſatisfactory to the perſons principally intereſted. France has been ſo far enlightened by the diſcuſſions of the excellent writers ſhe has produced upon queſtions of politics and commerce, as not to be prepared to behold the introduction of monopolies with a very favourable eye. By many perſons it was remarked, that the arguments of the preamble did not apply more to the trade of India than any other trade; and that, if they were admitted in their entire force, they were calculated to give a finiſhing blow to the freedom of commerce. The capital of the new company, which amounted to L.830,000, was ridiculed as altogether inadequate to the magnitude of the undertaking. The privileges with which it was indulged were treated as enormous. The monopoly of Eaſt India goods imported into France from any part of Europe, was granted to them for two years, as well as the monopoly of Eaſt India goods imported from the place of their growth. It was ſaid, that during that period they would fit out no adventures for India; that they hoped to obtain a prolongation of this injurious indulgence; and that, of conſequence, their incorporation was in reality a conſpiracy to prevent all future communication between France and the ſources of commerce in Aſia. A proviſion in the act, directing that the prices of Eaſt India goods in the iſlands of Mauritius and Bourbon ſhould be regulated by a tariff to be fixed by the court of Verſeilles, excited ſtill louder exclamations. In this inſtance, it was ſaid, the firſt principles of commerce were trampled upon in a manner the moſt wanton and abſurd. Inſtead of ſuffering it to find its own level by the mutual colliſion of the wants of one party and the labour of another, it was arbitrarily to be faſhioned by a power whoſe extreme diſtance muſt neceſſarily render its deciſions ill-timed and inapplicable. The very mode in which the monopoly was introduced was a ſubject of complaint. It was determined by a reſolution of the king in council; a proceeding totally inadequate to the importance of the ſubject, and which was to be regarded as clandeſtine and ſurreptitious. In all former inſtances ſuch meaſures aſſumed the form of edicts, and were regiſtered in the parliaments. It was the prerogative of theſe courts to verify them; that is, to inquire into the facts which had led to their adoption. The injured parties had an opportunity of being heard before the privilege aſſumed the form of a law; not privately by the miniſters of the ſovereign, but publicly by the moſt conſiderable bodies in the kingdom, and in the face of the nation.

The act of council eſtabliſhing a new Eaſt India company, was followed on the tenth of July by another declaration, intended ſtill farther to promote their intereſt; by which it was expreſsly forbidden to import cottons, printed linens, and muſlins, except thro' the medium of the company. The arret proceeds upon the ſame principles of monopoly as in the former inſtance. It ſets out indeed with a declaration, “that nothing can appear more deſirable to the king, or better accord with the ſentiments of his heart, than a general liberty, that freeing at once the circulation of commodities from every ſpecies of reſtraint, ſhould ſeem to make of all the people of the world but one nation with reſpect to commerce.” But it adds, “that the period of this liberty is not yet arrived: that it muſt either be, with reſpect to the nations of Europe, unlimited and reciprocal, or that it cannot be admitted: that the revocation of their former indulgence reſpecting cottons and linens was become neceſſary on account of the opportunities it created for contraband trade; and becauſe the competition of the Eaſt India company and private traders would occaſion a ſurplus in the market, and the admiſſion of foreign manufactures would increaſe and annihilate the national induſtry.”

The proviſions that were made for carrying this law into effect were conſidered as unjuſt and ſevere. The merchants poſſeſſing any of the prohibited commodities were allowed twelve months to diſpoſe of them; but upon the expreſs condition, that the commodities were to bear a ſtamp, importing that they were vendible only to a certain period, a circumſtance that muſt neceſſarily depreciate their value. It was alſo enacted, that the houſe of any trader might be entered by day or by night, at the ſolicitation of the directors, to ſearch for prohibited goods, which were to be confiſcated to the uſe of the company. Theſe kinds of viſits of the officers of revenue, hitherto unauthoriſed in France, were repreſented as peculiarly obnoxious, when they were made for the ſole benefit of a privilege monopoly.

Company, in military affairs, a ſmall body of foot, commanded by a captain, who has under him a lieutenant and enſign.

The number of centinels or private ſoldiers in a company is from 50 to 100; and a battalion or regiment conſiſts of 9, 10, or 11, ſuch companies: one of which is always grenadiers, and poſted on the right; next them ſtands the colonel's company, and on the left the light infantry company. Companies not incorporated into regiments are called *irregulars*, or *independent companies.*

Artillery Company. See Artillery.

Company of ſhips, a fleet of merchantmen, who make a charter party among themſelves; the principal conditions whereof uſually are, that certain veſſels ſhall be acknowledged admiral, vice-admiral, and rear admiral; that ſuch and ſuch ſignals ſhall be obſerved; that thoſe which bear no guns ſhall pay ſo much *per cent.* of their cargo; and in caſe they be attacked, that what damages are ſuſtained ſhall be reimburſed by the company in general. In the Mediterranean, ſuch companies are called *conſerves.*

COMPARATIVE ANATOMY,

IS that branch of anatomy which conſiders the ſecondary objects, or the bodies of other animals; ſerving for the more accurate diſtinctions of ſeveral parts, and ſupplying the defect of human ſubjects.

It is otherwiſe called *the anatomy of beaſts*, and ſometimes *zootomy*; and ſtands in contradiſtinction to human anatomy, or that branch of the art which conſiders the human body the primary object of anatomy. See Anatomy.

Introduction.

1 The uſes of Comparative Anatomy.

The principal advantages of comparative anatomy are the following: Firſt, it furniſhes us with a ſufficient knowledge of the different parts of animals, to prevent our being impoſed upon by thoſe authors who have delineated and deſcribed ſeveral parts from brutes as belonging to the human body. Secondly, it helps us to underſtand ſeveral paſſages in the ancient writers in medicine, who have taken many of their deſcriptions from brutes and reaſoned from them. The third and great uſe we reap from this ſcience, is the light it caſts on ſeveral functions in the human economy, about which there have been ſo many diſputes among anatomiſts.

2 How the action of muſcles is determined.

In this view it is altogether needleſs to inſiſt on thoſe parts whoſe uſe is uſually underſtood when once their ſtructure is unravelled: Thus, for inſtance, if we be acquainted with the action of the muſcles in general, it will not be difficult to determine the uſe of any particular muſcle whoſe origin and inſertion is known, if we at the ſame time conſider the various connections of the bones to which it is fixed, and the different degree of mobility they have with reſpect to each other. In the ſame manner, if we know the uſe of the nerves in general, we can eaſily aſſign the uſe of thoſe nerves which are diſtributed to any particular part. There is then no occaſion for a complete oſteology, myology, &c. of the ſeveral animals we ſhall treat of, nor need we trouble ourſelves about the ſtructure of any of the parts, unleſs when it ſerves to illuſtrate ſome of the fore-mentioned purpoſes.

That the firſt uſe we propoſed from examining the ſtructure of the parts in brutes is real and of conſequence, is evident from looking into the works of ſome of the earlieſt and greateſt maſters of anatomy, who for want of human ſubjects have often borrowed their deſcriptions from other animals. The great Veſalius, although he juſtly reproves Galen for this fault, is guilty of the ſame himſelf, as is plain from his delineations of the kidneys, uterus, the muſcles of the eye, and ſome other parts. Nor is antiquity only to be charged with this, ſince in Willis's *Anatomia Cerebri* (the plates of which were reviſed by that accurate anatomiſt Dr Lower) there are ſeveral of the pictures taken from different brutes, eſpecially the dog, beſides thoſe he owns to be ſuch. We ſhall give ſeveral examples of the ſecond uſe in the ſequel of the work.

3 The variety and uniformity obſervable in nature.

The animal kingdom, as well as the vegetable, contains the moſt ſurpriſing variety, and the deſcent in each is ſo gradual, that the little tranſitions and deviations are almoſt imperceptible. The bat and flying-ſquirrel, though quadrupeds, have wings to buoy themſelves up in the air. Some birds inhabit the waters; and there are fiſhes that have wings, and are not ſtrangers to the airy regions: the amphibious animals blend the terreſtrial and aquatic together.

As there is then ſuch a vaſt variety, it is not only needleſs, but impoſſible, to conſider all of them particularly. We ſhall take only ſome of the moſt remarkable genera; and hope, from what will be ſaid of them, any of the intermediate degrees may be underſtood.

4 Diviſion of animals into quadrupeds, volatiles, fiſhes, and inſects.

In treating of quadrupeds, we ſhall divide them into the carnivorous, *i. e.* thoſe that feed indifferently on animal and vegetable ſubſtances, and granivorous: as an inſtance of theſe laſt we ſhall take the ruminant kind. The fowls we ſhall alſo divide into thoſe that feed on grain, and thoſe that feed on fleſh. The diſtinction we ſhall make in treating of fiſhes, ſhall be of thoſe that have lungs, and thoſe that have them not. The firſt indeed are with difficulty procured, and at the ſame time differ very little from quadrupeds. The ſtructure of inſects and worms is ſo very minute, that little aſſiſtance for the ends propoſed by the preſent ſubject has been expected from their anatomical inveſtigation. As they conſtitute, however, one of the great claſſes into which animals are divided, and as every advance in knowledge, with reſpect to the ſtructure of any one animal, muſt either directly or indirectly caſt ſome light on the ſtructure of ſome part of every other, we have thought proper to add a few particulars concerning them.

In inquiring into the ſtructure of different animals, we ought to be previouſly acquainted with the form of their body, manner of life, kind of food; or, in ſhort, with their natural hiſtory; which will lead us to account for the reaſon of their different ſtructure, and hence explain the actions of the human body. Of all thoſe particulars a detail will be found under the titles of the different ſubjects in their alphabetical order.

Chap. I. *Anatomy of Quadrupeds.*

Sect. I. *General Obſervations.*

5 Whether man is naturally a biped or a quadruped.

A QUESTION has been ſtarted by ſome fanciful philoſophers, "Whether man is naturally a *biped* or a *quadruped?*" and much ingenuity has been employed to eſtabliſh the latter opinion. But it is preſumed that few of their readers have been made converts to ſuch an opinion, and that not many of ours will require much argument to perſuade them of their erect deſtination. It may therefore ſuffice to obſerve, that this erect poſition is beſt adapted to the conformation of the human head, and the ponderous quantity of human brains:—that the articulation of the *os occipitis* with the firſt vertebræ of the neck, is differently conſtructed from that of quadrupeds, with the obvious deſign that man ſhould be able to move his head in every direction with the greateſt facility:—that the human ſpecies (and alſo monkies) are deſtitute of that ſtrong ligament or tendinous aponeuroſis, vulgarly called *paxwax*, which quadrupeds poſſeſs (as a kind of *ſtay-tape*), to prevent the head from ſinking to the earth; to which, from its natural poſition, it muſt be very prone:—and that our eyes and ears are, fortunately, not placed as thoſe of the quadrupeds. The axis of the human eye is nearly prependicular with a vertical ſection of the head; whereas, in the brute creation (the larger ape excepted), the poſition of the eyes forms an acute angle:—nature has alſo furniſhed other animals with a *ſuſpenſorium oculi*, a muſcle which the *erect* attitude renders needleſs, though highly neceſſary in the *prone;* conſequently, whoever tries the experiment will find that, in the inclined direction, both his eyes and his ears are in the moſt unfavourable ſituation poſſible for quick hearing or extenſive viſion. In fine, the ſhape, breadth, ſtrength of the vertebræ of the back and loins, are all coincident with the erect attitude of the trunk.

ALL quadrupeds have a covering of hair, wool, &c. to defend them from the injuries of the weather, which varies in thickneſs according to the ſeaſon of the year and difference of the climate: thus in Ruſſia and the northern countries, the furs are very thick and warm, while the little Spaniſh lap-dogs, and Barbary cows, have little or no hair at all.

6 Cuticula, cutis, panniculus carnoſus.

The cutis and cuticula in quadrupeds are diſpoſed much in the ſame way as the human, only more elaſtic; immediately under this, there is a very thin cutaneous muſcular ſubſtance called *panniculus carnoſus*, which is common to all quadrupeds, the porcine kind excepted; this principally covers the trunk, ſerving to ſhrivel the ſkin, in order to drive off inſects, their tails and heads not being ſufficient for this purpoſe, while their extremities are employed in their ſupport and progreſſion.

7 Whence the notion of the panniculus carnoſus, &c.

It has probably been from obſerving ſome muſcles of the human body, ſuch as the platyſma myoides, cremaſter, and frontales, and the collapſed tunica celluloſa of emaciated ſubjects, to reſemble this thin muſcle, that ſome of the older anatomiſts reckoned ſuch a panniculus among the common teguments of the human body. This Carolus Stephanus has well obſerved.

8 Why moſt quadrupeds want clavicles.

Moſt part of quadrupeds want clavicles, whereby their anterior extremities fall upon their cheſt, ſo as to make their thorax proportionally narrower than the human. This ſmall diſtance of their anterior extremities is very neceſſary for their uniform progreſſion: apes indeed and ſquirrels have clavicles to allow them a more full uſe of their extremities in climbing; but when they walk on all-fours, they move but indifferently.

Sect. II. *Of the Orang Outang.*

WHILE ſome philoſophers, as above noticed, have endeavoured to level man to the rank of quadrupeds, others have attempted to elevate certain of the brute creation to the ſame claſs with their reputed lords. The *orang outang* is ranged by Linnæus as congenerous with man, (See HOMO); and ſome theoriſts have even conſidered him as the original ſtock of the human race, pretending that he has been the *man of the woods* for many ages before *gardens* were ever thought of. His claims to humanity are founded on his being able to walk upright occaſionally, being furniſhed with a competent ſhare of muſcles requiſite for the purpoſe. The form of his heart, lungs, breaſt, brains, inteſtines, are ſimilar to thoſe of men; the *cæcum* has alſo its *appendix vermiformis:* he can ſit upright with great eaſe; ſhows more deſign in his plans than his aſſociates in the foreſts; and can handle a ſtick on occaſion with tolerable dexterity. His diſqualifications are the following: The poſition of the *foramen magnum occipitis*, which is farther backward than in the human ſpecies, and the ſockets of his lower jaw, made to receive the *dentes inciſores* of the upper, indicate his relationſhip to the *monkey* breed. He has alſo *thirteen ribs* on each ſide; his arms, feet, and toes, are much longer than thoſe of the human ſpecies, &c. and although his foot does not ſo cloſely reſemble a hand as that of the ape, yet the *pollex pedis*, or the great toe, is placed at a greater diſtance from the other toes, which gives it the appearance and uſes of a *thumb*. Theſe differences indicate, that, although the *orang* can occaſionally act the *biped*, yet he is much better qualified to walk on his fore-feet, and to climb trees, than the generality of the modern race of men. But an objection to his claims, ſtill weightier than any of the differences ſtated above, ariſes from his want of *ſpeech*. For there is no nation of men, however ſavage, that is deſtitute of ſpeech; though individuals, ſecluded from ſociety, may in time loſe the faculty. No inſtances are known in which a company of ten or twelve men have been without a language; but upwards of thirty of the orang ſpecies have been found in a herd, without ſhowing the ſmalleſt traces of this faculty. It has been ſuggeſted by Rouſſeau, that they may have loſt the power from their neglect of uſing it; but it is very ſingular that they alone ſhould loſe this power, and not that race of men to whom they are ſuppoſed to be ſo nearly related. This point, however, has been completely decided by the diſcoveries of profeſſor Camper; who in a paper in the Philoſophical Tranſactions † has demonſtrated, by an anatomical diſſection of the organ of the voice, that articulation is rendered impoſſible in theſe animals in conſequence of the ſtructure of that organ. From the nature and ſituation of thoſe parts in the orang (as well as in the ape and in the monkey) he has proved, that no modulation of the voice reſembling human ſpeech can he produced in theſe creatures; becauſe the air, paſſing through the *rima*

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† Vol. lxix. Part i. art. 14.

rima glottidis, is immediately loſt in two ventricles or hollow bags in the neck (which are ſometimes united into one), with which all theſe animals are furniſhed, and which have a communication with the mouth through the ſaid *rima* or ſlit; ſo that the air muſt return from thence, without any force or melody, within the throat and mouth of theſe creatures.

Sect. III. *The Anatomy of a Dog.*

We may firſt obſerve of this animal, as indeed of moſt *quadrupeds*, that its legs are much ſhorter in proportion to its trunk than in man, the length of whoſe ſteps depends entirely upon the length of his inferior extremities; however, to balance this, the trunk of the animal is proportionally longer and ſmaller, his ſpine more flexible, by which he is able at each ſtep to bring his poſterior extremities nearer to his anterior. His common teguments are much a-kin to thoſe of other quadrupeds, only they allow little or no paſſage for ſweat; but when he is over heated, the ſuperfluous matter finds an exit by the ſalivary glands, for he lolls out his tongue and ſlavers plentifully. We are not, however, to ſuppoſe, that becauſe a dog does not ſweat, he has no inſenſible perſpiration. That a dog perſpires is evident, becauſe one of theſe animals can trace another by the ſcent of his footſteps; which could not happen if a large quantity of perſpirable matter was not conſtantly going off.

9 Abdomen, muſculi pyram. The pyramid muſcles are wanting, to ſupply which the rectus is inſerted fleſhy into the os pubis.

10 Omentum. The omentum reaches down to the os pubis, which conſidering the poſture of the animal we will find to be a wiſe proviſion, ſince its uſe is to ſeparate an oily liquor for lubricating the guts and facilitating their periſtaltic motion; ſo in our erect poſture the natural gravity of the oil will determine it downward, but in the horizontal poſition of theſe creatures, if all the inteſtines were not covered, there would be no favourable derivation of the fluid to the guts lying in the poſterior part of the abdomen, which is the higheſt; and beſides, had the omentum reached much farther down in us, it would not only have ſupplied too great a quantity of oil to the lower part of the abdomen, but we would have been in continual danger of herniae; and even at preſent the omentum frequently paſſes down with ſome of the other viſcera, and forms part of theſe tumors. To theſe, however, the dog is not ſubject, as his viſcera does not preſs ſo much on the rings of the abdominal muſcles, and beſides are prevented from paſſing through by a pendulous flap of fat, mentioned n° 35. The inferior and anterior lamella of the omentum is fixed to the ſpleen, fundus of the ſtomach, pylorus, liver, &c. in the ſame way as the human; but the ſuperior having no colon to paſs over, goes directly to to the back-bone. This ſerves to explain the formation of the ſmall omentum in the human body; which is nothing but the large omentum, having loſt its fat, paſſing over the ſtomach and colon, where it reaſſumes its pinguedo, ſo proceeds, and is firmly attached to the liver, ſpine, &c. The ſtriæ of fat are pretty regularly diſpoſed through it, accompanying the diſtribution of the blood-veſſels to guard them from the preſſure of the ſuperincumbent viſcera.

11 Ventriculus. This animal's ſtomach, though pretty much reſembling the human in its ſhape, is ſomewhat differently ſituated. It lies more longitudinal, as indeed all the other viſcera do, to accommodate themſelves to the ſhape of the cavity in which they are contained; that is, its inferior orifice is much farther down with reſpect to the ſuperior than the human: by this means the groſs food has an eaſier paſſage into the duodenum. Again, the fundus of the human ſtomach, when diſtended, ſtands almoſt directly forwards, which is occaſioned by the little omentum tying it ſo cloſe down to the back-bone, &c. at its two orifices; but it not being fixed in that manner in the dog, the fundus remains always poſterior; this alſo anſwers very well the ſhape of the different cavities, the diſtance betwixt the cardia and fundus being greater than that betwixt the two ſides. It ſeems to be much larger in proportion to the bulk of the animal than the human, that it might contain a greater quantity of food at once; which was very neceſſary, ſince this animal cannot at any time get its ſuſtenance as men do. The turbillion is not ſo large, nor is there any coarction forming the *antrum Willeſii*, as in the ſtomach of man. It is conſiderably thicker and more muſcular than ours, for breaking the coheſion of their food, which they ſwallow without ſufficient chewing. Hence it is evident the force of the ſtomach is not ſo great as ſome would have it, nor its contraction ſo violent: otherwiſe that of dogs would be undoubtedly wounded by the ſharp bones, &c. they always take down; for the contraction here is ſtill greater than in the human ſtomach, which is much thinner. The rugæ of the tunica villoſa are neither ſo large, nor ſituated tranſverſely, as in the human, but go from one orifice to the other: the reaſon of which difference is, perhaps, that they might be in leſs danger of being hurt by the hard ſubſtances this creature frequently feeds upon; and for the ſame reaſon there is not the like coarction at their pylorus.

12 Inteſtines. The inteſtines of this animal are proportionally much ſhorter than ours; for the food which theſe creatures moſtly uſe, ſoon diſſolves, and then putrifies; on which account there was no occaſion for a long tract of inteſtines, but on the contrary that it ſhould be quickly thrown out of the body. The ſame is to be obſerved of all the carnivorous animals. The muſcular coat of the inteſtines is alſo thicker and ſtronger than the human, to protrude the contents quickly and accurately.

The valvulæ conniventes are leſs numerous, and in a longitudinal direction; and the whole tract of the alimentary canal is covered with a ſlime, which lubricates the inteſtines, ſaves them from the acrimony of the excrementitious part, and facilitates its paſſage.

13 Duodenum. The *duodenum* differs conſiderably in its ſituation from the human. For in man it firſt mounts from the pylorus upwards, backwards, and to the right-ſide; then paſſes down by the gall-bladder; and, marching over the right kidney and ſuperior part of the pſoas muſcles, makes a curvature upwards; and paſſes over the back-bone and vena cava inferior, to the left hypochondrium, where it gets through the omentum, meſentery, and meſocolon, to commence the *jejunum*, being firmly tied down all the way, the biliary and pancreatic ducts entering at its moſt depending part: Whereas, in the dog, the duodenum is fixed at the pylorus to the

14 Jejunum.

concave ſurface of the liver, and hangs loſe and pendulous with the meſentery backwards into the cavity of the abdomen; then turning up again, is fixed to the back-bone, where it ends in the jejunum; the bile and pancreatic juice are poured into it at the moſt depending part. Therefore the ſame intention ſeems to have been had in view in the formation of this part in both viz. the giving the chyle, after the liquors of the liver and pancreas are poured into it, a diſadvantageous courſe, that ſo it might be the more intimately blended with the humours before its entry into the jejunum, where the lacteals are very numerous: And thus, by reaſon of their different poſture, the ſame deſign (tho' by a very different order of the parts) is brought about in both.

15 Inteſtina tenuia.

The other ſmall guts are much the ſame with ours, only ſhorter. The great guts are alſo ſhorter and leſs capacious than in the human body; and we take it for a general rule, that all animals that live on vegetable food, have not only their ſmall guts conſiderably longer, but alſo their great guts more capacious than ſuch creatures as feed on other animals. Hence man, from this form of his inteſtines, and that of the teeth, ſeems to have been originally deſigned for feeding on vegetables chiefly; and ſtill the moſt of his food, and all his drink, is of that claſs.

The reaſon of this difference ſeems to be, that as animal food is not only much more eaſily reduced into chyle, but alſo more prone to putrefaction, too long a remora of the juices might occaſion the worſt conſequences. So it was neceſſary that the receptacles ſhould not be too capacious; but on the contrary, being ſhort and narrow, might conduce to the ſeaſonable diſcharge of their contents. Whereas vegetable food being more difficulty diſſolved and converted into an animal nature, there was a neceſſity for ſuch creatures as fed on it to be provided with a long inteſtinal canal, that this food in its paſſage might be conſiderably retarded, and have time to change its indoles into one more agreeable to our nature. Beſides which there is another advantage which accures to man in particular, from having his great guts very capacious: for as he is a rational being, and moſtly employed in the functions of ſocial life, it would have been very inconvenient as well as unbecoming for him to be too frequently employed in ſuch ignoble exerciſes; ſo that, having this large reſervoir for his fæces alvinæ, he can retain them for a conſiderable time without any trouble.

16 Appendix vermiformis.

The *appendix vermiformis* juſtly enough deſerves the name of an *inteſtinum cæcum* in this ſubject, though in the human body it does not; and it has probably been from the largeneſs of this part in this and ſome other animals, that the oldeſt anatomiſts came to reckon this ſmall appendicle in man as one of the great guts. On its internal ſurface we obſerve a great number of mucous glands. As all theſe throw out ſlime, their principal office would ſeem to be the procuring a ſufficient quantity of that matter for the purpoſes abovementioned. Still, however, there ſeems to be ſome unknown uſe for this organ in other animals; for the appendicula vermiformis in them is either of a great ſize or of great length. In a rat, it is rather larger than the ſtomach; in others, as ſwine, and ſome of the animals which live on vegetables, it has long convolutions, ſo that the food muſt be lodged in it for a long time. Thus, probably, ſome change takes place in the food, which requires a conſiderable time to effectuate, and, though unknown to us, may anſwer very uſeful purpoſes to the animal.

17 Colon.

The *colon* has no longitudinal ligaments; and conſequently this gut is not purſed up into different bags or cells as the human: nor does this inteſtine make any circular turn round the abdomen; but paſſes directly acroſs it to the top of the os ſacrum, where it gets the name of *rectum*.

18 Rectum.

At the extremity of the *inteſtinum rectum*, or verge of the anus, there are found two bags or pouches, which contain a moſt abominable fetid mucus of a yellow colour, for which we know no uſe, unleſs it ſerves to lubricate the ſtrained extremity of the rectum, and defend it againſt the aſperity of the fæces, or to ſeparate ſome liquor that might otherwiſe prove hurtful to their bodies. There is nothing analogous to thoſe ſacs in the human ſubject, unleſs we reckon the mucilaginous glands that are found moſt frequent and largeſt about the lower part of the rectum.

19 Meſentery.

20 Pancreas aſellii.

The *meſentery* is conſiderably longer than in the human body; that, in his horizontal ſituation, the inteſtines may reſt ſecurely on the ſoft cuſhion of the abdominal muſcles. The fat is here diſpoſed in the ſame way, and for the ſame reaſon, as in the omentum. The interſtices betwixt the fat are filled with a fine membrane. Inſtead of a great number of glandulæ vagæ to be found in the human meſentery, we find the glands few in number, and thoſe are cloſely connected together; or there is only one large gland to be obſerved in the middle of the meſentery of a dog, which, from its imagined reſemblance to the pancreas and the name of its diſcoverers, is called *pancreas Aſellii*; but the reſemblance, if there is any, depends chiefly on the connection, the ſtructure being entirely different. The reaſon why this in man is as it were ſubdivided into many ſmaller ones, may poſſibly be, that as the guts of a human body are proportionally much longer than thoſe of this creature, it would have been inconvenient to have gathered all the *lactea primi generis* into one place; whereas, by collecting a few of theſe veſſels into a neighbouring gland, the ſame effect is procured much more eaſily. Whether the food in this animal needs leſs preparation in its paſſage through theſe glands, is a matter very much unknown to us; though it is certain that ſome changes really do take place.

21 Pancreas.

The *pancreas* in man lies acroſs the abdomen, tied down by the peritonæum; but the capacity of this creature's abdomen not allowing of that ſituation, it is diſpoſed more longitudinally, being tied to the duodenum, which it accompanies for ſome way. Its duct enters the duodenum about an inch and a half below the ductus communis.

22 Spleen.

The *ſpleen* of this animal differs from ours vey much, both in figure and ſituation. It is much more oblong and thin, and lies more according to the length of the abdomen, like the pancreas. Though the ſpleen of this creature is not firmly tied to the diaphragm (which was neceſſary in our erect poſture to hinder it from falling downwards), yet by the animal's prone poſition,

tion, its poſterior parts being rather higher than the anterior, it comes to be always contiguous to this muſcle, and is as effectually ſubjected to an alternate preſſure from its action as the human ſpleen is.

23 **Liver.** The human *liver* has no fiſſures or diviſions, unleſs you pleaſe to reckon that ſmall one betwixt the two *pylæ*, where the large veſſels enter: Whereas in a dog, and all other creatures that have a large flexion in their ſpine, as lions, leopards, cats, &c. the liver and lungs are divided into a great many lobes by deep ſections, reaching the large blood veſſels, which in great motions of the back-bone may eaſily ſhuffle over one another; and ſo are in much leſs danger of being torn or bruiſed, than if they were formed of one entire piece, as we really ſee it is in horſes, cows, and ſuch creatures as have their back-bone ſtiff and immoveable. There is here no *ligamentum latum* connecting the liver to the diaphragm, which in our ſituation was neceſſary to keep the viſcus in its place: Whereas in this creature, it naturally gravitates forwards, and by the horizontal poſition of the animal is in no danger of preſſing againſt the vena cava; the preventing of which is one uſe generally aſſigned to this ligament in man. Had the liver of the dog been thus connected to the diaphragm, the reſpiration muſt neceſſarily have ſuffered; for, as we ſhall ſee afterwards, this muſcle is here moveable at the centre as well as at the ſides: But in man the liver is fixed to the diaphragm, moſtly at its tendinous part; that is, where the pericardium is fixed to it on the other ſide; ſo that it is in no danger of impeding the reſpiration, being ſuſpended by the mediaſtinum and bones of the thorax. In conſequence of this viſcus being divided into ſo many lobes, it follows, that the hepatic ducts cannot poſſibly join into one common trunk till they are quite out of the ſubſtance of the liver; becauſe a branch comes out from every lobe of the liver; all of which, by their union, form the hepatic duct: whence we are led to conclude, that the hepato-cyſtic ducts, mentioned by former authors, do not exiſt. The gall-bladder itſelf is wanting in ſeveral animals, ſuch as the deer, the horſe, the aſs, &c.; but in place of it, in ſuch animals, the hepatic duct, at its beginning, is widened into a reſervoir of conſiderable ſize, which may anſwer the ſame purpoſe in them that the gall-bladder does in others.

We come next, after having examined the chylopoietic viſcera, to diſcourſe of thoſe organs that ſerve for the ſecretion and excretion of urine. And firſt of 24 **Kidneys.** the kidneys: Which in this animal are ſituated much in the ſame way as in the human ſubject; but have no fat on their inferior ſurface, where they face the abdomen, and are of a more globular form than the human. The reaſon of theſe differences will eaſily appear, if you compare their ſituation and poſture in this animal with thoſe in a man who walks erect. They are placed in this ſubject in the inferior part of the body, ſo are not ſubject to the preſſure of the viſcera, which ſeems to be the principal cauſe of the fatneſs of thoſe organs in us, and perhaps may likewiſe be the cauſe of our being more ſubject to the ſtone than other animals. Hence there is no need of any cellular ſubſtance to ward off this preſſure where there would neceſſarily be fat collected; but the ſuperior part of their kidneys is pretty well covered with fat, leſt they ſhould ſuffer any compreſſion from the action of the ribs and ſpine.

In the internal ſtructure there is ſtill a more conſiderable difference: 25 **Papillæ.** For the *papillæ* do not here ſend out ſingle the ſeveral *tubuli uriniferi*; but being all united, they hang down in form of a looſe pendulous flap in the middle of the pelvis, and form a kind of ſeptum medium; ſo that a dog has a pelvis formed 26 **Pelvis.** within the ſubſtance of the kidney. The only thing that is properly analogous to a pelvis in man is that ſac or dilatation of the ureters formed at the union of the *ductus uriniferi*. The external part of the kidney of a dog ſomewhat reſembles one of the lobes of the kidney of a human fœtus: but in a human adult the appearance is very different; becauſe, in man, from the continual preſſure of the ſurrounding viſcera, the lobes, which in the fœtus are quite diſtinct and ſeparated, concrete, but the original cortical ſubſtance is ſtill preſerved in the internal parts of the kidney. The reaſon of theſe particularities may probably be, that the liquors of this animal, as of all thoſe of the carnivorous kind, being much more acrid than thoſe that live on vegetable food, its urine muſt incline much to an alkaleſcency, as indeed the ſmell and taſte of that liquor in dogs, cats, leopards, &c. evidently ſhow, being fetid and pungent, and therefore not convenient to be long retained in the body. For this end it was proper that the ſecerning organs ſhould have as little impediment as poſſible by preſſure, &c. in the performing their functions; and for that deſign, the mechaniſm of their kidneys ſeems to be excellently adapted: We have moſt elegant pictures in Euſtachius of the kidneys of brutes, delineated as ſuch, with a view to ſhow Veſalius's error in painting and deſcribing them for the human.

27 **Capſulæ atrabilariæ.** The *glandulæ* or *capſulæ atrabilariæ* are thicker and rounder than the human, for the ſame reaſon as the kidneys.

28 **Ureters.** The *ureters* are more muſcular than the human, becauſe of the unfavourable paſſage the urine has through them; they enter the bladder near its fundus.

29 **Veſica urinaria.** The bladder of urine differs conſiderably from the human; and firſt in its form, which is pretty much pyramidal or pyriform. This ſhape of the dog's bladder is likewiſe common to all quadrupeds, except the ape and thoſe of an erect poſture. In man it is by no means pyriform, but has a large ſac at its poſterior and inferior part: this form depends entirely on the urine gravitating in our erect poſture to its bottom, which it will endeavour to protrude; but as it cannot yield before, being contiguous to the os pubis, it will naturally ſtretch out where there is the leaſt reſiſtance, that is, at the poſterior and lateral parts; and were it not for this ſac, we could not ſo readily come at the bladder to extract the ſtone either by the leſſer or lateral operation of lithotomy. Moſt anatomiſts have delineated this wrong: ſo much, that I know of none who have juſtly painted it, excepting Mr Cowper in his *Myotomia*, and Mr Butty. It has certainly been from obſerving it in brutes and young children, that they have been led into this miſtake. The ſame cauſe, *viz.* the gravity of the urine, makes the bladder of a different form in brutes: In their horizontal poſition the cervix, from which the urethra is continued, is higher than its fundus; the urine muſt therefore dif-

diſtend and dilate the moſt depending part by its weight.

30 Connection.

As to its *connection*, it is faſtened to the abdominal muſcles by a proceſs of the peritoneum, and that membrane is extended quite over it; whereas in us its ſuperior and poſterior parts are only covered by it: hence in man alone the high operation of lithotomy can be performed without hazard of opening the cavity of the abdomen.

31 Why the human bladder but in part covered by the peritoneum.

Had the peritoneum been ſpread over the bladder in its whole extent, the weight of the viſcera in our erect poſture would have ſo bore upon it, that they would not have allowed any conſiderable quantity of urine to be collected there; but we muſt have been obliged to diſcharge its contents too frequently to be conſiſtent with the functions of a ſocial life: Whereas by means of the peritoneum, the urine is now collected in ſufficient quantity, the viſcera not gravitating this way.

It may be taken for a general rule, that thoſe creatures that feed upon animal-food have their bladder more muſcular and conſiderably ſtronger, and leſs capacious, than thoſe that live on vegetables, ſuch as horſes, cows, ſwine, &c. whoſe bladder of urine is perfectly membranous, and very large. This is wiſely adapted to the nature of their food: For in theſe firſt, as all their juices are more acrid, ſo in a particular manner their urine becomes exalted; which, as its remora might be of very ill conſequence, muſt neceſſarily be quickly expelled. This is chiefly effected by its ſtimulating this viſcus more ſtrongly to contract, and ſo to diſcharge its contents, though the irritation does not altogether depend upon the ſtretching, but likewiſe ariſes from the quality of the liquor.

32 A ſtimulus proved to be a principal cauſe of the evacuation of the bladder.

That a ſtimulus is one of the principal cauſes of the excretion of urine, we learn from the common ſaline diuretic medicines that are given, which are diſſolved into the ſerum of the blood, and carried down by the kidneys to the bladder: The ſame appears likewiſe from the application of cantharides; or without any of theſe, when the parts are made more ſenſible, as in an excoriation of the bladder, there is a frequent deſire to make water. Accordingly we find theſe animals evacuate their urine much more frequently than man, or any other creature that lives on vegetable food.

33 Cauſes aſſigned for the rabies canina, &c.

And if theſe creatures, whoſe fluids have already a tendency to putrefaction, are expoſed to heat or hunger, the liquids muſt for a conſiderable time undergo the actions of the containing veſſels, and frequently perform the courſe of the circulation, without any new ſupplies of food; by which the fluids becoming more and more acrid, the creature is apt to fall into feveriſh and putrid diſeaſes: And in fact, we find that fatal and melancholy diſtemper the *rabies canina, vulpina, &c.* frequent in theſe animals; whereas thoſe that feed on vegetable food ſeldom or never contract thoſe diſeaſes but by infection.

That the cauſes commonly aſſigned for the rabies canina are inſufficient to produce it in dogs and other animals of that kind, is denied in a diſſertation on this diſeaſe by Dr Heyſham. That heat is inſufficient, he proves from the diſeaſe being totally unknown in South America, where the heat is much greater than in this country. Putrid aliment he alſo ſays is taken in great quantity by dogs without any inconvenience; and as it ſeems in this ſtate to be moſt agreeable to them, the rabies canina cannot with any probability be aſcribed to it. As to want of water, he obſerves that the diſeaſe often originates among dogs that are plentifully ſupplied with that element, while others long deprived of it have remained perfectly free. In ſhort, Dr Heyſham totally denies, not only the efficacy of the cauſes commonly aſſigned for the rabies canina, but the nature of the diſtemper itſelf; and conjectures that the cauſe of it is not a *putreſcency* but an *acidity* of the fluids.

34 Vaſa ſpermatica.

Their *ſpermatic veſſels* are within the peritoneum, which is ſpread over them, and from which they have a membrane like a meſentery, ſo hang looſe and pendulous in the abdomen: whereas, in us, they are contained in the cellular part of the peritoneum, which is tenſely ſtretched over them.

35 Whence the falſe notion of hernia or rupture.

At their paſſage out of the lower belly, there appears a plain perforation, or holes; hence the adult quadruped, in this reſpect, reſembles the human fœtus. And from obſerving this in quadrupeds, has ariſen the falſe notion of *hernia* or *rupture* among authors. This opening, which leads down to the teſticle, is of no diſadvantage to them, but evidently would have been to us; for from the weight of our viſcera, and our continually gravitating upon theſe holes, we muſt have perpetually laboured under enteroceles. This they are in no hazard of, ſince in them this paſſage is at the higheſt part of their belly, and, in their horizontal poſture, the viſcera cannot bear upon it: And, to prevent even the ſmalleſt hazard, there is a looſe pendulous ſemilunar flap of fat; which ſerves two uſes, as it both hinders the inteſtines from getting into the paſſage, and alſo the courſe of the fluids from being ſtopped in the veſſels, which is ſecured in us by the cellular ſubſtance and tenſe peritoneum: And it may be worth while to obſerve, that this proceſs remains almoſt unaltered, even after the animal has been almoſt exhauſted of fat.

There is next a paſſage quite down into the cavity where the teſticles lie. Had the ſame ſtructure obtained in man, by the conſtant drilling down of the liquor which is ſecerned for the lubricating of the guts, we ſhould always have laboured under an hydrocele; but their poſture ſecures them from any hazard of this kind: indeed the very fat lap-dogs, who, conſequently have an overgrown omentum, are ſometimes troubled with an epiplocele.

36 Scrotum.

The *ſcrotum* is ſhorter and not ſo pendulous as the human in all the dog kind that want the *veſiculæ ſeminales*, that the ſeed at each copulation might the ſooner be brought from the teſtes, thus in ſome meaſure ſupplying the place of the *veſiculæ ſeminales*; for the courſe of the ſeed through the *vaſa deferentia* is thus ſhortened, by placing the ſecerning veſſels nearer the excretory organs.

37 The veſiculæ ſeminales, how ſupplied.

Perhaps its paſſage is likewiſe quickened by the muſcular power of the vaſa deferentia, which is ſtronger in this creature than in man. The want of *veſiculæ ſeminales* at the ſame time explains the reaſon why this creature is ſo tedious in copulation. But why theſe bodies are abſent in the dog kind more than in other animals, is a circumſtance we know nothing of.

38 Teſtes.

The ſtructure of the *teſticles* is much the ſame with the human; as are likewiſe the *corpus pyramidale, varicoſum*, or *pampiniforme*, and the *epididymis* or excretory veſſel of the teſticle. The *vaſa deferentia* enter the abdomen where the blood-veſſels come out; and, paſſing along the upper part of the bladder, are inſerted a little below the bulbous part of the urethra.

39 Penis.

The præputium has two muſcles fixed to it: one that ariſes from the ſphincter ani, and is inſerted all along the *penis;* and this is called *retractor præputii:* But the other, whoſe office is directly contrary to this, is cutaneous; and ſeems to take its origin from the muſcles of the abdomen, or rather to be a production of their tunica carnoſa. The *corpora cavernoſa* riſe much in the ſame way as the human: but theſe ſoon terminate; and the reſt is ſupplied by a triangular bone, in the inferior part of which there is a groove excavated for lodging the urethra. There are upon the penis two protuberant bulbous fleſhy ſubſtances, reſembling the glans penis in man, at the back of which are two veins, which by the *erectores penis* and other parts are compreſſed in the time of coition; and the circulation being ſtopped, the blood diſtends the large cavernous bodies.

40 Coitus.

After the penis is thus ſwelled, the vagina by its contraction and ſwelling of its corpus cavernoſum, which is conſiderably greater than in other animals, grips it cloſely; and ſo the male is kept in action ſome time contrary to his will, till time be given for bringing a quantity of ſeed ſufficient to impregnate the female: and thus, by that *orgaſmus veneris* of the female organs, the want of the *veſiculæ ſeminales* are in ſome meaſure ſupplied. But as it would be a very uneaſy poſture for the dog to ſupport himſelf ſolely upon his hinder feet, and for the bitch to ſupport the weight of the dog for ſo long a time; therefore, as ſoon as the bulbous bodies are ſufficiently filled, he gets off and turns averſe to her. Had, then, the penis been pliable as in other animals, the urethra muſt of neceſſity have been compreſſed by this twiſting, and conſequently the courſe of the ſeed intercepted; but this is wiſely provided againſt by the urethra's being formed in the hollow of the bone. After the emiſſion of the ſeed, the parts turn flaccid, the circulation is reſtored, and the bulbous parts can be eaſily extracted.

41 Proſtata.

The *proſtata* ſeems here divided into two, which are proportionably larger than the human, and afford a greater quantity of that liquid.

42 Uterus.

The *uterus* of multiparous animals is little elſe but a continuation of their vagina, only ſeparated from it by a ſmall ring or valve. From the *uterus* two long canals mount upon the loins, in which the fœtus are lodged: theſe are divided into different ſacs, which are ſtrongly conſtricted betwixt each fœtus; yet theſe coarctions give way in the time of birth. From theſe go out the *Tubæ Fallopianæ,* ſo that the ovaria come to lodge pretty near the kidneys.

43 Diaphragm

We ought next to examine the ſtructure of the thorax and its contents. But firſt it may not be amiſs to remark of the *diaphragm* in its natural ſituation, that it is in general more looſe and free than the human; which is owing to its connection with the neighbouring parts in a different manner from ours. The human *diaphragm* is connected to the pericardium; which again, by the intervention of the mediaſtinum, is tied to the ſternum, ſpine, &c. but here there is ſome diſtance between the diaphragm and pericardium. We obſerve further, that its middle part is much more moveable, and the tendinous parts not ſo large. And indeed it was neceſſary their *diaphragm* ſhould be ſomewhat looſe, they making more uſe of it in difficult reſpiration than man. This we may obſerve by the ſtrong heaving of the flanks of an horſe or dog when out of breath; which correſponds to the riſing of the ribs in us.

44 Thorax.

45 Mammæ.

The diſpoſition and ſituation of the *mammæ* vary as they bear one or more young. Thoſe of the uniparous kind have them placed between the poſterior extremities, which in them is the higheſt part of their bodies, whereby their young get at them without the inconvenience of kneeling: Nevertheleſs, when the creatures are of no great ſize, and their breaſts large, as in ſheep, the young ones are obliged to take this poſture. In multiparous animals, they muſt have a great number of nipples, that their ſeveral young ones may have room at the ſame time, and theſe diſpoſed over both thorax and abdomen; and the creatures generally lie down when the young are to be ſuckled, that they may give them the moſt favourable ſituation. From this it does not appear to be from any particular fitneſs of the veſſels at certain places for giving a proper nouriſhment to the child, that the breaſts are ſo placed in women as we find them, but really from that ſituation being the moſt convenient both for mother and infant.

46 Sternum.

The *ſternum* is very narrow, and conſiſts of a great number of ſmall bones, moveable every way; which always happens in creatures that have a great mobility in their ſpine.

47 Coſtæ.

The ribs are ſtraighter, and by no means ſo convex as the human; whereby in reſpiration the motion forward will very little enlarge their thorax, which is compenſated by the greater mobility of their diaphragm: ſo our thorax is principally enlarged according to its breadth and depth, and theirs according to its length. The want of clavicles, and the conſequent falling in of the anterior extremities upon the cheſt, may contribute ſomewhat to the ſtraightneſs of the ribs.

48 Mediaſtinum.

The *mediaſtinum* in this creature is pretty broad. The pericardium is not here contiguous to the diaphragm, but there is an inch of diſtance betwixt them, in which place the ſmall lobe of the lungs lodges; and by this means the liver, &c. of this animal, though continually preſſing upon the diaphragm, yet cannot diſturb the heart's motion.

49 Cor.

The heart is ſituated with its point almoſt directly downwards, according to the creature's poſture, and is but very little inclined to the left ſide. Its point is much ſharper, and its ſhape more conoidal, than the human. Here the names of *right* and *left* ventricles are proper enough, though not ſo in the human; which ought rather to be called *anterior* and *poſterior,* or *ſuperior* and *inferior.*

50 Vena cava.

The animal has the *vena cava* of a conſiderable length within the thorax, having near the whole length of the heart to run over ere it gets at the *ſinus Lowerianus dexter.* In men, as ſoon as it pierces the diaphragm, ſo ſoon it enters the pericardium, which is firmly attached to it, and immediately gets into the *ſinus Lowerianus;* which ſinus, in the human ſubject, by the oblique ſituation of the heart is almoſt contiguous to the diaphragm: and by this we diſcover, that ſeveral authors have taken their delineations of the human heart from brutes; which is eaſily detected by the ſhape and ſituation of the heart, and long vena cava, within the thorax. This was one of the faults of the curious wax-work that were ſhown at London and Paris, which were plainly taken from a cow.

This ſituation of the heart of the creature agrees beſt with the ſhape of its thorax, which is lower than the abdomen.

51 Aorta aſcendens, improperly ſo called.

The egreſs of the large blood-veſſels from the heart is ſomewhat different from the human: For here the right ſubclavian comes off firſt: and as a large trunk runs ſome way upwards before it gives off the left carotid, and ſplits into the carotid and ſubclavian of the right ſide, then the left ſubclavian is ſent off. So that neither here, properly ſpeaking, is there an *aorta aſcendens*, more than in the human; but this name has probably been impoſed upon it from obſerving this in a cow, where indeed there is an aſcending and deſcending aorta.

52 A mechanical account of the ſuperior ſtrength of the right arm, leg, &c.

From this ſpecialty of the diſtribution of the veſſels of the right ſide, which happens, though not in ſo great a degree, in the human ſubject, we may perhaps in ſome meaſure account for the general greater ſtrength, readineſs, or facility of motion, which is obſervable in the right arm. Upon meaſuring the ſides of the veſſels, the ſurface of the united trunk of the right ſubclavian and carotid is leſs than that of the left ſubclavian and carotid, as they are ſeparated. If ſo, the reſiſtance to the blood muſt be leſs in that common trunk than in the left ſubclavian and carotid: But if the reſiſtance be ſmaller, the abſolute force with which the blood is ſent from the heart being equal, there muſt neceſſarily be a greater quantity of blood ſent through them in a given time; and as the ſtrength of the muſcles is, *cæteris paribus*, as the quantity of blood ſent into them in a given time, thoſe of the right arm will be ſtronger than thoſe of the left. Now children, being conſcious of this ſuperior ſtrength, uſe the right upon all occaſions; and thus from uſe comes that great difference which is ſo obſervable. That this is a ſufficient cauſe, ſeems evident from fact; for what a difference is there betwixt the right and the left arm of one who has played much at tennis? View but the arms of a blackſmith and legs of a footman, and you will ſoon be convinced of this effect ariſing from uſing them. But if by any accident the right arm is kept from action for ſome time, the other from being uſed gets the better; and thoſe people are left-handed: For it is not to be imagined, that the ſmall odds in the original formation of the veſſels ſhould be ſufficient to reſiſt the effect of uſe and habit (inſtances of the contrary occur every day); it is enough for our preſent argument, that where no means are uſed to oppoſe it, the odds are ſufficient to determine the choice in favour of the right. Now, becauſe it is natural to begin with the leg correſponding to the hand we have moſt power of, this is what gives alſo a ſuperiority to the right leg.

This difference is not peculiar to man, but is ſtill more obſervable in thoſe creatures in whom the ſame mechaniſm does obtain in a greater degree. Do but obſerve a dog at a trot, how he bears forward with his right ſide; or look at him when a-ſcraping up any thing, and you will preſently ſee that he uſes his right much oftener than he does his left foot. Something analogous to this may be obſerved in horſes. It has been the opinion of ſome anatomiſts, that left-handed people, as well as thoſe diſtinguiſhed by the name of *ambidexter* (who uſe both hands alike), have the two carotid and ſubclavian arteries coming off in four diſtinct trunks from the arch of the aorta: but no appearance of this kind has ever been obſerved in ſuch bodies as have been examined for this purpoſe; though indeed theſe have been but few, and more experience might throw greater light on the ſubject.

53 Thymus. 54 Glandula thyroidea.

The *thymus* of this creature is proportionably much larger than ours: whereas the glandula thyroidea is much leſs, and is divided into two diſtinct parts, or there are two ſeparate glands; which is not the caſe in man. The reaſon of this difference is unknown, as is likewiſe the uſe of the gland itſelf. It is generally remarked, that theſe two glands do thus always ſupply the place of each other; that is, in ſuch animals as have a large thymus, the glandula thyroidea is ſmaller, and *vice verſa*. Hence we are naturally led to aſcribe the ſame uſe to both, *viz.* the ſeparation of a thin lymph for diluting the chyle in the thoracic duct before it be poured into the blood; then if we conſider the different formation of the thorax in both, we ſhall readily account for the variety in the bulk of theſe two glands. Reſpiration being chiefly performed in man by the widening of the cheſt, the lungs at every inſpiration muſt preſs upon the thymus, and conſequently diminiſh it: but the diaphragm yielding more in the dog's inſpiration, this gland is not ſo much preſſed by the lungs, and ſo will be larger; and hence the glandula thyroidea will be proportionably leſs. Again, from the poſture of this creature, we ſhall ſee that it was much more convenient for a dog to have the moſt part of the diluting lymph ſupplied by the thymus, ſince the neck being frequently in a deſcending poſture, the lymph of the thyroid gland would have a very diſadvantageous courſe to get to the thoracic duct: whereas in the human body, the thymus is really below the lacteal canal, where it makes its curvature before it opens into the ſubclavian; and conſequently there is a neceſſity of a conſiderable ſhare of the diluting liquor being furniſhed by the thyroid gland, which is ſituated much higher; ſo that its lymph has the advantage of a perpendicular deſcent.

55 Ductus thoracicus.

We may here obſerve, that the *thoracic duct* in a dog has no curvature before it enters the ſubclavian vein, the horizontal poſition of this animal allowing a favourable enough courſe to the chyle, ſo as not to need that turn to force its paſſage into the blood. It may likewiſe be obſerved, that ſuch animals as walk horizontally have the valves of the thoracic duct fewer in number than others. The horſe has only a ſingle pair; while, on the contrary, the ape reſembles man in having ſeveral valves. Thus the lymph is not only forwarded in its paſſage, but the weight of the column is diminiſhed. The lungs of this creature are divided into more numerous lobes, and deeper, than they are in man, for the ſame reaſon as the liver. The left ſide of the thorax in this animal bears a greater proportion to the right than in man; the one being nearly as three to two, the other as four to three. In quadrupeds, as well as in man, the lungs are cloſely applied to the containing parts; although this has been denied by ſome.

56 Neck.

We look on it as a general rule, that all quadrupeds, as having occaſion to gather their food from the ground, are provided with longer necks than man: but as a long neck not only gives the advantage of too long a lever to the weight of the head, but alſo, when the animal is gathering his food, makes the brain in danger of being oppreſſed with too great a quantity of blood, by the liquor in theſe arteries having the advantage of a deſcent, while that in the veins muſt remount a conſiderable way contrary to its own gravity; it was therefore neceſſary that a part of the length of the neck 57 Jaws. ſhould be ſupplied by the length of the jaws. Thus we ſee horſes, cows, &c. who have no occaſion for opening their mouths very wide, yet have long jaws. Bull-dogs, indeed, and ſuch animals as have occaſion for very ſtrong jaws, muſt of neceſſity have them ſhort; becauſe the longer they are, the reſiſtance to be overcome acts with a longer lever. Another exception to this general rule, is ſuch animals as are furniſhed with ſomething analogous to hands to convey their food to 58 Teeth. their mouths, as cats, apes, &c. The teeth of this creature plainly ſhow it to be of the carnivorous kind; for there are none of them made for grinding its food, but only for tearing and dividing it. It has ſix remarkable ſharp teeth before, and two very long tuſks behind; both of which the ruminating animals want. Theſe are evidently calculated for laying very firm hold of ſubſtances, and tearing them to pieces; and the vaſt ſtrength of the muſcles inſerted into the lower jaw, aſſiſts greatly in this action; while the molares have ſharp cutting edges, calculated for cutting fleſh, and breaking the hardeſt bones. Even its poſterior teeth are not formed with rough broad ſurfaces as ours are; but are made conſiderably ſharper, and preſs over one another when the mouth is ſhut, that ſo they may take the firmer hold of whatever comes betwixt them.

59 Tongue. The tongue, in conſequence of the length of the jaws, is much longer than ours; and as this creature feeds with his head in a depending poſture, the bolus would always be in danger of falling out of the mouth, were it not for ſeveral prominences or papillæ placed moſtly at the root of the tongue, and crooked backwards in ſuch a manner as to allow any thing to paſs eaſily down to the jaws, but to hinder its return. By the papillæ alſo the ſurface of the tongue is increaſed, and a ſtronger impreſſion is made on the ſenſation of taſte. In ſome animals who feed on living creatures, theſe tenter-hooks are ſtill more conſpicuous; as in ſeveral large fiſhes, where they are almoſt as large as their teeth in the forepart of their mouth, and near as firm and ſtrong.

60 Amygdalæ. When we open the mouth, we ſee the amygdalæ very prominent in the poſterior part of it; ſo that it would appear at firſt view, that theſe were inconveniently placed, as being continually expoſed to injuries from the hard ſubſtances this creature ſwallows: but upon a more narrow ſcrutiny, we find this provided for by two membranous capſulæ, into which the amygdalæ, when preſſed, can eſcape, and remove themſelves from ſuch injuries.

61 Velum pendulum palati. The *velum pendulum palati* is in this creature conſiderably longer than in man, to prevent the food from getting into his noſe; which would happen more frequently in this animal than in man, becauſe of its ſituation while feeding.

62 Glottis. In this ſubject, as well as in other quadrupeds, there 63 Epiglottis. is no *uvula*; but then the *epiglottis*, when preſſed down, covers the whole rima entirely, and naturally continues ſo: there is therefore a ligament, or rather muſcle, that comes from the os hyoides and root of the tongue, that is inſerted into that part of the epiglottis where it is articulated with the cricoid cartilage, which ſerves to raiſe it from the rima, though not ſo ſtrongly but that it may with a ſmall force be clapped down again.

64 The uſe of the uvula in man. It may be aſked, however, Why the uvula is wanting here, and not in man? This ſeems to be, that quadrupeds, who ſwallow their food in an horrizontal ſituation, have no occaſion for an uvula, though it is neceſſary in man on account of his erect ſituation.

In the upper part of the pharynx, behind the cricoid cartilage, there is a pretty large gland to be found which ſerves not only for the ſeparation of a mucous liquor to lubricate the bolus as it paſſes this way, but alſo ſupplies the place of a valve, to hinder the food from regurgitating into the mouth, which it would be apt to do by reaſon of the deſcending ſituation of the creature's head. In man, the muſcle of the epiglottis is wanting, its place being ſupplied by the elaſticity of the cartilage.

65 Oeſophagus. The *œſophagus* is formed pretty much in the ſame way as the human. Authors indeed generally allege, that quadrupeds have their gullet compoſed of a double row of ſpiral fibres decuſſating one another; but this is peculiar to ruminating animals, who have occaſion for ſuch a decuſſation of fibres. The action of theſe you may eaſily obſerve in a cow chewing her cud.

66 Organ of ſmell. The *noſe* is generally longer than in man, and its external paſſage much narrower. The internal ſtructure is alſo better adapted for an acute ſmelling, having a larger convoluted ſurface on which the *membrana ſcheideriana* is ſpread; and this is to be obſerved in moſt quadrupeds, who have the oſſa ſpongioſa commonly large, and theſe two divided into a great number of exceſſively fine thin lamellæ. The ſenſibility ſeems to be increaſed in proportion to the ſurface; and this will alſo be found to take place in all the other ſenſes. The elephant, which has a head pretty large in proportion to its body, has the greateſt part of it taken up with the cavity of the noſe and frontal ſinuſes; which laſt extend almoſt over their whole head, and leave but a ſmall cavity for their brains. A very nice ſenſe of ſmelling was not ſo abſolutely neceſſary for man, who has judgement and experience to direct him in the choice of his food; whereas brutes, who have only their ſenſes, muſt of neceſſity have theſe acute, ſome having one ſenſe in greater perfection than others, according to their different way of life. We not only conclude *a priori* from the large expanded membrana ſcheideriana, that their ſenſe of ſmelling is very acute, but we find it ſo by cows and horſes diſtinguiſhing ſo readily betwixt noxious and wholeſome herbs, which they do principally by this ſenſe.

67 Auris. The external *ear* in different quadrupeds is differently framed, but always calculated to the creature's manner of life. In ſhape it commonly reſembles the oblique ſection of a cone from near the apex to the baſis. Hares, and ſuch other animals as are daily expoſed to inſults from beaſts of prey, have large ears directed backwards, their eyes warning them of any danger before; rapacious animals, on the other hand, have their ears placed directly forwards, as we ſee in the lion, cat, &c. The ſlow hounds, and other animals that are deſigned to hear moſt diſtinctly the ſounds coming from below, have their ears hanging downwards; or their ears are flexible, becauſe they move

their head for the moſt part with greater difficulty than man. Man, again, who muſt equally hear ſounds coming from all quarters, but eſpecially ſuch as are ſent from about his own height, has his external ear placed in a vertical manner, ſomewhat turned forward. In ſhort, wherever we ſee a ſpecialty in the make of this organ in any creature, we ſhall, with very little reflection, diſcover this form to be more convenient for that creature than another. The animal alſo has the power of directing the cone of the ear to the ſonorous body without moving the head. There are ſome differences to be obſerved in the ſtructure of the internal ear in different animals; but we know ſo very little of the uſe of the particular parts of that organ in the human ſubject, that it is altogether impoſſible to aſſign reaſons for theſe variations in other creatures.

68 Membrana nictitans. All quadrupeds have at the internal canthus of the eye a ſtrong firm membrane with a cartilaginous edge, which may be made to cover ſome part of their eye; and this is greater or leſs in different animals as their eyes are more or leſs expoſed to dangers in ſearching after their food. This *membrana nictitans*, as it is called, is not very large in this animal. Cows and horſes have it ſo large as to cover one half of the eye like a curtain, and at the ſame time is tranſparent enough to allow abundance of the rays of light to paſs through it. Fiſhes have a cuticle always over their eyes, as they are ever in danger in that inconſtant element. In this then we may alſo obſerve a ſort of gradation.

69 Muſculus ſuſpenſorius. All quadrupeds have a ſeventh muſcle belonging to the eye, called *ſuſpenſorius*. It ſurrounds almoſt the whole optic nerve, and is fixed into the ſclerotic coat as the others are. Its uſe is to ſuſtain the weight of the globe of the eye, and prevent the optic nerve from being too much ſtretched, without obliging the four ſtraight muſcles to be in a continual contraction, which would be inconvenient: at the ſame time this muſcle may be brought to aſſiſt any of the other four, by cauſing one particular portion of it to act at a time.

70 Pupilla. The next thing to be remarked is the figure of the *pupil*, which is different in different animals, but always exactly accommodated to the creature's way of life, as well as to the different ſpecies of objects that are viewed. Man has it circular, for obvious reaſons: an ox has it oval, with the longeſt diameter placed tranſverſely, to take in a larger view of his food: cats, again, have theirs likewiſe oval, but the longeſt diameter placed perpendicularly; they can either exclude a bright light altogether, or admit only as much as is neceſſary. The pupil of different animals varies in wideneſs, according as the internal organs of viſion are more or leſs acute: Thus cats and owls, who ſeek their prey in the night, or in dark places (and conſequently muſt have their eyes ſo formed as that a few rays of light may make a lively impreſſion on the retina), have their pupils in the day-time contracted into a very narrow ſpace, as a great number of rays would oppreſs their nice organs; while in the night, or where the light is faint, they open the pupil, and very fully admit the rays. In the ſame way, when the retina is enflamed, a great number of rays of light would occaſion a painful ſenſation; therefore the pupil is contracted; on the contrary, in dying people, or in a beginning amauroſis, it is generally dilated, as the eyes on ſuch occaſions are very difficultly affected, and as it were inſenſible.

71 Tapetum. The poſterior part of the choroid coat, which is called *tapetum*, is of different colours in different creatures. For oxen, feeding moſtly on graſs, have this membrane of a green colour, that it may reflect upon the retina all the rays of light which come from objects of that colour, while other rays are abſorbed: Thus the animal ſees its food better than it does other objects. Cats and owls have their tapetum of a whitiſh colour; and for the ſame reaſons have the pupil very dilatable, and their organs of viſion acute: And we ſhall find, that all animals ſee more or leſs diſtinctly in the dark, according as their tapetum approaches nearer to a white or black colour. Thus dogs, who have it of a greyiſh colour, diſtinguiſh objects better in the night than man, whoſe tapetum is dark brown; and who, it is believed, ſees worſt in the dark of any creature: it being originally deſigned that he ſhould reſt from all kinds of employment in the night-time. The difference then of the colour of the tapetum, as indeed the fabric of any other part in different creatures, always depends on ſome particular advantage accruing to the animal in its peculiar manner of life from this ſingularity.

72 Cerebrum. We ſhall now proceed to the brain, which we remark in the firſt place is proportionally much ſmaller in all quadrupeds than the human; but, as in man, it is divided into cerebrum and cerebellum, and theſe two parts bear nearly the ſame proportion to one another as in us. There was no ſuch occaſion for ſo great a quantity of brain in thoſe animals as in man; ſeeing in them all its energy is employed in their progreſſion, while man has a great waſte of ſpirits in the exerciſe of his reaſon and intellectual faculties. And beſides all this, a great bulky brain would be inconvenient to theſe creatures, in ſo far as it would add conſiderably to the weight of the head, which having the advantage of a long lever to act with, would require a much greater force to ſupport it than now it does; for the heads of the greateſt part of quadrupeds are not near ſo heavy as they would at ſight ſeem to be, from the *ſinus frontales* being produced a great way upwards to enlarge the organs of ſmelling.

The pits in the anterior part of their ſkulls are much more conſpicuous than in the human cranium: which may be occaſioned by the depending poſture of theſe creatures heads while they gather their food; the brain at this time gravitating much on the bones while they are as yet ſoft, will gradually make impreſſions upon them at theſe places where it riſes into eminences. This is prevented in man moſtly by his erect poſture.

73 Falx. The *falx* is not near ſo large in quadrupeds as in man, as they have little occaſion to lie on either ſide, and the two hemiſpheres of the brain are in a great meaſure hindered from juſtling againſt one another in violent motions, by the brain's inſinuating itſelf into the abovementioned pits.

The ſecond proceſs of the *dura mater*, or *tentorium cerebello ſuper-expanſum*, is conſiderably thicker and ſtronger in moſt quadrupeds than in man: eſpecially in ſuch of them as are very ſwift of foot, as hares and rabbits, and that moſt when they are old. This membrane is generally oſſified, or we find the place of it ſupplied by a bone, that it may the more effectually keep off the ſuperincumbent brain from the cerebellum in their rapid motions, which otherwiſe would be of bad conſequence.

74 Proceſſus mamillaris. The olfactory nerves are very large, and juſtly deſerve the name of *proceſſus mamillares*. They are hollow, and conſiſt of a medullary and cineritious ſubſtance, and at firſt ſight appear to be the anterior ventricles of the brain produced; but in man they are ſmall, and without any diſcernible cavity. The reaſon of this is pretty evident, if we conſider how this animal's head is ſituated; for the lymph continually gravitating upon the inferior part of the ventricles, may thus elongate and produce them; but from this very inferior part the olfactory nerves riſe, and are ſent immediately through the os ethmoides into the noſe. Hence the ancients, thinking they were continued hollow into the noſe, believed they were the emunctories of the brain: in the brain of ſheep, which by its firm texture is the beſt ſubject of any for ſearching into the ſtructure of this part, we evidently ſee, that the name of the *ſigmoid cavity* was very properly applied by the ancients to the lateral ventricles of the brain; which are really of a greater extent than they are ordinarily painted by the anatomiſts, reaching farther backwards, and forwards again under the ſubſtance of the brain. The cortical and medullary parts, as well as the corpus calloſum, are ſimilar to thoſe parts in man.

75 Nates Teſtes. The *nates* and *teſtes* deſerve this name much better here than in the human body, with reſpect to each other. They are larger in the quadruped; and hence we perceive that there is no great reaſon for aſcribing the different operations to any particular ſize or ſhape of theſe parts. They are here alſo of different colours; the *nates* being of the colour of the cortical, and the *teſtes* of the medullary ſubſtance of the brain; whereas in man they are both of one colour. The reaſon of theſe differences, and others of the like nature to be met with, we ſhall not pretend to determine; for we have hitherto ſuch an imperfect knowledge of the brain itſelf, that we are entirely ignorant of the various uſes of its different parts. We may in general conclude, that the varying in one animal from what it is in another, is fitted to the creature's particular way of living.

76 Rete mirabile Galeni. The *rete mirabile Galeni*, ſituated on each ſide of the *ſella turcica*, about which there has been ſo much diſpute, is very remarkable in moſt quadrupeds. This plexus of veſſels is nothing elſe than a continuation of the internal carotid arteries, which, entering the ſkull, divide into a vaſt number of minute branches running along the ſide of the ſella turcica; and, uniting afterwards, are ſpent on the brain in the common way. Galen ſeems with juſtice to ſuppoſe, that this plexus of veſſels ſerves for checking the impetuoſity of the blood deſtined for the brain.

The ſtructure of the brain differing but very little in all quadrupeds, it will be needleſs to examine it in any other.

77 SECT. IV. *The Anatomy of a Cow.*

THE next ſpecies of quadrupeds we propoſed to conſider was the ruminant kind, of which we have an example in a cow; and accordingly ſhall take the fœtus of the animal *in utero*, that we may firſt remark ſome things that are peculiar to it in that ſtate, and afterwards proceed to examine its viſcera as a ruminant animal. Firſt, then, as a fœtus.—However, before we begin our enquiry, it may be worth our obſervation, that from the ovarium ſomething eſſentially neceſſary for the production of the fœtus is derived, as well as in the human ſpecies.

78 Uterus. The form of a cow's *uterus* differs from the human, in having two pretty large cornua. 79 Cornua uteri. This is common to it with other brutes; for a bitch has two long *cornua uteri*: But theſe again differ (as being multiparous and uniparous) in this, that in the bitches cornua the fœtus are contained; whereas here there is only part of the ſecundines, being moſtly the allantois with the included liquor. The muſcular fibres of the uterus are more eaſily diſcovered; its internal ſurface has a great number of ſpongy, oblong, protuberant, glandular bodies fixed to it. Theſe are compoſed of veſſels of the uterus terminating here. In an impregnated uterus, we can eaſily preſs out of them a chylous mucilaginous liquor; they are compoſed of a great many proceſſes or digituli, and deep caverns, anſwering to as many caverns and proceſſes of the placenta. Their reſemblance has occaſioned the name of *papillæ* to be given them; and hence it was that Hippocrates was induced to believe that the fœtus ſucked *in utero*. The papillæ are found in all the different ſtages of life, in the various ſtages of pregnancy, and likewiſe in the unimpregnated ſtate. 80 Uterus if thicker in time of geſtation. It is not eaſy to determine whether the uterus grows thicker or thinner in the time of geſtation. The membranes, it is plain (by the ſtretching of the parts), muſt be made thinner; but then it is as evident, that the veſſels are at that time enlarged, upon which principally the thickneſs of any part depends; ſo there ſeems to be as much gained the one way as loſt the other.

The *os uteri* is entirely ſhut up by a glutinous mucilaginous ſubſtance, that is common to the females of all creatures when with young; by this the external air is excluded, which would ſoon make the liquors corrupt: it alſo prevents the inflammation of the membranes, and the hazard of abortion. By this means alſo the lips of the womb are kept from growing together, which otherwiſe they would certainly at this time do. There are mucous glands placed here to ſecern this glutten, which on the breaking of the membranes with the contained waters make a ſapo that lubricates and waſhes the parts, and makes them eaſily yield. The firſt of the proper involucra of the fœtus is the chorion.

81 Chorion. The *chorion* is a pretty ſtrong firm membrane, on whoſe external ſurface are diſperſed a great many red fleſhy bodies of the ſame number, ſize, and ſtructure, with the papillæ, with which they are mutually indented. 82 Cotyledones. They have been called *cotyledones*, from Κοτυλη, "cavity." This is greatly diſputed by ſome as a name very improper; but we think without reaſon, ſince the ſurface that is connected to the papillæ is concave, though when ſeparated it appears rather convex. To ſhun all diſpute, they may be called properly enough *placentulæ*, ſince they ſerve the ſame uſe as the placenta in women. The ſeparation of theſe from the papillæ without any laceration, and our not being able

to inject coloured liquors from the veſſels of the glands of the uterus into the placentulæ, ſeem to prove beyond a reply, that there can be here no anaſtomoſes betwixt the veſſels; on their coats run a great number of veſſels that are ſent to the ſeveral placentulæ, on the external ſide next to the uterus; whereas in creatures that have but one placenta, as in the human ſubject, cats, dogs, &c. the adheſion is ſomewhat firmer: The placentæ are likewiſe joined to the papillæ in the cornua uteri. We ſhall next give the hiſtory of the *allantois*.

83 Allantois. This is a fine tranſparent membrane contiguous to the former. It is not a general involucrum of the fœtus in the mother, for it covers only a ſmall part of the amnios. It is moſtly lodged in the cornua uteri. In mares, bitches, and cats, it ſurrounds the amnios, being every where interpoſed betwixt it and the chorion. In ſheep and goats it is the ſame as in this animal; and in ſwine and rabbits it covers ſtill leſs of the amnios. This ſac is probably formed by the dilatation of the urachus, which is connected at its other end to the fundus of the bladder, through which it receives its contents; and a great quantity of urine is commonly found in it. The membrane is doubled at the extremity of the canal, to hinder the return of the urine back into the bladder. Its veſſels are ſo exceſſively fine and few, that we cannot force an injected liquor farther than the beginning of this coat. This membrane is ſo far analogous to the cuticula, as not to be liable to corruption, or eaſily irritated by acrid liquors.

84 The arguments for and againſt the human allantois. The exiſtence of this membrane in women has been very warmly diſputed on both ſides. Thoſe who are againſt its exiſtence deny they could ever find it; and, allowing it were ſo, allege, that ſince the urachus is impervious, as appears by our not being able to throw liquors from the bladder into it, or *vice verſa*, it cannot ſerve the uſe that is agreed by all it does ſerve in beaſts; and therefore in the human body there is no ſuch thing. But if we conſider, on the other hand, firſt, that there ſeems to be the ſame neceſſity for ſuch a reſervoir in man as in other animals: ſecondly, that we actually find urine contained in the bladder of the human fœtus: thirdly, that urine has been evacuated at the naval when the urethra was ſtopped, which urine without this conduit would have fallen into the cavity of the abdomen: fourthly, that midwives have pretended to remark two different ſorts of waters come away at the time of birth: and, laſtly, that Dr Littre and Dr Hale have given in this membrane of an human ſubject, with all the other ſecundines curiouſly prepared, the one to the royal academy at Paris, the other to the royal ſociety at London; by which ſocieties their reſpective accounts are atteſted; not to mention Verheyen, Heiſter, Keill, &c. who affirm their having ſeen it; and Mr Albinus, that famous anatomiſt, profeſſor at Leyden, is ſaid to have ſhown to his college every year a preparation of it: On all theſe accounts it ſeems moſt probable, that there is ſuch a membrane in the human body.

85 Amnios. The third proper integument of the fœtus is the *amnios*. It is thinner and firmer than the chorion; it has numerous ramifications of the umbilical veſſels ſpread upon it, the lateral branches of which ſeparate a liquor into its cavity. This is the proper liquor of the amnios: which at firſt is in a ſmall quantity, afterwards increaſes for ſome months, then again decreaſes; and in a cow near her time, the quantity of this liquor is not above a pound. This membrane does not enter the *cornua uteri* in this creature, being confined to the body of the uterus; whereas the allantois occupies chiefly its cornua. But for what further relates to the ſtructure of the involucra, with the nature of the liquors contained in them, we muſt refer to the ſecond volume of Medical Eſſays, from page 121, where you have the ſum of all we know of this matter.

There are here two *venæ umbilicales*, and but one in the human ſubject; becauſe the extreme branches coming from the ſeveral placentulæ could not unite ſo ſoon as they would have done had they come all from one cake as in the human.

There is a ſmall round fleſhy body that ſwims in the urine of this creature, mares, &c. which is the *hippomanes* of the ancients. Several idle opinions and whims have been entertained as to its uſe; but that ſeems to be ſtill unknown, or how it is generated or nouriſhed, for it has no connection with the fœtus or placentulæ.

Having thus conſidered the ſeveral involucra of this animal in a fœtus ſtate, let us next obſerve the ſpecialities in its internal ſtructure peculiar to a fœtus.

86 Vena umbilicalis. The umbilical vein joins the *vena portarum* in the *capſula Gliſſoniana*, without ſending off any branches as it does in the human ſubject. This vein ſoon after birth turns to a ligament; yet there are ſome inſtances where it has remained pervious for ſeveral years after birth, and occaſioned a hæmorrhage. 87 Canalis venoſus. We may next obſerve the duct called *canalis venoſus*, going ſtraight from the *capſula Gliſſoniana* to the *vena cava*; this turns alſo afterwards to a ligament. The umbilical arteries riſe at acute angles from the internal iliacs, whatever ſome may ſay to the contrary; theſe alſo become impervious.

The pulmonary artery coming from the right ventricle of the heart divides into two; the largeſt, called *canalis arterioſus*, opens into the deſcending aorta; the other divides into two, to ſerve the lungs on each ſide. 88 Foramen ovale. The *foramen ovale* is placed in the partition betwixt the right and left auricles. At the edge of the hole is fixed a membrane, which when much ſtretched will cover it all over; but more eaſily yields to a force that acts from the right auricle to the left, than from the left to the right. 89 The circulation, how performed in a fœtus. After what has been ſaid, we may eaſily underſtand how the circulation is performed in a fœtus. The blood, being brought from the placenta of the mother, is thrown into the *capſula Gliſſoniana*, where it is intimately blended with the blood in the *vena portarum*: then part of this blood goes directly into the *vena cava* by the *ductus venoſus*; the reſt paſſes through the liver. Firſt, then, the whole is ſent from the *vena cava* into the right auricle, from whence part of it is ſent by the *foramen ovale* into the left auricle; the reſt paſſes into the right ventricle, then into the pulmonary artery; then the greateſt ſhare it receives is ſent immediately into the deſcending aorta by the *canalis arterioſus*, and the remainder circulates through the lungs, and is ſent back by the pulmonary veins into the left auricle; which, with the blood brought there by the *foramen ovale*, is ſent into the left ventricle, from whence it is driven by the aorta through the

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the body. The great deſign of this mechaniſm is, that the whole maſs of blood might not paſs through the collapſed lungs of the fœtus; but that part of it might paſs through the *foramen ovale* and *canalis arterioſus*, without circulating at all through the lungs.

90 Meſſieurs Mery and Winſlow, their opinions of it examined.

This was the opinion that univerſally prevailed till the end of the laſt century, when it was violently oppoſed by Monſieur Mery, who is very ſingular in ſeveral of his opinions. He will not allow that the foramen ovale tranſmits blood from the right to the left auricle, but on the contrary from the left to the right; and that for no other reaſon but becauſe he obſerved the pulmonary artery in a fœtus larger than the aorta. Mr Winſlow endeavours to reconcile theſe two opinions, by ſaying the blood may paſs either way, and that it is here as it were blended: his reaſon is, that on putting the heart in water, the foramen ovale tranſmits it any way. Mr Rohault, profeſſor of anatomy at Turin, and formerly one of Mery's ſcholars, ſtrongly defends his maſter, and criticiſes Mr Winſlow. What he principally builds on, is the appearance this foramen has in ſome dried preparations: this Mr Winſlow will not allow as a proof. After all, the common opinion ſeems moſt probable; and that for the following reaſons: Firſt, the pulmonary artery being larger ſignifies nothing, ſince its coats are not only thinner and will be more eaſily diſtended, but alſo the reſiſtance to the blood in the pulmonary artery from the collapſed lungs is greater than the reſiſtance to the blood in the aorta. Secondly, if we ſhould allow any of theſe two uncommon opinions, we ſhould have the right ventricle vaſtly more capacious than the left: for if we ſuppoſe the *foramen ovale* to be capable of tranſmitting one-third of the whole maſs of blood in any given time, and the *canalis arterioſus* as much in the ſame time, then you will find, that, according to Mr Mery's opinion, the whole maſs of blood being driven from the right ventricle into the pulmonary artery, one-third paſſes by the *canalis arterioſus* into the deſcending aorta, two-thirds paſſing through the lungs and returning into the left auricle; one-half of which portion, or one-third of the whole maſs, paſſes by the *foramen ovale* into the right auricle; and the other, or the laſt third, will be ſent into the left ventricle, and thence expelled into the *aorta*; which third, with that from the pulmonary artery by the *canalis arterioſus*, circulating through the body, are returned into the right auricle, where meeting with the other third from the *foramen ovale*, with it they are ſent into the right ventricle to undergo the ſame courſe. Thus the whole maſs is expelled by the right ventricle, and only one-third by the left. If this was the caſe, why is not the right ventricle three times as large and ſtrong as the left?

Then if, according to Mr Winſlow's ſyſtem, the *foramen ovale* tranſmits equal quantities from both auricles, this comes to the ſame as if there was no *foramen ovale* at all: that is to ſay, the whole maſs going from the right auricle into the right ventricle and pulmonary artery, one-third of the whole maſs paſſes into the aorta through the *canalis arterioſus*; the other two-thirds paſſing through the lungs, return to the left auricle and ventricle. Thus the right ventricle expels the whole maſs; the left, only two-thirds.

But if, according to the common opinion, we ſuppoſe the *foramen ovale* to convey the blood from the right to the left auricle, then one-third paſſes this way into the left ventricle: the other two-thirds are ſent by the right ventricle into the pulmonary artery: from whence one-third paſſes by the *canalis arterioſus* into the *aorta deſcendens*; the other third circulates through the lungs, and is returned into the left ventricle; where meeting with that from the *foramen ovale*, it is therewith expelled into the aorta, and with the one-third tranſmitted by the *canalis arterioſus* returns into the right auricle to run the ſame race as before. Thus we conclude, that two-thirds are expelled by each ventricle, and the whole circulates through the body; and hence they come to be of pretty equal dimenſions. In all this calculation no regard has been had to the blood diſcharged from the umbilical veſſels; but the greater quantity returned by the veins, than ſent out by the arteries, ſtill argues for the common opinion.

91 The kidneys.

The *kidneys* in the fœtus are compoſed of different lobes, which ſerve to give us an idea of the kidneys being a congeries of different glands: theſe lobes being kept contiguous by the external membrane, are preſſed by the other viſcera, till at length they unite.

92 The hiſtory of it as a ruminant animal.

We now come to conſider the creature as a ruminant animal. There are no *dentes inciſores* in the upper jaw; but the gums are pretty hard, and the tongue rough. This roughneſs is occaſioned by the long ſharp pointed papillæ with which the whole ſubſtance of it is covered. Theſe papillæ are turned towards the throat; ſo that by their means the food, having once got into the mouth, is not eaſily pulled back. The animals therefore ſupply the defect of teeth by wrapping their tongue round a tuft of graſs; and ſo, preſſing it againſt the upper jaw, keep it ſtretched, and cut it with the teeth of the under jaw; then, without chewing, through it down into the œſophagus, which in theſe creatures conſiſts of a double row of ſpiral fibres decuſſating one another. All animals which ruminate muſt have more ventricles then one; ſome have two, ſome three; our preſent ſubject has no leſs than four. The food is carried directly down into the firſt, which lies upon the left ſide, and is the largeſt of all; it is called γαςηρ, *ventriculus*, and κοιλια, by way of eminence. It is what is called by the general name of *paunch* by the vulgar. There are no rugæ upon its internal ſurface; but inſtead of theſe there are a vaſt number of ſmall blunt pointed proceſſes, by which the whole has a general roughneſs, and the ſurface is extended to ſeveral times the ſize of the paunch itſelf. The food, by the force of its muſcular coat, and the liquors poured in here, is ſufficiently macerated; after which it is forced up hence by the œſophagus into the mouth, and there it is made very ſmall by maſtication; this is what is properly called *chewing the cud*, or *rumination*; for which purpoſe the *dentes molares* are exceedingly well fitted: for inſtead of being covered with a thin cruſt, the enamel on them conſiſts of perpendicular plates, between which the bone is bare, and conſtantly wearing faſter than the enamel, ſo that the tooth remains good to extreme old age; and by means of theſe teeth, the rumination is carried on for a long time without any danger of ſpoiling them. After rumination, the food is ſent down by the gullet into the ſecond ſtomach; for the œſophagus opens indifferently into both. It ends exactly where the two ſtomachs meet; and there is a ſmooth gutter with riſing

93 It has four ſtomachs.

94 Their names and deſcription.

ſing edges which leads into the ſecond ſtomach, from thence to the third, and alſo to the fourth: however, the creature has a power to direct it into which it will. Some tell us, that the drink goes into the ſecond; but that might eaſily be determined by making them drink before ſlaughter. The ſecond ſtomach, which is the anterior and ſmaller, is called κεκρυφαλος, *reticulum, honeycomb*, the *bonnet*, or *king's hood*. It conſiſts of a great number of cells on its internal ſurface, of a regular pentagonal figure, like to a honeycomb. Here the food is farther macerated; from which it is protruded into the third, called εχινος or *omaſum*, *vulgo* the *many plies*, becauſe the internal ſurface riſes up into a great many placæ or folds, and *ſtratum ſuper ſtratum*, according to the length of this ſtomach. Some of theſe plicæ are farther produced into the ſtomach, than others; *i. e.* firſt two long ones on each ſide, and within theſe two ſhorter in the middle, &c. There are numberleſs glandular grains like millet-ſeeds diſperſed on its plicæ, from which ſome authors call this ſtomach the *millet*. From this it paſſes into the fourth, whoſe names are ενυϛρον, *abomaſſum*, *caillè*, or the *red*, which is the name it commonly has becauſe of its colour. This much reſembles the human ſtomach, or that of a dog; only the inner folds or plicæ are longer and looſer: and it may alſo be obſerved, that in all animals there is only one digeſtive ſtomach, and that has the ſame coagulating power in the fœtus as the fourth ſtomach in this animal; whence this might not improperly be called the only true ſtomach. *Caillè* ſignifies *curdled*; and hence the French have given that as a name to this fourth ſtomach, becauſe any milk that is taken down by young calves is there curdled. It is this fourth ſtomach, with the milk curdled in it, that is commonly taken for making runnet; but after the bile and pancreatic juice enter, this coagulation is not to be found, which ſhews the uſe of theſe liquors. There are other creatures which uſe the ſame food, that have not ſuch a mechaniſm in their digeſtive organs. Horſes, aſſes, &c. have but one ſtomach, where graſs is macerated, and a liquor for their nouriſhment extracted, and the remainder ſent out by the anus very little altered. From this different ſtructure of the ſtomach in theſe creatures, a ruminant animal will be ſerved with one-third leſs food than another of equal bulk: graſiers are ſufficiently acquainted with this. The reaſon is, that ruminating animals have many and ſtrong digeſtive organs; all their food is fully prepared, and almoſt wholly converted into chyle: But a horſe's ſtomach is not fitted for this; ſo that he requires a much greater quantity of food to extract the ſame nouriſhment.

95 Inteſtina. The guts of theſe creatures are of a conſiderable length in proportion to the bulk of the body; and this confirms what we ſaid formerly on the ſubject of the inteſtines of a dog, viz. that the length and capacity of the guts were different in different animals, according to the nature of their food.

96 Duodenum The *duodenum* is formed here much the ſame way as in a dog, and the general intention kept in view with regard to the mixture of the bile and pancreatic lymph. The great guts here hardly deſerve that name, their diameter differing very little from that of the ſmall ones; but to compenſate this they are much longer proportionally than a dog's are, being convoluted as the ſmall guts are. The cæcum is very large and long. The digeſtion of the cow, as well as ſome other animals, is accompanied with a peculiar kind of action called *rumination*; the intention of which ſeems to be, that the food may be ſufficiently comminuted, and thus more fully acted upon by the ſtomach: for it is not obſerved that a calf ruminates as long as it is fed only upon milk, though the action takes place as ſoon as it begins to eat ſolid food. But it is to be obſerved, that as long as a calf feeds only upon milk, the food deſcends immediately into the fourth ſtomach (which, as has been already mentioned, ſeems only capable of performing the operation of digeſtion) without ſtopping in any of the firſt three. The rumination does not take place till after the animal has eaten a pretty large quantity: after which ſhe lies down, if ſhe can do it conveniently, and begins to chew; though the operation will take place in a ſtanding poſture, if ſhe cannot lie down. In this action a ball is obſerved to riſe from the ſtomach with great velocity, almoſt as if ſhot from a muſket. This ball the animal chews very accurately, and then ſwallows it again, and ſo on alternately, till all the food ſhe has eaten has undergone this operation. This is eaſily explained from the ſtructure of the œſophagus, which has one ſet of fibres calculated for bringing up the graſs, and another for taking it down.

By means of rumination, the cow extracts a much larger proportion of nouriſhment from her food than thoſe animals which do not ruminate; and hence ſhe is contented with much worſe fare, and ſmaller quantities of it, than a horſe; hence alſo the dung of cows, being much more exhauſted of its fine parts than horſe-dung, proves much inferior to it as a manure.

97 Spleen. The *ſpleen* differs not much either in figure or ſituation from that of a dog; but it is a little more firmly fixed to the diaphragm, there not being here ſo much danger of this viſcus's being hurt in the flexions of the ſpine.

98 Liver. The *liver* is not ſplit into ſo many lobes in this creature as either in a man or dog; which depends on the ſmall motion this creature enjoys in its ſpine, which made ſuch a diviſion needleſs. This alſo confirms what we formerly advanced on this head.

99 Bladder. Their *veſica urinaria* is of a pyramidal ſhape. It is very large, and more membranaceous: for the urine of theſe creatures not being ſo acrid as that of carnivorous animals, there was no ſuch occaſion for expelling it ſo ſoon.

100 Scrotum. Veſiculæ ſeminales. The male is provided with a looſe pendulous *ſcrotum*, and conſequently with *veſiculæ ſeminales*. The female organs differ from thoſe of a bitch, moſtly as to the form of the cornua uteri, which are here contorted in form of a ſnail. In this, and all uniparous animals, they contain only part of the ſecundines; but in bitches, and other multiparous animals, they run ſtraight up in the abdomen, and contain the fœtus themſelves.

101 Cor. The ſituation of the *heart* is pretty much the ſame with that of a dog, only its point is rather ſharper: In us, the heart beating continually againſt the ribs, and both ventricles going equally far down to the con-

ſtitution of the apex, it is very obtuſe: but here the apex is made up only of the left ventricle, ſo is more acute.

102 Aorta aſcendens and deſcendens. The *aorta* in this creature is juſtly divided into *aſcending* and *deſcending*, though this diviſion is ill founded either in a dog or man; and it has certainly been from this ſubject that the older anatomiſts took their deſcriptions when they made this diviſion; for here the aorta divides into two, the aſcending and deſcending.

CHAP. II. *Of Fowls.*

THE next claſs of animals we come to conſider are of the feathered kind; which are divided into the *granivorous* and *carnivorous*. But before we go on to conſider the ſpecialties in the viſcera of each kind, we muſt obſerve what both ſpecies agree in.

SECT. I. *Of Fowls in general.*

103 Their covering. FOWLS have a particular covering of feathers different from all other creatures, but exactly well ſuited to their manner of life; for it not only protects them from the injuries of the weather, but ſerves them in their progreſſion through that thin aerial element they are for the moſt part employed in; and as ſome fowls live much in the water, their feathers being continually beſmeared with an oily liquor, keeps the water from ſoaking into their ſkins, and ſo prevents the bad effects which it would infallibly otherwiſe produce.

104 Their wings, how furniſhed. Fowls have the ſtrongeſt muſcles of their whole body inſerted into their wings; whence by the way we may obſerve, that it is altogether impoſſible for man to buoy himſelf up into the air like birds, even though he had proper machines in place of wings, unleſs he were likewiſe provided with muſcles ſtrong enough for
105 Why not placed in the middle of the body. moving them, which he has not. In the next place, their wings are not placed in the middle of their bodies, but a good deal further forwards; whence it would at firſt view appear, that their heads would be erect, and their poſterior parts moſt depending when raiſed in the air: but by ſtretching out their heads which act upon the lever of a long neck, they alter their centre of gravity pretty much; and alſo by filling the ſacs or bladders in the inſide of their abdomen with air, and expanding their tail, they come to make the poſterior part of their bodies conſiderably higher; and thus they fly with their bodies nearly in an horizontal ſituation. Hence we find, that if their necks are kept from being ſtretched out, or if you cut away their tails, they become incapable of flying any conſiderable way.

The largeneſs of the wings in different fowls varies according to the occaſions of the creature. Thus birds of prey, who muſt fly a conſiderable way to provide their food, have large ſtrong wings; whereas domeſtic birds, who find their nouriſhment almoſt every where, have very ſhort and but ſmall wings. Their tail is of uſe in aſſiſting to raiſe them in the air; though the chief purpoſe of it is to ſerve as a rudder in guiding their flight, whilſt they uſe their wings as we do oars in putting forward a boat. The beſt account of this manner of progreſſion of fowls is given by Alfonſus Borellus, in his treatiſe *De Motu Animalium*; and in the *Religious Philoſopher* we have Borelli's doctrine ſtripped pretty much of its mathematical form. The poſterior extremities are ſituated ſo far back, as to make us at firſt think they would be in continual hazard of falling down forwards when they walk: but this is prevented by their holding up their heads and neck, ſo as to make the centre of gravity fall upon the feet; and when they have occaſion for climbing up a ſteep place, they ſtretch out their heads and necks forward, eſpecially if they are ſhort-legged, the better to preſerve properly the balance of the body. Thus we may obſerve a gooſe entering a barn-door, where generally there is an aſcending ſtep, to ſtretch out its neck, which before was raiſed, and incline its body forwards. This is laughed at by the common people, who aſcribe it to a piece of folly in the gooſe, as if afraid of knocking its head againſt the top of the door.

106 A peculiar mechaniſm in the toes of fowls. Carnivorous animals are provided with ſtrong crooked claws for the catching their prey: water-fowls uſe them for ſwimming; and, principally for this purpoſe, have a ſtrong firm membrane interpoſed betwixt the toes. There is a beautiful mechaniſm to be obſerved in the toes of fowls, which is of conſiderable uſe to them. For their toes are naturally drawn together, or bended, when the foot is bended: this is owing to the ſhortneſs of the tendons of the toes, which paſs over them, which is analogous to our heel; and that the toes are ſet in the circumference of a circle, as our fingers are: Hence, when the foot is bended, the tendons muſt conſequently be much ſtretched; and, ſince they are inſerted into the toes, muſt of neceſſity bend them when the foot is bended; and when the foot is extended, the flexors of the toes are again relaxed, and they therefore expanded. This is alſo of great uſe to different kinds of fowls: thus the hawk deſcending with his legs and feet extended, ſpreads his talons over his prey; and the weight of his body bending his feet, the toes are contracted, and the prey is ſeized by the talons. This is alſo of great uſe to water-fowls: for had there been no ſuch contrivance as this, they muſt have loſt as much time when they pulled their legs in as they had gained by the former ſtroke; but, as the parts are now framed, whenever the creature draws in its foot, the toes are at the ſame time bended and contracted into leſs ſpace, ſo that the reſiſtance made againſt the water is not near ſo great as before: on the contrary, when they ſtretch their foot, their toes are extended, the membrane betwixt them expanded, and conſequently a greater reſiſtance made to the water. Again, ſuch fowls as live moſtly in the air, or have occaſion to ſuſtain themſelves on branches of trees in windy weather, and even in the night-time when aſleep, while all their muſcles are ſuppoſed to be in a ſtate of relaxation; ſuch have no more to do but lean down the weight of their bodies, and their toes continue bended without any muſcles being in action; and whenever they would diſentangle themſelves, they raiſe up their bodies, by which their feet, and conſequently their toes, are extended.

107 The variety in the beaks of fowls. Its uſes, &c. The roſtrum, bill, or beak of fowls, is compoſed of two mandibulæ; and, as in quadrupeds, the upper one has no motion but what it poſſeſſes in common with the head. But parrots are an exception to this rule; for they can move the upper mandible at pleaſure: this is exceeding convenient, as it enables them to lay hold of whatever comes in their way. Carnivorous

fowls have their beaks long, ſharp, and crooked; the domeſtic fowls, ſuch as the hen-kind, &c. have ſtrong ſhort beaks, commodiouſly fitted to dig up and break their food; the water-fowls, again, have long or very broad ſcoop-like beaks, which is moſt convenient for them. The ſternum of fowls is much larger proportionally than the human, and has a ridge riſing in its middle for the more commodious origin of the muſcles that move the wings. It is alſo leſs moveable than ours; for had it been very moveable, a great deal of the force employed for moving the wings would at every contraction of the muſcles have been loſt, or elſe ſome other muſcles muſt have come into play to keep firm the ſternum; but this additional weight would have been inconvenient for their progreſſion.

What other things are moſt remarkable in the ſtructure of the ſeveral viſcera, we ſhall conſider in that common domeſtic animal the cock or hen, and afterwards obſerve the difference of their viſcera chylopoietica from a carnivorous fowl.

Sect. II. *Anatomy of the Domeſtic Cock.*

Though this kind of birds live upon food ſomewhat ſimilar to that of man, yet as they have no teeth to ſeparate or break down this food, we would expect to find ſomething to compenſate for the want of teeth, ſomething remarkable in the organs of digeſtion: we ſhall therefore begin with theſe parts.

108 Oeſophagus. Ingluvies.

The *œſophagus* of this creature runs down its neck, ſomewhat inclined to the right ſide; and terminates in a pretty large membranous ſac, which is the ingluvies or crop, where the food is macerated and diſſolved by a liquor ſeparated by the glands, which are eaſily obſerved every where on the internal ſurface of this bag. The effect of this maceration may be very well obſerved in pigeons, who are ſometimes in danger of being ſuffocated by the peaſe, &c. they feed upon, ſwelling to ſuch an immenſe bulk in their ingluvies, that they can neither get upwards nor downwards. If it be a favourite fowl, it might be preſerved by opening the ſac, taking out the peaſe, and ſewing up the wound.

109 Ventriculus ſuccenturiatus ſeu infundibulum.

The food getting out of this ſac goes down by the remaining part of the œſophagus into the *ventriculus ſuccenturiatus*, or *infundibulum Peyeri*, which is a continuation of the gullet with more numerous glands, which ſeparate a liquor to dilute the food ſtill more, which at length gets into the true ſtomach or gizzard, *ventriculus calloſus*, which conſiſts of two very ſtrong muſcles covered externally with a tendinous aponeuroſis, and lined on the inſide by a very thick firm membrane, which we evidently diſcover to be a production of the cuticula. This might have been proved in ſome meaſure *à priori*, from taking notice, that this membrane, which in chicks is only a thin ſlight pellicle, by degrees turns thicker and ſtronger the more attrition it ſuffers: but there is no other animal ſubſtance, ſo far as we know, which grows more hard and thick by being ſubjected to attrition, excepting the cuticula.—
110 Epidermis inveſts the internal ſurface of all the cavities and veſſels of the human body.
Hence may be drawn ſome kind of proof of what has been affirmed concerning the tunica velloſa of the ſtomach and inteſtines in the human body, viz. that it was in part a continuation of the epidermis; nay, all the hollow parts of the body, even arteries, veins, &c. ſeem to be lined with a production of this membrane, or one analgous to it. The uſe of the internal coat of the ſtomach of fowls is to defend the more tender parts of that viſcus from the hard grains and little ſtones thoſe creatures take down. The uſe of the gizzard is to compenſate for the want of teeth; and it is well fitted for this purpoſe from the great ſtrength it poſſeſſes.

The digeſtion of theſe animals is performed merely by attrition, as is evinced by many experiments; and it is further aſſiſted by the hard bodies they ſwallow. We ſee them daily take down conſiderable numbers of the moſt ſolid rugged little flints they find; and theſe can ſerve for no other purpoſe than to help the trituration of their aliments. After theſe pebbles, by becoming ſmooth, are unfit for this office, they are thrown up by the mouth. Hence fowls that are long confined, though ever ſo well fed, turn lean for want of theſe ſtones to help their digeſtion. This was put beyond all diſpute by Mr Tauvry, who gave a ſpecies of metal to an oſtrich, convex on one ſide and concave on the other, but carved on both; and opening the creature's body ſome time after, it was found, that the carving on the convex ſide was all obliterated, while the engraved character remained the ſame as before on the concave ſide, which was not ſubjected to the ſtomach's preſſure: which could not have happened had digeſtion been performed by a menſtruum, or any other way whatſoever; but may be eaſily ſolved by allowing a ſimple mechanical preſſure to take place. We are, however, by no means to conclude from this, as ſome have too raſhly done, that in the human body digeſtion is performed by ſimple attrition; otherwiſe we may, with equal ſtrength of reaſon, by as good arguments drawn from what is obſerved in fiſhes, prove that the aliments are diſſolved in our ſtomachs by the action of a menſtruum. But this method of reaſoning is very faulty; nor can it ever bring us to the true ſolution of any philoſophical or medical problem. It is very plain, ſince the ſtructure of the parts of the human ſtomach are ſo very different from that of this creature, that it is fooliſh and unreaſonable to imagine both of them capable of producing the ſame effects. At each end of the ſtomach, there are as it were two particular ſacs of a different texture from the reſt of the ſtomach, not conſiſting of ſtrong muſcular fibres; they ſeem to be receptacles for the ſtones (eſpecially at the end which is fartheſt from the orifice), while the digeſted aliment is protruded into the inteſtines.

Spallanzani, however, has lately found, that pebbles are not at all neceſſary to the trituration of the food of theſe animals. At the ſame time, he does not deny, that when put in motion by the gaſtric muſcles, they are capable of producing ſome effect on the contents of the ſtomach; but is inclined to believe, that they are not ſought for and ſelected by deſign, as many ſuppoſe, but becauſe they frequently happen to be mixed with the food.

111 Duodenum.

The *duodenum* begins pretty near the ſame place at which the œſophagus enters; yet notwithſtanding the vicinity of theſe two tubes, the aliments are in no danger of getting out before they are perfectly digeſted, by reaſon of a protuberance, or *ſeptum medium*, betwixt the orifices: and in thoſe creatures who have ſuch a ſtrong muſcular ſtomach, it is a matter of great indifference whether the entry of the œſophagus or pylorus be higheſt, provided that the entry from the œſophagus does not allow the food to regurgitate, ſince the force of the ſtomach can eaſily protrude it towards the duodenum. This gut is moſtly in the right ſide, and hangs pendulous in their abdomen, having its two extremities fixed to the liver. 112 Ductus choledochus. The *ductus choledochus* enters near its termination, where it mounts up again to be fixed to the liver; and leſt, by the contraction of the inteſtines, the bile ſhould paſs over without being intimately blended with the chyle, that duct enters downwards, contrary to the courſe of the food, and contrary to what is obſerved in any of the animals we have yet mentioned. But ſtill the general intention is kept in view, in allowing theſe juices the faireſt chance of being intimately blended with the food.

113 Inteſtina tenuia.

The *ſmall guts* are proportionally longer than thoſe of carnivorous birds, for the general cauſe already aſſigned. At the end of the ilium they have two large *inteſtina cæca*, one on each ſide, four or five inches long, coming off from the ſide of the rectum, and aſcending; and we find them containing part of the food: Theſe ſerve as reſervoirs to the feces; which, after ſome remora, there regurgitate into what ſoon becomes the rectum; which, together with the excretories of urine and organs of generation, empties itſelf into the common cloaca. The ſmall inteſtines are connected by a long looſe meſentery, which has little or no fat accompanying the blood-veſſels, there being no hazard of the blood's being ſtopped.

116 Pancreas.

The *pancreas* in the creature lies betwixt the two folds of the duodenum, and ſends two or three ducts into this gut pretty near the biliary.

117 The ſpleen.

The *ſpleen* is here of a round globular figure, ſituated between the liver and ſtomach; and betwixt theſe and the back-bone it enjoys the ſame properties as in other animals, viz. large blood-veſſels, &c. All its blood is ſent into the *vena portarum*, and has a perpetual conquaſſation. It has no excretory, as far as we know. 118 Liver. Their *liver* is divided into two equal lobes by a pellucid membrane, running according to the length of their body: and hence we may obſerve, that it is not proper to that bowel to lie on the right ſide; which is ſtill more confirmed by what we obſerve in fiſhes, where the greateſt part of it lies in the left ſide.

119 Veſica fellis.

The ſhape of their *gall-bladder* is not much different from that of quadrupeds; but is thought to be longer in proportion to the ſize of the animal, and is farther removed from the liver.

120 Cor.

The principal difference to be remarked in their *heart*, is the want of the *valvulæ tricuſpides*, and their place being ſupplied by one fleſhy flap.

121 Pulmones, their ſtructure and uſes.

122 The uſe of the veſicles in the abdomen.

The *lungs* are not looſe within the cavity of the thorax, but fixed to the bone all the way; neither are they divided into lobes, as in thoſe animals that have a large motion in their ſpine. They are two red ſpongy bodies, covered with a membrane that is pervious, and which communicates with the large veſicles or air-bags that are diſperſed over their whole abdomen; which veſicles, according to Dr Monro, ſerve two very conſiderable uſes. The one is to render their bodies ſpecifically light, when they have a mind to aſcend and buoy themſelves up when flying, by diſtending their lungs with air, and alſo ſtraiten their *trachea arteria*, and ſo return the air. Secondly, they ſupply the place of a muſcular *diaphragm* and ſtrong abdominal muſcles; producing the ſame effects on the ſeveral contained viſcera, as theſe muſcles would have done, without the inconveniency of their additional weight; and conducing as much to the excluſion of the egg and feces.

123 The diaphragm how ſupplied.

Dr Hunter hath lately made ſome curious diſcoveries relative to theſe internal receptacles of air in the bodies of birds. Some of them are lodged in the fleſhy parts, and ſome in the hollow bones; but all of them communicate with the lungs. He informs us, that the air-cells which are found in the ſoft parts have no communication with the cellular membrane which is common to birds as well as other animals. Some of them communicate immediately with each other; but all of them by the intervention of the lungs as a common centre. Some of them are placed in cavities, as the abdomen; others in the interſtices of parts, as about the breaſt. The bones which receive air are of two kinds; ſome of them divided into innumerable cells; others hollowed out into one large canal. They may be diſtinguiſhed from ſuch as do not receive air, by having leſs ſpecific gravity; by being leſs vaſcular; by containting little oil; by having no marrow nor blood in their cells; by having leſs hardneſs and firmneſs than others; and by the paſſage for the air being perceivable.

The mechaniſm by which the lungs are fitted for conveying air to theſe cavities is, their being attached to the diaphragm, and connected alſo to the ribs and ſides of the vertebræ. The diaphragm is perforated in ſeveral places by pretty large holes, allowing a free paſſage of air into the abdomen. To each of theſe holes is attached a diſtinct membranous bag, thin and tranſparent. The lungs open at their anterior part into membranous cells, which lie upon the ſides of the pericardium, and communicate with the cells of the ſternum. The ſuperior parts of the lungs open into cells of a looſe net-work, through which the trachea and œſophagus paſs. When theſe cells are diſtended with air, it indicates paſſion, as in the caſe of the turky-cock, pouting-pigeon, &c.

Theſe cells communicate with others in the axilla, and under the large pectoral muſcle; and thoſe with the cavity of the os humeri, by means of ſmall openings in the hollow ſurface near the head of that bone. Laſtly, The poſterior edges of the lungs have openings into the cells of the vertebræ, ribs, os ſacrum, and other bones of the pelvis, from which the air finds a paſſage to the cavity of the thigh-bone.

Concerning the uſe of theſe cavities the doctor conjectures, that they are a kind of appendage to the lungs; and that, like the bags continued through the bellies of amphibious animals, they ſerve as a kind of reſervoirs of air. They aſſiſt birds during their flight, which muſt be apt to render frequent reſpiration difficult. He farther inſinuates, that this conſtruction of the organs of reſpiration may aſſiſt birds in ſinging: which he thinks, may be inferred from the long continuance of ſong between the breathings of a canary-bird. On tying the trachea of a cock, the animal breathed through a canula introduced into his belly; another through the os humeri, when cut acroſs; and a hawk through the os femoris. In all theſe caſes the animals ſoon died. In the firſt, the doctor aſcribes the death to an inflammation of the bowels; but in the laſt, he owns it was owing to difficult breathing.

What took place, however, was ſufficient to ſhow that the animals really did breathe through the bone.

When we examine the upper end of the *trachea*, we obſerve a *rima glottidis* with muſcular ſides, which may act in preventing the food or drink from paſſing into the lungs; for there is no *epiglottis* as in man and quadrupeds.

124 Trachea arteria. The *trachea arteria*, near where it divides, is very much contracted; and their voice is principally owing to this coarctation. If you liſten attentively to a cock crowing, you will be ſenſible that the noiſe does not proceed from the throat, but deeper; nay, this very pipe, when taken out of the body, and cut off a little after its diviſion, and blown into, will make a ſqueaking noiſe, ſomething like the voice of theſe creatures. On each ſide, a little higher than this contraction, there is a muſcle ariſing from their ſternum, which dilates the trachea. The cartilages, of which the pipe is compoſed in this animal, go quite round it; whereas in men and quadrupeds they are diſcontinued for about one-fourth on the back-part, and the intermediate ſpace is filled up by a membrane. Neither is the trachea ſo firmly attached to their vertebræ as in the other creatures we have examined. This ſtructure we ſhall find of great ſervice to them, if we conſider, that had the ſame ſtructure obtained in them as in us, their breath would have been in hazard of being ſtopped at every flexion or twiſting of their neck, which they are frequently obliged to. This we may be ſenſible of by bending our necks conſiderably on one ſide, upon which we ſhall find a great ſtraitneſs and difficulty of breathing; whereas their trachea is better fitted for following the flections of the neck by its looſe connection to the vertebræ.

In place of a *muſcular diaphragm*, this creature has nothing but a thin membrane connected to the pericardium, which ſeparates the thorax and abdomen. But beſides this, the whole abdomen and thorax are divided by a longitudinal membrane or *mediaſtinum* connected to the lungs, pericardium, liver, ſtomach, and to the fat lying over their ſtomach and guts, which is analogous to an *omentum*, and ſupplies its place.

125 Lymphatic ſyſtem. The *lymphatic ſyſtem* in birds conſiſts, as in man, of lacteal and lymphatic veſſels, with the thoracic duct.

The lacteals indeed, in the ſtricteſt ſenſe, are the lymphatics of the inteſtines; and, like the other lymphatics, carry only a tranſparent lymph; and inſtead of one thoracic duct, there are two, which go to the jugular veins. In theſe circumſtances, it would ſeem that birds differ from the human ſubject, ſo far at leaſt as we may judge from the diſſection of a *gooſe*, the common ſubject of this inquiry, and from which the following deſcription is taken.

The lacteals run from the inteſtines upon the meſenteric veſſels: thoſe of the duodenum paſs by the ſide of the pancreas; afterward they get upon the cæliac artery, of which the ſuperior meſenteric is a branch. Here they are joined by the lymphatics of the liver, and then they form a plexus which ſurrounds the cæliac artery. Here alſo they receive a lymphatic from the gizzard, and ſoon after another from the lower part of the œſophagus. At the root of the cæliac artery they are joined by the lymphatics from the glandulæ renales, and near the ſame part by the lacteals from the other ſmall inteſtines, which veſſels accompany the lower meſenteric artery; but, before they join thoſe from the duodenum, receive from the rectum a lymphatic, which runs from the blood-veſſels of that gut. Into this lymphatic ſome ſmall veſſels from the kidneys ſeem to enter at the root of the cæliac artery. The lymphatics of the lower extremities probably join thoſe from the inteſtines. At the root of the cæliac artery and contiguous part of the aorta, a net-work is formed by the veſſels above deſcribed. From this net work ariſe two thoracic ducts, of which one lies on each ſide of the ſpine, and runs obliquely over the lungs to the jugular vein, into the inſide of which it terminates, nearly oppoſite to the angle formed by the vein and this ſubclavian one. The thoracic duct of the left ſide is joined by a large lymphatic, which runs upon the œſophagus. The thoracic ducts are joined by the lymphatics of the neck, and probably by thoſe of the wings where they open into the jugular veins. The lymphatics of the neck generally conſiſt of two large branches, on each ſide of the neck, accompanying the blood-veſſels; and theſe two branches join near the lower part of the neck, and form a trunk which runs cloſe to the jugular vein, and opens into a lymphatic gland; from the oppoſite ſide of this gland a lymphatic comes out, which ends in the jugular vein.

On the left ſide, the whole of this lymphatic joins the thoracic duct of the ſame ſide: but, on the right one, part of it goes into the inſide of the jugular vein a little above the angle; whilſt another joins the thoracic duct, and with that duct forms a common trunk, which opens into the inſide of the jugular vein, a little below the angle which that vein makes with the ſubclavian. This ſyſtem in birds differs moſt from that of quadrupeds, in the chyle being tranſparent and colourleſs, and in there being no viſible lymphatic glands, neither in the courſe of the lacteals, nor in that of the lymphatics of the abdomen, nor near the thoracic ducts.

126 Kidneys. The *kidneys* lie in the hollow excavated in the ſide of the back-bone, from which there is ſent out a bluiſh-coloured canal running along by the ſide of the *vas deferens*, and terminating directly in the common cloaca. This is the *ureter* which opens by a peculiar aperture of its own, and not at the penis. Fowls having no *veſica urinaria*, it was thought by ſome they never paſſed any urine, but that it went to the nouriſhment of the feathers: but this is falſe; for that whitiſh ſubſtance that you ſee their greeniſh fæces covered with, and which turns afterwards chalky, is their urine. Let us next conſider the organs of generation of both ſexes, and firſt thoſe of the male.

127 The organs of generation in the male. The *teſticles* are ſituated one on each ſide of the back-bone; and are proportionally very large to the creature's bulk. From theſe run out the *vaſa ſeminifera*; at firſt ſtraight; but afterwards recede farther from the body of the teſticle, they acquire an undulated or convoluted form, as the epididymis in man. Theſe convolutions partly ſupply the want of *veſiculæ ſeminales*, their coition being at the ſame time very ſhort: Theſe terminate in the penis, of which the cock has two, one on each ſide of the common cloaca, pointing directly outwards. They open at a diſtance from each other, and are very ſmall and ſhort; whence they have eſcaped the notice of anatomiſts, who have often denied their exiſtence. In birds there is no proſtate

ſtate gland. This is what is chiefly remarkable in the organs of the male.

128 Vitellarium. The *racemus vitellorum*, being analogous to the ovaria in the human ſubject, are attached by a proper membrane to the back-bone. This is very fine and thin, and continued down to the uterus. Its orifice is averſe with reſpect to the ovaria; yet notwithſtanding, by the force of the *orgaſmus venereus*, it turns round and graſps the *vitellus*, which in its paſſage through this duct, called the *infundibulum*, receives a thick gelatinous liquor, ſecreted by certain glands. This, with what it receives in the uterus, compoſes the white of the egg. By this tube then it is carried into the uterus. The ſhell is lined with a membrane; and in the large end there is a bag full of air, from which there is no outlet.

129 Uterus. The *uterus* is a large bag, placed at the end of the *infundibulum*, full of wrinkles on its inſide; here the egg is completed, receiving its laſt involucrum, and is at laſt puſhed out at an opening on the ſide of the common cloaca. From the teſtes in the male being ſo very large in proportion to the body of the creature, there muſt neceſſarily be a great quantity of ſemen ſecerned; hence the animal is ſalacious, and becomes capable of impregnating many females. 130 The want of the veſiculæ ſeminales, how ſupplied. The want of the *veſiculæ ſeminales* is in ſome meaſure ſupplied by the convolutions of the *vaſa deferentia*, and by the ſmall diſtance betwixt the ſecerning and excretory organs. The two *penes* contribute alſo very much to their ſhort coition; at which time the opening of the uterus into the cloaca is very much dilated, that the effect of the ſemen on the vitelli may be the greater.

A hen will of herſelf indeed lay eggs; but theſe are not impregnated, and yet appear entirely complete, except that the ſmall black ſpot, which comes afterwards to be the rudiments of the chick, is not here to be obſerved.

After having obſerved the contents of the abdomen and thorax, we next proceed to examine the parts about the neck and head.

Theſe creatures, as was obſerved of fowls in general, have no teeth. Some, indeed, have an appearance of teeth; but theſe are only ſmall proceſſes or ſerræ riſing out from the mandible, without any ſocket, &c. which would have been needleſs, as they ſwallow their food entire. 131 Tongue, its form. But their *tongue* is made pretty firm, leſt it ſhould be hurt by the ſharp points of the grain they feed on. It is of a triangular figure, and pointed before; and as by their depending poſture their meat is in hazard of falling out of their mouths, to prevent this there are ſeveral ſmall pointed papillæ ſtanding out upon their tongue and palate, with their points inclined backwards, allowing an eaſy paſſage to the food, but hindering it to return.

We have here no *velum palatinum*, *uvula*, or *epiglottis*; and in place of two large holes opening into the noſe, there is only a long narrow rima ſupplied with pretty ſtrong muſcles, and ſuch another ſupplies the place of a glottis. The creature has a power of ſhutting both at pleaſure; and the nature of their food ſeems not only to exempt them from the hazard of its getting into the noſe or trachea, but its ſharp points would hurt an uvula, or epiglottis, if they had any. Hence we ſee with what difficulty they ſwallow dough or other ſort of food that can be eaſily moulded into any form. When we examine the upper end of the trachea, we obſerve a rima glottidis with muſcular ſides, which may act in preventing the food or drink from paſſing into the lungs, for there is no epiglottis as in man and quadrupeds.

132 Cranium. Their *cranium* is more cellular and cavernous than ours. By this means their heads are light, yet ſtrong enough to reſiſt external injuries; for the enlarging the diameter of bones contributes to their ſtrength. By this cavernous cranium the organ of ſmelling is ſuppoſed to be conſiderably enlarged; and further, ſinging birds, as is obſerved by Mr Ray and Mr Derham, have this cavernous ſtructure of the brain ſtill more obſervable: and we are told that the cavity of the tympanum communicates with the cells: but this ſeems rather founded on theory than matter of fact. Their brain is covered with the common membranes, but its external ſurface is not formed into ſo many gyræ or convolutions as ours. Its anterior part is quite ſolid, of a cineritious colour, and ſo far has a reſemblance of the *corpora ſtriata* as to give riſe to the olfactory nerves. The whole of it appears to us as imperfect, and we can ſcarce determine whether there be any thing analogous to a third or fourth ventricle: neither the *corpus calloſum*, *fornix*, *nates*, or *teſtes*, *&c.* can be obſerved here; which parts therefore cannot be imagined as abſolutely neceſſary for the functions of life, ſince we find theſe creatures perform them ſufficiently well. We may perhaps think theſe ſerve a particular uſe in man, who is a rational creature; but then quadrupeds enjoy them in common with men. Theſe protuberances, &c. ſeem rather to depend on the different diſpoſition of the ſeveral parts, being variouſly connected and meeting in different directions in different places, than their being abſolutely neceſſary for any particular uſe; and the uſes that have been aſſigned to different parts of the brain by authors, ſeem to have no foundation but in the author's fancy.

133 The organ of ſmelling. Their organ of *ſmelling* is very large, and well provided with nerves; hence they have this ſenſation very acute. Ravens and other birds of prey give a ſure proof of this, by their being able to find out their prey, though concealed from their ſight and at a conſiderable diſtance.

Thoſe birds that grope for their food in the waters, mud, &c. have large nerves, which run quite to the end of their bills, by which they find out and diſtinguiſh their food.

134 Eye. The anterior part of their *eyes* (inſtead of having the ſclerotic coat continued, ſo as to make near a ſphere as in us) turns all of a ſudden flat; ſo that here the ſclerotic makes but half a ſphere; and the cornea riſes up afterwards, being a portion of a very ſmall and diſtinct ſphere ſo that in theſe creatures there is a much greater difference betwixt the ſclerotic and cornua than in us. Hence their eyes do not jut out of their heads, as in man and quadrupeds. As moſt of theſe creatures are continually employed in hedges and thickets, therefore, that their eyes might be ſecured from theſe injuries, as well as from too much light when flying in the face of the ſun, there is a very elegant mechaniſm in their eyes. A membrane riſes from the internal canthus,

thus, which at pleaſure, like a curtain, can be made to cover the whole eye; and this by means of a proper muſcle that riſes from the ſclerotic coat, and paſſing round the optic nerves, runs through the *muſculus oculi attollens* (by which however the optic nerves are not compreſſed) and palpebra, to be inſerted into the edge of this membrane. Whenever this muſcle ceaſes to act, the membrane by its own elaſticity again diſcovers the eye. This covering is neither pellucid nor opaque, both which would have been equally inconvenient: but being ſomewhat tranſparent, allows as many rays to enter as to make any object juſt viſible, and it is ſufficient to direct them in their progreſſion. By means of this membrane it is that the eagle is ſaid to look at the ſun. Quadrupeds alſo, as we mentioned before, have a ſmall *membrana nictitans*.

135 Bourſe noire. Its deſcription and uſes. Beſides, all fowls have another particularity, the uſe of which is not ſo well underſtood; and that is, a pretty long black triangular purſe, riſing from the bottom of their eye juſt at the entry of the optic nerve, and ſtretched out into their vitreous humour, and one would imagine it gave ſome threads to the cryſtalline. To this the French (who probably were the firſt who took notice of it in their diſſections before the Royal Academy) gave the name of *bourſe noire*. This may poſſibly ſerve to ſuffocate ſome of the rays of light, that they may ſee objects more diſtinctly without hurting their eyes. It has a connection with the vitreous, and ſeems to be joined alſo to the cryſtalline, humours. If we ſuppoſe it to have a power of contraction (which may be as well allowed as that of the iris), it may ſo alter the poſition of the vitreous and cryſtalline humours, that the rays from any body may not fall perpendicularly upon the cryſtalline; and this ſeems to be neceſſary in them, ſince they cannot change the figure of the anterior part of their eye ſo much as we can do: and as this animal is expoſed often to too great a number of rays of light, ſo they have no tapetum, but have the bottom of their eye wholly black on the retina; and in conſequence of this, fowls ſee very ill in the dark.

136 Organ of hearing. They have no external ear; but in place thereof a tuft of very fine feathers covering the *meatus auditorius*, which eaſily allows the rays of ſound to paſs them, and likewiſe prevents duſt or any inſect from getting in. An external ear would have been inconvenient in their paſſing through thickets, and in flying, &c. A liquor is ſeparated in the external part of the ear, or *meatus auditorius*, to lubricate the paſſage, and further prevent the entrance of any inſects, &c. The *membrana tympani* is convex externally; and no muſcles are fixed to the bones of their ear, which are rather of a cartilaginous conſiſtence: any tremulous motions impreſſed on the air are communicated in theſe creatures merely by the ſpring and elaſticity of theſe bones; ſo, probably, the membrane is not ſo ſtretched as in the human ear by muſcles. The ſemicircular canals are very diſtinct, and eaſily prepared.

SECT. III. *Anatomy of a Carnivorous Bird.*

WE come next to the birds of prey, and for an example ſhall take a ſtannel or ſmall hawk. The principal difference to be obſerved in them, is in their chylopoietic viſcera, which may be accounted for from their different way of life.

137 Ingluvies. Immediately under their clavicles, you will obſerve the œſophagus expanded into their *ingluvies*, which is proportionally leſs than in the granivorous kind, ſince their food does not ſwell ſo much by maceration; and for the ſame reaſon, there is a leſs quantity of a menſtruum to be found here.

138 Ventriculus ſuccenturiatus. They have alſo a *ventriculus ſuccenturiatus*, plentifully reſtored with glands, ſituated immediately above their ſtomach, which we ſee here is thin and muſculo-membranous, otherwiſe than in the granivorous kind: and this difference, which is almoſt the only one we ſhall find betwixt the two different ſpecies of fowls, is eaſily accounted for from the nature of their food, which requires leſs attrition, being eaſier of digeſtion than that of the other kind; nevertheleſs, it ſeems requiſite it ſhould be ſtronger than the human, to compenſate the want of abdominal muſcles, which are here very thin.

139 Inteſtina. The ſame mechaniſm obtains in this creature's *duodenum* that we have hitherto obſerved. As being a carnivorous animal, its guts are proportionally ſhorter than thoſe of the granivorous kind; for the reaſon firſt given, viz. its food being more liable to corrupt, therefore not proper to be long detained in the body; and for that reaſon it has no *inteſtina cæca*, of which the other ſpecies of fowls have a pair. The difference in their wings, beaks, and claws, are obvious; and have been already in ſome meaſure obſerved.

CHAP. III. *The Anatomy of Aqueous Animals.*

SECT. I. *Of the Amphibious Tribe.*

140 AQUEOUS animals are generally divided into ſuch as have lungs, and ſuch as want them. The firſt ſpecies differ ſo inconſiderably from an ox or any other quadruped, that a few obſervations may be ſufficient to give an idea of their internal ſtructure; for this purpoſe, we ſhall firſt examine that ſpecies of them which moſt reſembles man in the internal ſtructure, the tortoiſe.

141 Their ſhell or covering, &c. 1. *Tortoiſe*. The covering of this animal is compoſed of a ſhell ſo remarkably hard and firm in its texture, that a loaded waggon may go over it without hurting the ſhell or the animal within it. In the young animal, this ſhell grows harder in proportion as its contents expand; and this creature never changes its ſhell as ſome others do; hence it was neceſſary for it to be made up of different pieces; and theſe are more or leſs diſtinct in different animals. Their feet are ſmall and weak; and they are exceedingly ſlow in motion.

It has neither tongue nor teeth; to make up for which, their lips are ſo hard as to be able to break almoſt the hardeſt bodies.

The alimentary canal very much reſembles that of the former claſs.

The principal difference is in the circulation of the blood. The heart has two diſtinct auricles, without any communication; and under theſe, there is the appearance of two ventricles ſimilar in ſhape to thoſe of the former claſs; but they may be conſidered as one cavity; for the ventricle ſends out not only the pulmonary artery, but likewiſe the aorta: for there is a paſſage in the ſeptum, by which the ventricles communicate freely, and the blood paſſes from the left into the right one. From the aorta the blood returns into the right auricle, while that from the pulmonary artery returns to the left auricle, from which it is ſent to the left ventricle, &c. ſo that only a part of the blood is ſent to the lungs, the reſt going immediately into the aorta; hence the animal is not under the neceſſity of breathing ſo often as otherwiſe it would be.

142 Blood-veſſels. From the baſe of the right ventricle goes out the pulmonary artery and aorta. The pulmonary artery is ſpent upon the lungs. The aortæ may be ſaid to be three in number: for the aorta ſiniſtra aſcends through the pericardium in company with the pulmonary artery; and afterwards turns down, and ſends off a conſiderable branch, which ſplits into two; one of which joins the right aorta, while the other is diſtributed upon the liver, ſtomach, inteſtines, &c. What remains of this aorta runs to the kidneys or poſterior extremities of that ſide. An aorta deſcendens, &c. after piercing the pericardium, runs down and communicates with the branch already mentioned, is diſtributed upon the right kidney and inferior extremity, and alſo upon the bladder and parts of generation. An aorta aſcendens, after getting out of the pericardium, ſupplies the fore-legs, neck, and head. The blood in the ſuperior part of the body returns to the right auricle by two jugular veins, which unite after perforating the pericardium. From the inferior part, it returns to the ſame auricle by two large veins; one on the right ſide receives the blood in the right lobe of the liver; the other on the left ſide receives the blood in the left lobe, and alſo a trunk which correſponds with the inferior vena cava in other animals. The pulmonary veſſels run in the left auricle in the common way.

The abſorbent ſyſtem in the turtle, like that in the former claſs, conſiſts of lacteals and lymphatics, with their common trunks the thoracic ducts; but differs from it in having no obvious lymphatic glands on any part of its body, nor plexus formed at the termination in the red veins.

143 Lacteals. The *lacteals* accompany the blood-veſſels upon the meſentery, and form frequent net-works acroſs theſe veſſels: near the root of the meſentery a plexus is formed, which communicates with the lymphatics coming from the kidneys and parts near the anus. At the root of the meſentery on the left ſide of the ſpine, the lymphatics of the ſpleen join the lacteals; and immediately above this a plexus is formed, which lies upon the right aorta. From this plexus a large branch ariſes, which paſſes behind the right aorta to the left ſide, and gets before the left aorta, where it aſſiſts in forming a very large receptaculum, which lies upon that artery.

From this receptaculum ariſe the thoracic ducts. From its right ſide goes one trunk, which is joined by that large branch that came from the plexus to the left ſide of the right aorta, and then paſſes over the ſpine. This trunk is the thoracic duct of the right ſide; for having got to the right ſide of the ſpine, it runs upwards, on the inſide of the right aorta, towards the right ſubclavian vein; and when it has advanced a little above the lungs, it divides into branches, which near the ſame place are joined by a large branch, that comes up on the outſide of the aorta. From this part, upwards, thoſe veſſels divide and ſubdivide, and are afterwards joined by the lymphatics of the neck, which likewiſe form branches before they join thoſe from below. So that between the thoracic duct and the lymphatics of the ſame ſide of the neck, a very intricate net-work is formed; from which a branch goes into the angle between the jugular vein, and the lower part or trunk of the ſubclavian. This branch lies therefore on the inſide of the jugular vein, whilſt another gets to the outſide of it, and ſeems to terminate in it, a little above the angle, between that vein and the ſubclavian.

144 Lymphatics. Into the above mentioned receptaculum the lymphatics of the ſtomach and duodenum likewiſe enter. Thoſe of the duodenum run by the ſide of the pancreas, and probably receive its lymphatics and a part of thoſe of the liver. The lymphatics of the ſtomach and duodenum have very numerous anaſtomoſes, and form a beautiful net-work on the artery which they accompany. From this receptaculum likewiſe (beſides the trunk already mentioned, which goes to the right ſide) ariſe two other trunks pretty equal in ſize; one of which runs upon the left ſide, and the other upon the right ſide of the left aorta, till they come within two or three inches of the left ſubclavian vein; where they join behind the aorta, and form a number of branches which are afterwards joined by the lymphatics of the left ſide of the neck; ſo that here a plexus is formed as upon the right ſide. From this plexus a branch iſſues, which opens into the angle between the jugular and ſubclavian vein.

145 Circulation in ſerpents, &c. 2. *Serpent and Crocodile.* The circulation in theſe is ſimilar to that of the turtle; but we find only one ventricle. The blood goes from the right auricle to the ventricle which ſends out the pulmonary artery and aorta; the blood from the pulmonary artery returns to the left auricle, that from the aorta going to the right auricle, and both the auricles opening into the ventricle.

3. *Frog and Lizard.* Theſe differ from the former animals, in having only one auricle and a ventricle: and beſides, the ventricle ſends out a ſingle artery, which afterwards ſplits into two parts; one to ſupply the lungs, the other runs to all the reſt of the body: from the lungs and from the other parts, the blood returns into the auricle.

SECT. II. *Anatomy of Fiſhes.*

146 Cuticula, likeneſs to the human. OF theſe we may firſt obſerve, that they have a very ſtrong thick *cuticle*, covered with a great number of ſcales laid one on another like the tiles of houſes. This among other arguments is ſuppoſed to prove the human epidermis to be of a ſquamous ſtructure: but the ſcales reſemble the hairs, wool, feathers, &c. of the creatures that live in air; and below theſe we obſerve their proper *cuticula* and *cutis*.

147 Swimming how performed. Several uſes of their fins, tail, air-bags, &c. The generality of fiſhes, particularly thoſe ſhaped like the cod, haddock, &c. have a line running on each ſide. Theſe lines open externally by a number of ducts, which throw out a mucous or ſlimy ſubſtance that keeps them ſoft and clammy, and ſeems to ſerve the ſame purpoſe with the mucous glands or ducts which are placed within many of our internal organs.

In the next place, theſe creatures have neither anterior nor poſterior extremities, as quadrupeds and fowls; for their progreſſion is performed in a different way from either of thoſe ſpecies of animals; for this purpoſe they are provided with machines, properly conſiſting of a great number of elaſtic beams, connected to one another by firm membranes, and with a tail of the ſame texture; their ſpine is very moveable towards the poſterior part, and the ſtrongeſt muſcles of their bodies are inſerted there. Their tails are ſo framed as to contract to a narrow ſpace when drawn together to either ſide, and to expand again when drawn to a ſtraight line with their bodies; ſo, by the aſſiſtance of this broad tail, and the fins on their ſides, they make their progreſſion much in the ſame way as a boat with oars on its ſides and rudder at its ſtern. The perpendicular fins ſituated on the ſuperior part of their body keep them *in æquilibrio*, hindering the belly from turning uppermoſt: which it would readily do, becauſe of the air bag in the abdomen rendering their belly ſpecifically lighter than their back; but by the reſiſtance theſe fins meet with when inclined to either ſide, they are kept with their backs always uppermoſt.

The beſt account of this matter, we have in the treatiſe before mentioned, viz. *Borellius de Motu Animalium cap.* 23.

It may be next obſerved, that theſe creatures have nothing that can be called a *neck*, ſeeing they ſeek their food in an horizontal way, and can move their bodies either upwards or downwards, as they have occaſion, by the contraction or dilatation of the air-bag; a long neck, as it would hinder their progreſſion, would be very diſadvantageous in the element they live in.

The *abdomen* is covered on the inferior part with a black-coloured thin membrane reſembling our peritoneum. It is divided from the thorax by a thin membranous partition, which has no muſcular appearance; ſo that we have now ſeen two different ſorts of animals that have no muſcular diaphragm.

148 Teeth for what made. These creatures are not provided with *teeth* proper for breaking their aliment into ſmall morſels, as the food they uſe is generally ſmall fiſhes, or other animals that need no trituration in the mouth, but ſpontaneouſly and gradually diſſolve into a liquid chyle. Their teeth ſerve to graſp their prey, and hinder the creatures they have once catched from eſcaping again. For the ſame purpoſe, the internal cartilaginous baſis of the bronchi, and the two round bodies ſituated in the poſterior part of the jaws, have a great number of tenterhooks fixed into them, in ſuch a manner as that any thing can eaſily get down, but is hindered from getting back. The water that is neceſſarily taken in along with their food in too great quantities to be received into their jaws in deglutition, paſſes betwixt the interſtices of the bronchi and the flap that covers them. The compreſſion of the water on the bronchi is of conſiderable uſe to the creature, as we ſhall explain by and by.

149 Digeſtion performed ſolely by a menſtrum. The *œſophagus* in theſe creatures is very ſhort, and ſcarcely diſtinguiſhed from their ſtomach, ſeeing their food lies almoſt equally in both. The ſtomach is of an oblong figure. There are commonly found ſmall fiſhes in the ſtomach of large ones ſtill retaining their natural form; but when touched, they melt down into a jelly. From this, and the great quantity of liquors poured into their ſtomachs, we may conclude, that digeſtion is ſolely brought about in them by the diſſolving power of a menſtruum, and that no trituration happens here.

150 Inteſtina. The *guts* in theſe animals are very ſhort, making only three turns; the laſt of which ends in the common cloaca for the feces, urine, and ſemen, ſituated about the middle of the inferior part of their bodies.

151 Pancreas. To what we call *pancreas*, ſome give the name of *inteſtinula cæca*: it conſiſts of a very great number of ſmall threads, like ſo many little worms, which all terminate at laſt in two larger canals that open into the firſt gut, and pour into it a viſcous liquor much about the place where the biliary ducts enter. That kind of pancreas formed of inteſtinula cæca is peculiar to a certain kind of fiſhes; for the cartilaginous, broad, and flat kind, as the ſkate, ſole, flounder, &c. have a pancreas reſembling that of the former claſs of animals. Their inteſtines are connected to the back-bone by a membrane analogous to a meſentery.

152 Liver, gall-bladder, and their ducts. Their *liver* is very large, of a whitiſh colour, and lies almoſt in the left ſide wholly, and contains a great deal of fat or oil.

The *gall-bladder* is ſituated a conſiderable way from their liver; and ſends out a canal, the cyſtic duct, which joins with the hepatic duct juſt at the entry into the gut. Some fibres being obſerved ſtretched from the liver to the gall-bladder, but without any apparent cavity, the bile was ſuppoſed not to be carried into the gall-bladder in the uſual way, but that it muſt either be ſecerned on the ſides of the ſac, or regurgitate into it from the canalis choledochus. It is certain, however, that hepato-cyſtic ducts exiſt in fiſh as well as in fowls. This, for example, is very obvious in the ſalmon, where large and diſtinct ducts run from the biliary ducts of the liver, and open into the gall bladder.

153 Spleen, its uſe drawn from analogy. The *ſpleen* is placed near the back-bone, and at a place where it is ſubjected to an alternate preſſure from the conſtriction and dilatation of the air bag, which is ſituated in the neighbourhood. Since, in all the different animals we have diſſected, we find the ſpleen attached to ſomewhat that may give it a conquaſſation; as in the human ſubject and quadrupeds, it is contiguous to the diaphragm; in fowls, it is placed betwixt the back-bone, the liver, and ſtomach; in fiſhes, it lies on the ſaccus aërius: and ſince we find it ſo well ſerved with blood-veſſels, and all its blood returning into the liver; we muſt not conclude the ſpleen to be an *inutile pondus*, only to ſerve as a balance to the animal *pro æquilibrio*, but particularly deſigned for preparing the blood of the liver.

154 Organs of generation. The only *organs of generation* in this animal are two bags ſituated in the abdomen uniting near the podex. Theſe in the male are filled with a whitiſh firm ſubſtance called the *milt*, and in the female with an infinite number of little ova cluſtered together, of a reddiſh yellow colour, called the *roe*. Both theſe at ſpawning-time we find very much diſtended; whereas at another time the male organs can ſcarce be diſtinguiſhed from the female; nor is there any proper inſtrument in the male for throwing the ſeed into the organs of the female, as in other creatures. We ſhall not take upon us to determine the way whereby the female ſperm is impregnated: but we find that the ſpawn of frogs conſiſts in the ſmall ſpecks wrapped up in a whitiſh glutinous liquor; theſe ſpecks are the rudiments of the young frogs, which are nouriſhed in that liquor

till they are able to go in ſearch of their food. In the ſame way, the ova of fiſhes are thrown out and depoſited in the ſand, the male being for the moſt part ready to impregnate them, and they are incubated by the heat of the ſun. It is curious enough to remark with what care they ſeek for a proper place to depoſite their ova, by ſwimming to the ſhallow, where they can better enjoy the ſun's rays, and ſhun the large jaws of other fiſhes. The river-fiſhes, again, ſpawn in ſome creek free from the hazard of the impetuous ſtream. But whether this mixture be brought about in fiſhes by a ſimple application of the genitals to each other, or if both of them throw out their liquors at the ſame time in one place, and thus bring about the deſired mixture, it is not eaſy to determine. Spallanzani has found, that the eggs of frogs, toads, and water mewts, are not fecundated in the body of the female; that the male emits his ſemen upon the ſpawn while it is flowing from the female; and that the fœtus pre-exiſts in the body of the female: but whether impregnation takes place in the ſame manner in fiſhes, he has not yet been able to determine, though he ſeems to think it probable. Theſe creatures are ſo ſhy, that that we cannot eaſily get to obſerve their way of copulation, and are conſequently but little acquainted with their natural hiſtory. Frogs, it is very evident, do not copulate; at leaſt no farther than to allow both ſexes an opportunity of throwing their ſperm. Early in the ſpring the male is found for ſeveral days in cloſe contact upon the back of the female, with his fore legs round her body in ſuch a manner that makes it very difficult to ſeparate them, but there is no communication. At this time the female lays her ſpawn in ſome place that is moſt ſecure, while the male emits his ſperm upon the female ſpawn.

155 **The air-bladder, and its uſes.** After raiſing up the black peritoneum in fiſhes, there comes in view on oblong white membranous bag, in which there is nothing contained but a quantity of elaſtic air. This is the *ſwimming-bladder*: it lies cloſe to the back-bone; and has a pretty ſtrong muſcular coat, whereby it can contract itſelf. By contracting this bag, and condenſing the air within it, they can make their bodies ſpecifically heavier than water, and ſo readily fall to the bottom; where as the muſcular fibres ceaſing to act, the air is again dilated, and they become ſpecifically lighter than water, and ſo ſwim above. According to the different degrees of contraction and dilatation of this bladder, they can keep higher or lower in the water at pleaſure. Hence flounders, ſoles, raia or ſkate, and ſuch other fiſhes as want this ſac, are found always grovelling at the bottom of the water: it is owing to this that dead fiſhes) unleſs this membrane has been previouſly broke) are found ſwimming a-top, the muſcular fires then ceaſing to act, and that with their bellies uppermoſt; for the back-bone cannot yield, and the diſtended ſac is protruded into the abdomen, and the back is conſequently heavieſt at its upper part, according to their poſture.

156 **Its proceſſus, or communication with the ventriculus.** There is here placed a glandular ſubſtance, containing a good quantity of red blood; and it is very probable that the air contained in the ſwimming bladder is derived from this ſubſtance. From the anterior part of the bag go out two *proceſſes* or *appendices*, which, according to the gentlemen of the French academy, terminate in their fauces: In a variety of other fiſhes we find communication with ſome parts of the alimentary canal, particularly the œſophagus and ſtomach. The ſalmon has an opening from the fore end of the air-bag into the œſophagus, which is ſurrounded by a kind of muſcular fibres. The herring has a funnel-like paſſage leading from the bottom of the ſtomach into the air-bag; but it is not determined whether the air enters the air-bag by this opening, or comes out by it; the latter, however, ſeems to be the more probable opinion, as the glandular body is found in all fiſhes, whereas there are ſeveral without the paſſage of communication.

157 **Ureters veſica urinaria. Urethra.** At the ſuperior part of this bag, there are other red-coloured bodies of a glandular nature, which are connected with the kidneys. From them the *ureters* go down to their inſertion in the *veſica urinaria*, which lies in the lower part of the abdomen; and the urethra is there produced, which terminates in the podex.

158 **Diaphragm.** Theſe laſt-mentioned parts have not hitherto been obſerved in ſome ſpecies of fiſhes; whence authors too haſtily denied them in all. Theſe creatures have a *membranous diaphragm*, which forms a ſac in which the heart is contained. It is very tenſe, and almoſt perpendicular to the vertebræ.

159 **The heart has but one auricle and one ventricle.** The *heart* is of a triangular form, with its baſe downwards, and its apex uppermoſt; which ſituation it has becauſe of the *branchiæ*. It has but one *auricle* and one *ventricle*, becauſe they want lungs; and one great artery. The ſize of the auricle and that of the ventricle are much the ſame; the artery ſends out numberleſs branches to the branchiæ or gills. And what is rather curious, this artery, inſtead of ſupporting all parts as in the frog, is diſtributed entirely upon the gills; every branch terminating there, and becoming ſo extremely ſmall as at laſt to eſcape the naked eye.

160 **The branchiæ. Their ſtructure and uſe.** The *branchiæ* lie in two large ſlits at each ſide of their heads, and ſeem to be all they have that bears any analogy to lungs. Their form is ſemicircular; they have a vaſt number of red fibrillæ ſtanding out on each ſide of them like a fringe, and very much reſemble the vane of a feather. Theſe branchiæ are perpetually ſubjected to an alternate motion and preſſure from the water; and we may here remark, that we have not found any red blood but in places ſubjected to this alternate preſſure. This obſervation will help us in explaining the action of the lungs upon the blood. Over theſe gills there is a large flap, allowing a communication externally; by which the water they are obliged to take into their mouths with their food finds an exit without paſſing into their ſtomach: it is owing to theſe flaps coming ſo far down that the heart is ſaid commonly to be ſituated in their heads. The blood is collected again from the gills by a vaſt number of ſmall veins, ſomewhat in the ſame manner as in our pulmonary vein; but inſtead of going back to the heart a ſecond time, they immediately unite, and form an aorta deſcendens, without the intervention of an auricle and ventricle. Hence a young anatomiſt may be puzzled to find out the power by which the blood is propelled from the gills to the different parts of the body; but the difficulty will be conſiderably leſſened when we conſider the manner in which the blood is

carried through the liver from the inteſtines in man and quadrupeds. The aorta in fiſhes ſends off branches which ſupply all the parts of the body excepting the gills. From the extremity of thoſe branches the blood returns to the heart ſomewhat in the ſame manner as in the former claſs of animals; only there are two inferior venæ cavæ, whereas the former has but one.

Abſorbent Syſtem in Fiſhes. We ſhall take the haddock as a general example: for the other fiſhes, particularly thoſe of the ſame ſhape, will be found in general to agree with it.

161 Lymphatic veſſels. On the middle of the belly of a haddock, immediately below the outer ſkin, a lymphatic veſſel runs upwards from the anus, and receives branches from the parietes of the belly, and from the fin below the anus: near the head this lymphatic paſſes between the two pectoral fins; and having got above them, it receives their lymphatics. It then goes under the ſymphyſis of the two bones which form the thorax, where it opens into a net-work of very large lymphatics, which lie cloſe to the pericardium, and almoſt entirely ſurrounds the heart. This net-work, beſides that part of it behind the heart, has a large lymphatic on each ſide, which receives lymphatics from the kidney, runs upon the bones of the thorax backwards; and when it has got as far as the middle of that bone, it ſends off a large branch from its inſide to join the thoracic duct. After detaching this branch, it is joined by the lymphatics of the thoracic fins, and ſoon after by a lymphatic which runs upon the ſide of the fiſh. It is formed of branches, which give it a beautiful penniform appearance.

Beſides theſe branches, there is another ſet deeper which accompanies the ribs. After the large lymphatic has been joined by the abovementioned veſſels, it receives lymphatics from the gills, orbit, noſe, and mouth. A little below the orbit, another net-work appears, conſiſting in part of the veſſels above deſcribed, and of the thoracic duct. This net-work is very complete, ſome of its veſſels lie on each ſide of the muſcles of the gills; and from its internal part a trunk is ſent out which terminates in the jugular vein.

162 The lacteals. The lacteals run on each ſide of the meſenteric arteries, anaſtomoſing frequently acroſs thoſe veſſels. The receptaculum into which they enter is very large, in proportion to them; and conſiſts at its lower part of two branches, of which one lies between the duodenum and ſtomach, and runs a little way upon the pancreas, receiving the lymphatics of the liver, pancreas, thoſe of the lower part of the ſtomach, and the lacteals from the greateſt part of the ſmall inteſtines. The other branch of the receptaculum receives the lymphatics from the reſt of the alimentary canal. The receptaculum formed by theſe two branches lies on the right ſide of the upper part of the ſtomach, and is joined by ſome lymphatics in that part, and alſo by ſome from the ſound and gall-bladder, which in this fiſh adheres to the receptaculum. This thoracic duct takes its riſe from the receptaculum, and lies on the right ſide of the œſophagus, receiving lymphatics from that part; and running up about half an inch, it divides into two ducts; one of which paſſes over the œſophagus to the left ſide, and the other goes ſtraight upon the right ſide, paſſes by the upper part of the kidney, from which it receives ſome ſmall branches, and ſoon afterwards is joined by a branch from the large lymphatic that lies above the bone of the thorax, as formerly mentioned: near this part it likewiſe ſends off a branch to join the duct of the oppoſite ſide; and then, a little higher, is joined by thoſe large lymphatics from the upper part of the gills, and from the fauces.

The thoracic duct, after being joined by theſe veſſels, communicates with the net-work near the orbit, where its lymph is mixed with that of the lymphatics from the poſterior part of the gills, and from the ſuperior fins, belly, &c. and then from this net-work, a veſſel goes into the jugular vein juſt below the orbit. This laſt veſſel, which may be called the termination of the whole ſyſtem, is very ſmall in proportion to the net-work from which it riſes; and indeed the lymphatics of the part are ſo large, as to exceed by far the ſize of the ſanguiferous veſſels.

The thoracic duct from the left ſide, having paſſed under the œſophagus from the right, runs on the inſide of the vena cava of the left ſide, receives a branch from its fellow of the oppoſite ſide, and joins the large lymphatics which lie on the left ſide of the pericardium, and a part of thoſe which lie behind the heart; and afterwards makes, together with the lymphatics from the gills, upper fins, and ſide of the fiſh, a net-work, from which a veſſel paſſes into the jugular vein of this ſide. In a word, the lymphatics of the left ſide agree exactly with thoſe of the right ſide above deſcribed. Another part of the ſyſtem is deeper ſeated, lying between the roots of the ſpinal proceſſes of the back-bone. This part conſiſts of a large trunk that begins from the lower part of the fiſh, and as it aſcends receives branches from the dorſal fins and adjacent parts of the body. It goes up near the head, and ſends a branch to each thoracic duct near its origin.

163 Cerebrum. The *brain* in fiſhes is formed pretty much in the ſame way as that of fowls; only we may obſerve, that the poſterior lobes bear a greater proportion to the anterior.

164 Organ of ſmell. Their organ of *ſmelling* is large; and they have a power of contracting and dilating the entry into their noſe as they have occaſion. It ſeems to be moſtly by their acute ſmell that they diſcover their food: for their tongue ſeems not to have been deſigned for a very nice ſenſation, being of a pretty firm cartilaginous ſubſtance; and common experience evinces, that their ſight is not of ſo much uſe to them as their ſmell in ſearching for their nouriſhment. If you throw a freſh worm into the water, a fiſh ſhall diſtinguiſh it at a conſiderable diſtance; and that this is not done by the eye, is plain from obſerving, that after the ſame worm has been a conſiderable time in the water and loſt its ſmell, no fiſhes will come near it: but if you take out the bait, and make ſeveral little inciſions into it, ſo as to let out more of the odoriferous effluvia, it ſhall have the ſame effect as formerly. Now it is certain, had the creatures diſcovered this bait with their eyes, they would have come equally to it in both caſes. In conſequence of their ſmell being the principal means they have of diſcovering their food, we may frequently obſerve their allowing themſelves to be carried down with the ſtream, that they may aſcend again leiſurely againſt the current of the water; thus the odoriferous particles ſwimming in that medium, being ap-

applied more forcibly to their ſmelling organs, produce a ſtronger ſenſation.

165
Optic nerves.

The *optic nerves* in theſe animals are not confounded with one another in their middle progreſs betwixt their origin and the orbit, but the one paſſes over the other without any communication; ſo that the nerve that comes from the left ſide of the brain goes diſtinctly to the right eye, and *vice verſa*.

Indeed it would ſeem not to be neceſſary for the optic nerves of fiſhes to have the ſame kind of connection with each other as thoſe of man have: for their eyes are not placed in the fore-part, but in the ſides of their head; and of conſequence they cannot ſo conveniently look at any object with both eyes at the ſame time.

166
The cryſtalline humour a complete ſphere, and why.

The *lens cryſtallina* is here a complete ſphere, and more denſe than in terreſtrial animals, that the rays of light coming from water might be ſufficiently refracted.

As fiſhes are continually expoſed to injuries in the uncertain element they live in, and as they are in perpetual danger of becoming a prey to the larger ones, it was neceſſary that their eyes ſhould never be ſhut; and as the cornea is ſufficiently waſhed by the element they live in, they are not provided with palpebræ; but then, as in the current itſelf the eye muſt be expoſed to ſeveral injuries, there was a neceſſity it ſhould be ſufficiently defended; which in effect it is by a firm pellucid membrance, that ſeems to be a continuation of the cuticula, being ſtretched over here. The epidermis is very proper for this purpoſe, as being inſenſible and deſtitute of veſſels, and conſequently not liable to obſtructions, or, by that means, of becoming opaque. In the eye of the ſkate tribe, there is a digited curtain which hangs over the pupil, and may ſhut out the light when the animal reſts, and it is ſimilar to the tunica adnata of other animals.

167
Organs of hearing.

Although it was formerly much doubted whether fiſhes poſſeſſed a ſenſe of hearing, yet there can be little doubt of it now; ſince it is found that they have a complete organ of hearing as well as other animals, and likewiſe as the water in which they live is proved to be a good medium. Fiſhes, particularly thoſe of the ſkate kind, have a bag at ſome diſtance behind the eyes, which contains a fluid and a ſoft cretaceous ſubſtance, and ſupplies the place of veſtibule and cochlea. There is a nerve diſtributed upon it, ſimilar to the portio mollis in man. They have three ſemicircular canals, which are filled with a fluid, and communicate with the bag: they have likewiſe, as the preſent profeſſor of anatomy at Edinburgh has lately diſcovered, a meatus externus, which leads to the internal ear. The cod fiſh, and others of the ſame ſhape have an organ of hearing ſomewhat ſimilar to the former; but inſtead of a ſoft ſubſtance contained in the bag, there is a hard cretaceous ſtone. In this kind of fiſh no meatus externus has been yet obſerved: And Dr. Monro is inclined to think that they really have not one, from the conſideration that the common canal or veſtibule, where the three ſemicircular canals communicate, is ſeparated from the cavity of the cranium by a thin membrance only; that this cavity, in the greater number of fiſhes, contains a watery liquor in conſiderable quantity; and that, by the thinneſs of the cranium, the tremor excited by a ſonorous body may readily and eaſily be tranſmitted through the cranium to the water within it, and ſo to the ear.

Chap. IV. *The Anatomy of Inſects.*

As inſects and worms are ſo exceedingly numerous, it would be endleſs to examine all the different kinds, nor would it ſerve any uſeful purpoſe to the anatomiſt. We ſhall therefore be content with making a few general obſervations, and theſe chiefly on the ſtructure of their body; leaving the variety of their colour, ſhape, &c. to the naturaliſts. Inſects differ from the former claſſes, by their bodies being covered with a hard cruſt or ſcale, by their having feelers or antennæ ariſing from their head, and many of them breathing the air through lateral pores. As to the ſhape of their bodies, though it ſomewhat differs from that of birds, being in general not ſo ſharp before to cut and make way through the air, yet it is well adapted to their manner of life. The baſe of their bodies is not formed of bone, as in many other animals, but the hard external covering ſerves them for ſkin and bone at the ſame time. Their feelers, beſide the uſe of cleaning their eyes, are a guard to them in their walk or flight. Their legs and wings are well fitted for their intended ſervice; but the latter vary ſo much in different inſects, that from them naturaliſts have given names to the ſeveral orders of the claſs. As, firſt, the

Coleoptera, or beetle tribe, which have a cruſtaceous elytra or ſhell, that ſhuts together, and forms a longitudinal ſuture down their back.

Hæmiptera—as in cimex, cockroach, bug, &c. which have the upper wings half cruſtaceous and half membranaceous; not divided by a longitudinal ſuture, but incumbent on each other.

Lepidoptera—as the butterfly, have four wings, covered with fine ſcales in the form of powder.

Neuroptera—as the dragon-fly, ſpring-fly, &c. have four membranaceous tranſparent naked wings, generally reticulated.

Hymenoptera—as waſps, bees, &c. have four membranaceous wings, and a tail furniſhed with a ſting.

Diptera—as the common houſe-fly, have only two wings.

Aptera—as the lobſter, crab, ſcorpion, ſpider, &c. have no wings.

The ſtructure of the eye in many inſects is a moſt curious piece of mechaniſm. The outer part is remarkably hard, to guard againſt injuries; and has commonly a reticular appearance, or the whole may be looked upon as an aſſemblage of ſmaller eyes; but whether they ſee objects multiplied before them, has not yet been determined.

Linnæus, and ſeveral others following him, deny the exiſtence of a brain in theſe creatures. But it is certain, that at leaſt a number of the larger kinds, as the lobſter, crab, &c. have a ſoft ſubſtance ſimilar to the brain, from which the optic and other nerves take their riſe; beſides, when this ſubſtance is irritated, the animal is thrown into convulſions: hence we would conclude, that inſects have a brain as well as the former claſſes, although this is ſmaller in proportion to their bodies.

Their ear has been lately diſcovered to be placed at the root of their antennæ or feelers, and can be di-

Of Inſects.

diſtinctly ſeen in ſome of the larger kinds, as the lobſter.

They have a ſtomach, and other organs of digeſtion; and it is curious, that in ſome, as the lobſter, the teeth are found in the ſtomach.

They have a heart and blood-veſſels, and circulation is carried on in them ſomewhat as in the former claſs; but the blood is without red globules; or, as naturaliſts ſpeak, is colourleſs. In the lobſter, and others of the larger kind, when a piece of the ſhell is broken, the pulſation of the heart is ſeen diſtinctly, and that ſometimes for ſeveral hours after it has been laid bare.

Lungs. The exiſtence of theſe by ſome has been denied. But late experiments and obſervations ſhow, that no ſpecies want them, or at leaſt ſomething ſimilar to them; and in many inſects, they are larger in proportion than in other animals: in moſt of them they lie on or near the ſurface of their body; and ſend out lateral pores or tracheæ, by which, if the animal is biſmeared with oil, it is inſtantly ſuffocated.

Generation. The ſame difference in ſex exiſts in inſects as in other animals, and they even appear more diſpoſed to increaſe their ſpecies; many of them, when become perfect, ſeeming to be created for no other purpoſe but to propogate their like. Thus the ſilkworm, when it arrives at its perfect or moth-ſtate, is incapable of eating, and can hardly fly; it endeavours only to propagate its ſpecies: after which the male immediately dies, and ſo does the female as ſoon as ſhe has depoſited her eggs.

Beſides thoſe of the male and female, a third ſex exiſts in ſome inſects, which we call *neuter*. As theſe have not the diſtinguiſhing parts of either ſex, they may be conſidered as eunuchs or infertile. We know of no inſtance of this kind in any other claſs of animals; and it is only found among thoſe inſects which form themſelves into ſocieties, as bees, waſps, and ants: and here theſe eunuchs are real ſlaves, as on them lies the whole buſineſs of the economy. No hermaphrodites have as yet been diſcovered among inſects.

Many have imagined that the generality of inſects were merely the production of putrefaction, becauſe they have been obſerved to ariſe from putrefied ſubſtances: but a contrary opinion is now more generally adopted; and it is pretty certain, that if putrid bodies be ſhut up in a cloſe veſſel, no inſects are ever generated unleſs their ova have been originally depoſited there. They are oviparous animals, and lay their eggs in places moſt convenient for the nouriſhment of their young; ſome in water, others in fleſh; ſome in fruit and leaves: while others make neſts in the earth or in wood, and ſometimes even in the hardeſt ſtone. The eggs of all inſects firſt become *(larva)* caterpillar or maggot; from which they are changed into *(pupa)* chryſalis or aurelia, ſo named from their being incloſed in a caſe; and theſe dying, or ſeeming to die, the *(imago)* fly, or butterfly or perfect ſtate, ſucceeds; and during each of theſe changes their appearance differs wonderfully.

Of Worms.

CHAP V. *Of Worms.*

WITH reſpect to this claſs of animals, they have characters correſponding with thoſe of the former tribe, but are diſtinguiſhed from them in having no antennæ, and in being furniſhed with tentacula.

Many of them, particularly thoſe without ſhells, are remarkably tenacious of life, ſometimes capable of being new formed from a part which may have been ſeparated. By much the greater number of them are deſtitute of head, ears, noſe, eyes, and feet.

Some of thoſe in the firſt order, as the common round worms, have a vaſcular and nervous ſyſtem, with the parts of generation, which can be diſtinctly ſeen. Some, as the cuttle fiſh, form a kind of connection between fiſhes and worms, in poſſeſſing gills but wanting fins, &c. while others, as thoſe of the loweſt order, or zoophyta, join the properties of the animal and vegetable kingdom together.

The claſs is divided by Linnæus, &c. into the following orders, viz.

Inteſtina—as the earth worm, leech, &c. which are the moſt ſimple animals, being perfectly naked, and without limbs of any kind.

Molluſca—as the naked ſnail, ſea-ſtar, cuttle fiſh; which are likewiſe ſimple animals without any ſhell, but they are brachiated or furniſhed with a kind of limbs.

Teſtacea—as the ſnail, oyſter, &c. which have the ſame characters as the former order, but are covered with a ſhell, and include the greater part of what we commonly call *ſhell-fiſh*.

Lithophyta—as corals, madrepors, &c. which are compound animals fixed upon a calcareous baſe, conſtructed by the creatures themſelves.

Zoophyta—as the ſponge, polypus, &c. Theſe are likewiſe compound animals, furniſhed with a kind of flowers, and having a vegetating root and ſtem.

Some of theſe creatures inhabit the earth, others live on the reſt of the animal or on the vegetable kingdom, and many are found in the hardeſt ſtones; while an innumerable tribe of them live in the waters. In general, they are ſaid to be of the hermaphrodite and oviparous kind; while the loweſt claſs, as the polypi, in a great meaſure reſemble the vegetable kingdom in their manner of growth.

COMPARATIVE *Degree*, among grammarians, that between the poſitive and ſuperlative degrees, expreſſing any particular quality above or beneath the level of another.

COMPARISON, in a general ſenſe, the conſideration of the relation between two perſons or things, when oppoſed and ſet againſt each other, by which we judge of their agreement or difference.

COMPARISON *of Ideas*, an act of the mind, whereby it compares its ideas one with another, in reſpect of extent, degree, time, place, or any other circumſtances. See IDEA.

Brutes ſeem not to have this faculty in any great degree: they have, probably, ſeveral ideas diſtinct enough; but cannot compare them farther than as to ſome ſenſible circumſtances annexed to the objects themſelves; the power of comparing general ideas, which we obſerve in men, we may probably conjecture they have not at all.

COMPARISON, in grammar, the inflection of the comparative degree. See GRAMMAR.

COMPARISON, in rhetoric, is a figure whereby two things are conſidered with regard to ſome third, which is common to them both.

Inſtruction is the principal, but not the only end of compariſon. It may be employed with ſucceſs in putting a ſubject in a ſtrong point of view. A lively idea is formed of a man's courage by likening it to that of a lion; and eloquence is exalted in our imagination by comparing it to a river overflowing its bank, and involving all in its impetuous courſe. The ſame effect is produced by contraſt: a man in proſperity becomes more ſenſible of his happineſs, by comparing his condition with that of a perſon in want of bread. Thus compariſon is ſubſervient to poetry as well as to philoſophy.

Compariſons ſerve two purpoſes: when addreſſed to the underſtanding, their purpoſe is to inſtruct; when to the heart, their purpoſe is to pleaſe. Various means contribute to the latter: 1ſt, the ſuggeſting ſome unuſual reſemblance or contraſt*; 2d, the ſetting an object in the ſtrongeſt light; 3d, the aſſociating an object with others that are agreeable; 4th, the elevating an object; and 5th, the depreſſing it. And that compariſons may give pleaſure by theſe various means, will be made evident by examples which ſhall be given, after premiſing ſome general obſervations.

* See the article RESEMBLANCE *and Diſſimilitude.*

Objects of different ſenſes cannot be compared together; for ſuch objects are totally ſeparated from each other, and have no circumſtance in common to admit either reſemblance or contraſt. Objects of hearing may be compared together, as alſo of taſte, of ſmell, and of touch: but the chief fund of compariſon are objects of ſight; becauſe, in writing or ſpeaking, things can only be compared in idea, and the ideas of ſight are more diſtinct and lively than thoſe of any other ſenſe.

When a nation emerging out of barbarity begins to think of the fine arts, the beauties of language cannot long lie concealed; and when diſcovered, they are generally, by the force of novelty, carried beyond all bounds of moderation. Thus, in the earlieſt poems of every nation, we find metaphors and ſimiles founded on the ſlighteſt and moſt diſtant reſemblances, which, loſing their grace with their novelty, wear gradually out of repute; and now, by the improvement of taſte, no metaphor nor ſimile is admitted into any polite compoſition but of the moſt ſtriking kind. To illuſtrate this obſervation, a ſpecimen ſhall be given afterward of ſuch metaphors as we have been deſcribing: with reſpect to ſimiles take the following ſpecimen:

> “Behold, thou art fair, my love: thy hair is as a flock of goats that appear from Mount Gilead: thy teeth are like a flock of ſheep from the waſhing, every one bearing twins; thy lips are like a thread of ſcarlet: thy neck like the tower of David built for an armoury, whereon hang a thouſand ſhields of mighty men: thy two breaſts like two young roes that are twins, which feed among the lilies: thy eyes like the fiſh-pools in Heſbon, by the gate of Bath-rabbin: thy noſe like the tower Lebanon, looking toward Damaſcus.” *Song of Solomon.*

> “Thou art like ſnow on the heath; thy hair like the miſt of Cromla, when it curls on the rocks and ſhines to the beam of the weſt: thy breaſts are like two ſmooth rocks ſeen from Branno of the ſtreams: thy arms like two white pillars in the hall of the mighty Fingal.” *Fingal.*

It has no good effect to compare things by way of ſimile that are of the ſame kind; nor to contraſt things of different kinds. The reaſon is given in the article above cited on the margin, and ſhall be here illuſtrated by examples. The firſt is a compariſon built upon a reſemblance ſo obvious as to make little or no impreſſion. Speaking of the fallen angels ſearching for mines of gold:

A numerous brigade haſten'd: as when bands
Of pioneers with ſpade an pick-ax arm'd,
Forerun the royal camp to trench a field
Or caſt a rampart. *Milton.*

The next is of things contraſted that are of different kinds.

Queen. What, is my Richard both in ſhape and mind
Transform'd and weak? Hath Bolingbroke depos'd
Thine intellect? Hath he been in thy heart?
The lion, dying, thruſteth forth his paw,
And wounds the earth, if nothing elſe with rage
To be o'erpower'd: and wilt thou, pupil like,
Take thy correction mildly, kiſs the rod,
And fawn on rage with baſe humility?
Richard II. act. 5. ſc. 1.

This compariſon has ſcarce any force; a man and a lion are of different ſpecies, and therefore are proper ſubjects for a ſimile; but there is no ſuch reſemblance between them in general, as to produce any ſtrong effect by contraſting particular attributes or circumſtances.

A third general obſervation is, That abſtract terms can never be the ſubject of compariſon, otherwiſe than by being perſonified. Shakeſpear compares adverſity to a toad, and ſlander to the bite of a crocodile; but in ſuch compariſons theſe abſtract terms muſt be imagined ſenſible beings.

To have a juſt notion of compariſons, they muſt be diſtinguiſhed into two kinds; one common and familiar, as where a man is compared to a lion in courage, or to a horſe in ſpeed; the other more diſtant and refined, where two things that have in themſelves no reſemblance or oppoſition, are compared with reſpect to their effects. There is no reſemblance between a flower-plot and a cheerful ſong; and yet they may be compared with reſpect to their effects, the emotions they produce in the mind being extremely ſimilar. There is as little reſemblance between fraternal concord and precious ointment; and yet obſerve how ſucceſsfully they are compared with reſpect to the impreſſions they make.

> “Behold, how good and how pleaſant it is for brethren to dwell together in unity. It is like

“ the precious ointment upon the head, that ran
“ down upon Aaron's beard, and deſcended to the
“ ſkirts of his garment.” *Pſalm* 133.

For illuſtrating this ſort of compariſon, we ſhall add ſome more examples:

“ Delightful is thy preſence, O Fingal! it is like
“ the ſun on Cromla, when the hunter mourns his
“ abſence for a ſeaſon, and ſees him between the
“ clouds.

“ Did not Oſſian hear a voice? or is it the ſound
“ of days that are no more? Often, like the evening-
“ ſun, comes the memory of former times on my
“ ſoul.

“ His countenance is ſettled from war; and is
“ calm as the evening-beam, that from the cloud
“ of the weſt looks on Cona's ſilent vale.” *Fingal.*

We now proceed to illuſtrate, by particular inſtances, the different means by which compariſons, whether of the one ſort or the other, can afford pleaſure; and, in the order above eſtabliſhed, we ſhall begin with ſuch inſtances as are agreeable, by ſuggeſting ſome unuſual reſemblance or contraſt.

Sweet are the uſes of Adverſity,
Which, like the toad, ugly and venomous,
Wears yet a precious jewel in her head.
As you like it, act 2. *ſc.* 1.

See how the Morning opes her golden gates,
And takes her farewel of the glorious ſun;
How well reſembles it the prime of youth,
Trimm'd like a yonker prancing to his love.
Second Part Henry VI. *act.* 2. *ſc.* 1.

Thus they their doubtful conſultations dark
Ended, rejoicing in their matchleſs chief:
As when from mountain tops, the duſky clouds
Aſcending, while the North-wind ſleeps, o'erſpread
Heav'ns cheerful face, the lowering element
Scowls o'er the darken'd landſcape, ſnow, and ſhower;
If chance the radiant ſun with farewel ſweet
Extends his ev'ning-beam, the fields revive,
The birds their notes renew, and bleating herds
Atteſt their joy, that hill and valley rings.
Paradiſe Loſt, book 2.

None of the foregoing ſimiles tend to illuſtrate the principal ſubject: and therefore the chief pleaſure they afford muſt ariſe from ſuggeſting reſemblances that are not obvious: for undoubtedly a beautiful ſubject introduced to form the ſimile affords a ſeparate pleaſure, which is felt in the ſimiles mentioned, particularly in that cited from Milton.

The next effect of a compariſon in the order mentioned, is to place an object in a ſtrong point of view; which effect is remarkable in the following ſimiles.

As when two ſcales are charg'd with doubtful loads,
From ſide to ſide the trembling balance nods,
(While ſome laborious matron, juſt and poor,
With nice exactneſs weighs her woolly ſtore),
Till pois'd aloft, the reſting beam ſuſpends
Each equal weight; nor this nor that deſcends;
So ſtood the war, till Hector's matchleſs might,
With fates prevailing, turn'd the ſcale of fight.
Fierce as a whirlwind up the walls he flies,
And fires his hoſt with loud repeated cries.
Iliad, b. xii. 521.

———She never told her love;
But let concealment, like a worm i' th' bud,
Feed on her damaſk cheek: ſhe pin'd in thought;
And with a green and yellow melancholy,
She ſat like patience on a monument,
Smiling at grief. *Twelfth Night, act.* 2. *ſc.* 6.

“ There is a joy in grief when peace dwells with
“ the ſorrowful. But they are waſted with mourn-
“ ing, O daughter of Toſcar, and their days are
“ few. They fall away like the flower on which
“ the ſun looks in his ſtrength, after the mildew
“ has paſſed over it, and its head is heavy with the
“ drops of night.” *Fingal.*

———Out, out, brief candle!
Life's but a walking ſhadow, a poor player,
That ſtruts and frets his hour upon the ſtage,
And then is heard no more
Macbeath, act 5. *ſc.* 5.

O thou goddeſs,
Thou divine nature! how thyſelf thou blazon'ſt
In theſe two princely boys! they are as gentle
As zephyrs blowing below the violet,
Not wagging his ſweet head; and yet as rough
(Their royal blood inchaf'd) as the rud'ſt wind,
That by the top doth take the mountain-pine,
And make him ſtoop to th' vale.
Cymbeline, act 4. *ſc.* 4

“ Why did not I paſs away in ſecret, like the
“ flower of the rock that lifts its fair head unſeen,
“ and ſtrows its withered leaves on the blaſt.”
Fingal.

As words convey but a faint and obſcure notion of great numbers, a poet, to give a lively notion of the object he deſcribes with regard to number, does well to compare it to what is familiar and commonly known. Thus Homer compares the Grecian army in point of number to a ſwarm of bees: in another paſſage he compares it to that profuſion of leaves and flowers which appear in the ſpring, or of inſects in a ſummer's evening: And Milton,

———As when the potent rod
Of Amram's ſon in Egypt's evil day
Wav'd round the coaſt, up call'd a pitchy cloud
Of locuſts, warping on the eaſtern wind,
That o'er the realm of impious Pharaoh hung
Like night, and darken'd all the land of Nile;
So numberleſs were thoſe bad angels ſeen,
Hov'ring on wing under the cope of hell,
'Twixt upper, nether, and ſurrounding fires.
Paradiſe Loſt, book 1.

Such compariſons have, by ſome writers, been condemned for the lowneſs of the images introduced: but ſurely without reaſon; for, with regard to numbers, they put the principal ſubject in a ſtrong light.

The foregoing compariſons operate by reſemblance; others have the ſame effect by contraſt.

York. I am the laſt of noble Edward's ſons,
Of whom thy father, prince of Wales, was firſt;
In war, was never lion rag'd more fierce;
In peace, was never gentle lamb more mild;
Than was that young and princely gentleman.
His face thou haſt, for even ſo look'd he,
Accompliſh'd with the number of thy hours.

But when he frown'd it was againſt the French,
And not againſt his friends. His noble hand
Did win what he did ſpend ; and ſpent not that
Which his triumphant father's hand had won.
His hands were guilty of no kindreds blood,
But bloody with the enemies of his kin.
Oh Richard, York is too far gone with grief,
Or elſe he never would compare between.
Richard II. *act* 2. *ſc.* 3.

Milton has a peculiar talent in embelliſhing the principal ſubject, by aſſociating it with others that are agreeable; which is the third end of a compariſon. Similes of this kind have, beſide, a ſeparate effect: they diverſify the narration by new images that are not ſtrictly neceſſary to the compariſon: they are ſhort epiſodes, which, without drawing us from the principal ſubject, afford great delight by their beauty and variety.

He ſcarce had ceas'd, when the ſuperior fiend
Was moving toward the ſhore ; his pond'rous ſhield,
Ethereal temper, maſſy, large, and round,
Behind him caſt : the broad circumference
Hung on his ſhoulders like the moon, whoſe orb
Through optic glaſs the Tuſcan artiſt views
At ev'ning from the top of Feſole,
Or in Valdarno, to deſcry new lands,
Rivers, or mountains, in her ſpotty globe.
Milton, book, 1.

——————Thus far theſe beyond
Compare of mortal proweſs, yet obſerv'd
Their dread commander. He, above the reſt,
In ſhape and ſtature proudly eminent,
Stood like a tow'r ; his form had not yet loſt
All her original brightneſs, nor appear'd
Leſs than archangel ruin'd, and th' exceſs
Of glory obſcur'd: as when the ſun new-riſen
Looks through the horizontal miſty air
Shorn of his beams ; or, from behind the moon
In dim eclipſe, diſaſtrous twilight ſheds
On half the nations, and with fear of change
Perplexes monarchs. *Milton, book* 1.
As when a vulture on Imaus bred,
Whoſe ſnowy ridge the roving Tartar bounds,
Diſlodging from a region ſcarce of prey
To gorge the fleſh of lambs, or yearling kids,
On hills where flocks are fed, flies toward the ſpring
Of Ganges or Hydaſpes, Indian ſtreams,
But in his way lights on the barren plains
Of Sericana, where Chineſes drive
With ſails and wind their cany waggons light:
So on this windy ſea of land, the fiend
Walk'd up and down alone, bent on his prey.
Milton, book 3.

Next of compariſons that aggrandiſe or elevate. Theſe effect us more than any other ſort: the reaſon of which will be evident from the following inſtances:

As when a flame the winding valley fills,
And runs on crackling ſhrubs between the hills,
Then o'er the ſtubble up the mountain flies,
Fires the high woods, and blazes to the ſkies,
This way and that, the ſpreading torrent roars;
So ſweeps the hero through the waſted ſhores.
Around him wide, immenſe deſtruction pours,
And earth is delug'd with the ſanguine ſhowr's.
Iliad. xx. 569.
Methinks, king Richard and myſelf ſhould meet
With no leſs terror than the elements
Of fire and water, when their thund'ring ſhock,
At meeting, tears the cloudy cheeks of heaven.
Richard II. *act* 3. *ſc.* 5.

" As ruſheth a foamy ſtream from the dark ſhady
" ſteep of Cromla, when thunder is rolling above,
" and dark brown night reſts on the hill ; ſo fierce,
" ſo vaſt, ſo terrible, ruſh forward the ſons of Erin.
" The chief, like a whale of ocean followed by all
" its billows, pours valour forth as a ſtream, rolling
" its might along the ſhore." *Fingal, book* 1.

" As roll a thouſand waves to a rock, ſo Swa-
" ran's hoſt came on ; as meets a rock a thouſand
" waves, ſo Iniſfail met Swaran." *Ibid.*

The laſt article mentioned, is that of leſſening or depreſſing a hated or diſagreeable object ; which is effectually done by reſembling it to any thing low or deſpicable.

Thus Milton, in his deſcription of the rout of the rebel-angels, happily expreſſes their terror and diſmay in the following ſimile:

——————As a herd
Of goats or timorous flock together throng'd
Drove them before him thunder-ſtruck, purſu'd
With terrors and with furies to the bounds
And cryſtal wall of heav'n, which op'ning wide,
Roll'd inward, and a ſpacious gap diſclos'd
Into the waſteful deep ; the monſtrous ſight
Struck them with horror backward, but far worſe
Urg'd them behind ; headlong themſelves they threw
Down from the verge of heav'n.
Milton, book 6.

By this time the different purpoſes of compariſon, and the various impreſſions it makes on the mind, are ſufficiently illuſtrated by proper examples. This was an eaſy work. It is more difficult to lay down rules about the propriety or impropriety of compariſons; in what circumſtances they may be introduced, and in what circumſtances they are out of place. It is evident that a compariſon is not proper upon every occaſion : a man in his cool and ſedate moments, is not diſpoſed to poetical flights, nor to ſacrifice truth and reality to the deluſive operations of the imagination : far leſs is he ſo diſpoſed, when oppreſſed with care, or intereſted in ſome important tranſaction that occupies him totally. On the other hand, it is obſervable, that a man, when elevated or animated by any paſſion, is diſpoſed to elevate or animate all his ſubjects : he avoids familiar names, exalts objects by circumlocution and metaphor, and gives even life and voluntary action to inanimate beings. In this warmth of mind, the higheſt poetical flights are indulged, and the boldeſt ſimiles and metaphors reliſhed. But without ſoaring ſo high, the mind is frequently in a tone to reliſh chaſte and moderate ornament ; ſuch as compariſons that ſet the principal object in a ſtrong point of view, or that embelliſh and diverſify the narration. In general, when by any animating paſſion, whether pleaſant or painful, an impulſe is given to to the imagination ;

nation; we are in that condition diſpoſed to every ſort of figurative expreſſion, and in particular to compariſons. This in a great meaſure is evident from the compariſons already mentioned; and ſhall be further illuſtrated by other inſtances. Love, for example, in its infancy, rouſing the imagination, prompts the heart to diſplay itſelf in figurative language, and in ſimiles:

Troilus. Tell me, Apollo, for thy Daphne's love,
What Creſſid is, what Pandar, and what we?
Her bed is India, there ſhe lies a pearl:
Between our Ilium, and where ſhe reſides,
Let it be call'd the wild and wandering flood;
Ourſelf the merchant, and this ſailing Pandar
Our doubtful hope, our convoy, and our bark.
Troilus and Creſſida, act 1. *ſc.* 1.

Again:

Come, gentle night; come, loving black-brow'd night!
Give me my Romeo; and when he ſhall die,
Take him, and cut him out in little ſtars,
And he will make the face of heav'n ſo fine,
That all the world ſhall be in love with night,
And pay no worſhip to the gariſh ſun.
Romeo and Juliet, act 3. *ſc.* 4.

But it will be a better illuſtration of the preſent head, to give examples where compariſons are improperly introduced. Similes are not the language of a man in his ordinary ſtate of mind, diſpatching his daily and uſual work: for that reaſon, the following ſpeech of a gardner to his ſervant is extremely improper:

Go bind thou up yon dangling apricots,
Which, like unruly children, make their ſire
Stoop with oppreſſion of their prodigal weight;
Give ſome ſupportance to the bending twigs.
Go thou, and, like an executioner,
Cut off the heads of two-faſt growing ſprays,
That look too lofty in our commonwealth:
All muſt be even in our government.
Richard II. *act* 3. *ſc.* 7.

The fertility of Shakeſpeare's vein betrays him frequently into this error.

Rooted grief, deep anguiſh, terror, remorſe, deſpair, and all the ſevere diſpiriting paſſions, are declared enemies, perhaps not to figurative language in general, but undoubtedly to the pomp and ſolemnity of compariſon. Upon this account, the ſimile pronounced by young Rutland, under terror of death from an inveterate enemy, and praying mercy, is unnatural:

So looks the pent-up lion o'er the wretch
That trembles under his devouring paws;
And ſo he walks inſulting o'er his prey,
And ſo he comes to rend his limbs aſunder.
Ah, gentle Clifford, kill me with thy ſword
And not with ſuch a cruel threat'ning look.
Third part, Henry VI. *act* 1. *ſc.* 5.

A man ſpent and diſpirited after loſing a battle, is not diſpoſed to heighten or illuſtrate his diſcourſe by ſimiles.

York. With this we charged again; but out! alas,
We bodg'd again; as I have ſeen a ſwan
With bootleſs labour ſwim againſt the tide,
And ſpend her ſtrength with over-matching waves.
Ah! hark, the fatal followers do purſue;
And I am faint and cannot fly their fury.
The ſands are number'd that make up my life;
Here muſt I ſtay, and here my life muſt end.
Third part, Henry VI. *act* 1. *ſc.* 6.

Similes thus unſeaſonably introduced are finely ridiculed in the Rehearſal.

“ *Bayes.* Now here ſhe muſt make a ſimile.
“ *Smith.* Where's the neceſſity of that Mr. Bayes?
“ *Bayes.* Becauſe ſhe's ſurpriſed; that's a general rule; you muſt ever make a ſimile when you are ſurpriſed: 'tis a new way of writing.”

A compariſon is not always faultleſs, even where it is properly introduced. A compariſon, like other human productions, may fall ſhort of its end; of which defect inſtances are not rare even among good writers: and to complete the preſent ſubject, it will be neceſſary to make ſome obſervations upon ſuch faulty compariſons. Nothing can be more erroneous than to inſtitute a compariſon too faint: a diſtant reſemblance or contraſt fatigues the mind with its obſcurity, inſtead of amuſing it; and tends not to fulfil any one end of a compariſon. The following ſimiles ſeem to labour under this defect.

K. Rich. Give me the crown.—Here, couſin, ſeize the crown,
Here, on this ſide, my hand; on that ſide, thine.
Now is this golden crown like a deep well,
That owes two buckets, filling one another;
The emptier ever dancing in the air,
The other down, unſeen, and full of water;
That bucket down, and full of tears, am I,
Drinking my griefs, whilſt you mount up on high.
Richard II. *act.* 4. *ſc.* 3.

K. John. Oh! couſin, thou art come to ſet mine eye;
The tackle of my heart is crack'd and burnt;
And all the ſhrouds wherewith my life ſhould ſail,
Are turned to one thread, or little hair:
My heart hath one poor ſtring to ſtay it by,
Which holds but till thy news be uttered.
King John, act 5. *ſc.* 10.

York. My uncles both are ſlain in reſcuing me:
And all my followers to the eager foe
Turn back, and fly like ſhips before the wind,
Or lambs purſu'd by hunger-ſtarved wolves.
Third part, Henry VI. *act* 1. *ſc.* 6.

The latter of the two ſimiles is good: the former, becauſe of the faintneſs of the reſemblance, produces no good effect, and crouds the narration with the uſeleſs image.

In an epic poem, or in any elevated ſubject, a writer ought to avoid raiſing a ſimile upon a low image, which never fails to bring down the principal ſubject. In general, it is a rule, that a grand object ought never to be reſembled to one that is diminutive, however delicate the reſemblance may be: for it is the peculiar character of a grand object to fix the attention, and ſwell the mind; in which ſtate, it is diſagreeable to contract the mind to a minute object, however elegant. The reſembling an object to one that is greater, has, on the contrary, a good effect, by raiſing or ſwelling the mind; for one paſſes with ſatiſfaction from a ſmall to a great object; but cannot be drawn down, without reluctance, from great to ſmall. Hence the following ſimiles are faulty.

Meanwhile

Compari-ſon.

Meanwhile the troops beneath Patroclus' care,
Invade the Trogans and commence the war.
As waſps, provok'd by children in their play,
Pour from their manſions by the broad high-way,
In ſwarms the guiltleſs traveller engage,
Whet all their ſtings, and call forth all their rage;
All riſe in arms, and with a general cry
Aſſert their waxen domes and buzing progeny:
Thus from the tents the fervent legion ſwarms,
So loud their clamours, and ſo keen their arms.
Iliad, xvi. 312.

So burns the vengeful hornet (ſoul all o'er)
Repuls'd in vain, and thirſty ſtill of gore;
(Bold ſon of air and heat) on angry wings
Untam'd, untir'd, he turns, attacks, and ſtings.
Fir'd with like ardour, fierce Atrides flew,
And ſent his ſoul with ev'ry lance he threw.
Iliad, xvii. 642.

An error oppoſite to the former, is the introducing a reſembling image, ſo elevated or great as to bear no proportion to the principal ſubject. Their remarkable diſparity, being the moſt ſtriking circumſtance, ſeizes the mind, and never fails to depreſs the principal ſubject by contraſt, inſtead of raiſing it by reſemblance: and if the diſparity be exceeding great, the ſimile takes on an air of burleſque; nothing being more ridiculous than to force an object out of its proper rank in nature, by equalling it with one greatly ſuperior or greatly inferior. This will be evident from the following compariſon.

Loud as a bull makes hill and valley ring,
So roar'd the lock when it releas'd the ſpring.
Odyſſey, xxi. 51.

Such a ſimile upon the ſimpleſt of all actions, that of opening a lock, is pure burleſque.

A writer of delicacy will avoid drawing his compariſons from any image that is nauſeous, ugly, or remarkably diſagreeable; for however ſtrong the reſemblance may be, more will be loſt than gained by ſuch compariſon. Therefore we cannot help condemning, though with ſome reluctancy, the following ſimile, or rather metaphor.

O thou fond many! with what loud applauſe
Did'ſt thou beat heav'n with bleſſing Bolingbroke
Before he was what thou would'ſt have him be?
And now being trimm'd up in thine own deſires,
Thou, beaſtly feeder, art ſo full of him,
That thou provok'ſt thyſelf to caſt him up.
And ſo, thou common dog, didſt thou diſgorge
Thy glutton boſom of the Royal Richard,
And now thou would'ſt eat thy dead vomit up,
And howl'ſt to find it.
Second Part Henry IV. *act* 1. *ſc.* 6.

The ſtrongeſt objection that can lie againſt a compariſon is, that it conſiſts in words only, not in ſenſe. Such falſe coin, or baſtard-wit, does extremely well in burleſque; but is far below the dignity of the epic, or of any ſerious compoſition.

The noble ſiſter of Poplicola,
The moon of Rome; chaſte as the icicle
That's curdl'd by the froſt from pureſt ſnow,
And hangs on Dian's temple.
Coriolanus, act 5. *ſc.* 3.

There is evidently no reſemblance between an icicle and a woman, chaſte or unchaſte: but chaſtity is cold in a metaphorical ſenſe, and an icicle is cold in a proper ſenſe; and this verbal reſemblance, in the hurry and glow of compoſing, has been thought a ſufficient foundation of the ſimile. Such phantom ſimiles are mere witticiſms, which ought to have no quarter, except where purpoſely introduced to provoke laughter. Lucian, in his diſſertation upon hiſtory, talking of a certain author, makes the following compariſon, which is verbal merely.

Compari-ſon. Comparti-tion.

"This author's deſcriptions are ſo cold, that they "ſurpaſs the Caſpian ſnow, and all the ice of the "north."

——But for their ſpirits and ſouls
This word *rebellion* had froze them up
As fiſh are in a pond.
Second part Henry IV. *act* 1. *ſc.* 3.

Pope has ſeveral ſimiles of the ſame ſtamp.

And hence one maſter paſſion in the breaſt,
Like Aaron's ſerpent, ſwallows up the reſt.
Epiſt. 2. *l.* 131.

And again, talking of this ſame ruling or maſter paſſion;

Nature its mother, Habit is its nurſe;
Wit, ſpirit, faculties, but make it worſe;
Reaſon itſelf but gives it edge and pow'r;
As heav'n's bleſs'd beam turns vinegar more ſour.
Ibid. l. 145.

Where the ſubject is burleſque or ludicrous, ſuch ſimiles are far from being improper. Horace ſays pleaſantly,

Quanquam tu levior cortice. *Lib.* 3. *od.* 9.

And Shakeſpeare,

In breaking oaths he's ſtronger than Hercules.

And this leads to obſerve, that beſides the foregoing compariſons, which are all ſerious, there is a ſpecies, the end and purpoſe of which is to excite gaiety and mirth. Take the following examples.

Falſtaff ſpeaking to his page:

"I do here walk before thee, like a ſow that "hath overwhelmed all her litter but one."
Second part Henry IV. *act* 1. *ſc.* 10.

"I think he is not a pick-purſe, nor a horſe-"ſtealer; but for his verity in love, I do think him "as concave as a covered goblet, or a worm-eaten "nut." *As you like it, act* 3. *ſc.* 10.

This ſword a dagger had his page,
That was but little for his age;
And therefore waited on him ſo,
As dwarfs upon knights-errant do.
Hudibras, canto 1.

"Books, like men, their authors, have but one "way of coming into the world; but there are "ten thouſand to go out of it, and return no more."
Tale of a Tub.

"The moſt accompliſhed way of uſing books at "preſent is, to ſerve them as ſome do lords, learn "their *titles*, and then brag of their acquaintance."
Ibid.

"He does not conſider, that ſincery in love is "as much out of faſhion as ſweet ſnuff; no body "takes it now." *Careleſs Huſband.*

COMPARTITION, in architecture, denotes the uſeful and graceful diſpoſition of the whole ground-plot of an edifice, into rooms of office, and of reception or entertainment.

COMPARTMENT, in general, is a deſign compoſed of ſeveral different figures, diſpoſed with ſymmetry, to adorn a parterre, a ceiling, &c.

A compartment of tiles or bricks, is an arrangement of them, of different colours, and varniſhed, for the decoration of a building. Compartments in gardening, are an aſſemblage of beds, plots, borders, walks, &c. diſpoſed in the moſt advantageous manner that the ground will admit of. Compartments in heraldry, are otherwiſe called *partitions*.

COMPASS, or *Mariner's Steering Compass*, is an inſtrument uſed at ſea by pilots to direct and aſcertain the courſe of their ſhips. It conſiſts of a circular braſs box, which contains a paper card with the 32 points of the compaſs, fixed on a magnetic needle that always turns to the north, excepting a ſmall declination variable at different places. See VARIATION.

The needle with the card turns on an upright pin fixed in the centre of the box. In the centre of the needle is fixed a braſs conical ſocket or cap, whereby the card hanging on the pin turns freely round the centre.

The top of the box is covered with a glaſs, that the card's motion may not be diſturbed by the wind. The whole is encloſed in another box of wood, where it is ſuſpended by braſs hoops or gimbals, to preſerve the card horizontal. The compaſs-box is to be ſo placed in the ſhip, that the middle ſection of the box, parallel to its ſides, may be parallel to the middle ſection of the ſhip along its keel.

The compaſs being of the utmoſt conſequence to navigation, it is reaſonable to expect that the greateſt attention ſhould be uſed in its conſtruction, and every attempt to improve it carefully examined, and, if proper, adopted. But ſo careleſs are the generality of commanders of this moſt uſeful inſtrument, that almoſt all the compaſſes uſed on board merchant-ſhips have their needles formed of two pieces of ſteel-wire, each of which is bent in the middle, ſo as to form an obtuſe angle; and their ends, being applied together, make an acute one: ſo that the whole repreſents the form of a lozenge; in the centre of which, and of the card, is placed the braſs cap. Now, if we examine a number of theſe cards, we ſhall rarely, if ever, find them all in the ſame direction, but they will all vary more or leſs, not only with regard to the true direction, but from one another.

Theſe irregularities are owing to the ſtructure of the needle; for the wires of which it is compoſed are only hardened at the ends; now, if theſe ends are not equally hard, or if one end be hardened up higher than the other, when they come to be put together, in fixing them to the card, that end which is hardeſt will deſtroy much of the virtue of the other; by which means the hardeſt end will have the moſt power in directing the card, and conſequently make it vary toward its own direction: and, as the wires are diſpoſed in the form of a lozenge, theſe cards can have but little force, ſo that they will often, when drawn aſide, ſtand at the diſtance of ſeveral degrees on either ſide the point from whence they are drawn: for all magnetical bodies receive an additional ſtrength by being placed in the direction of the earth's magnetiſm, and act proportionably leſs vigorouſly when turned out of it; wherefore, when theſe kind of needles are drawn aſide from their true point, two of the parallel ſides of the lozenge will conſpire, more directly than before, with the earth's magnetiſm; and the other two will be leſs in that direction: by which means the two ſides will very much impede its return; and the two latter will have that impediment to overcome, as well as the friction, by their own force alone.

To remove theſe inconveniences, ſome needles are made of one piece of ſteel of a ſpring temper, and broad towards the ends, but tapering towards the middle, where a hole is made to receive the cap. At the ends they terminate in an angle, greater or leſs according to the ſkill or fancy of the workman. Theſe needles, though infinitely preferable to the other, are, however, far from being perfect; for every needle of this form hath ſix poles inſtead of two, one at each end, two where it becomes tapering, and two at the hole in the middle; this is owing to their ſhape; for the middle part being very ſlender, it has not ſubſtance enough to conduct the magnetic ſtream quite through, from one end to the other: all theſe poles appear very diſtinctly, when examined with a glaſs that is ſprinkled over with magnetic ſand. This circumſtance, however, does not hinder the needle from pointing true; but as it has leſs force to move the card than when the magnetic ſtream moves in large curves from one end to the other, it is certainly an imperfection.

Theſe inconveniences induced the ingenious Dr. Knight to contrive a new ſea-compaſs, which came into uſe on board all the ſhips of war. The needle in this inſtrument is quite ſtraight, and ſquare at the ends; and conſequently has only two poles, though about the hole in the middle the curves are a little confuſed. Needles of this conſtruction, after vibrating a long time, will always point exactly in the ſame direction; and if drawn ever ſo little on one ſide, will return to it again, without any ſenſible difference. We may therefore conclude, that a regular parallelopiped is the beſt form for a needle, as well as the ſimpleſt, the holes for the caps being as ſmall as poſſible.

And as the weight ſhould be removed to the greateſt diſtance from the centre of motion, a circle of braſs, of the ſame diameter of the card, may be added, which will ſerve alſo to ſupport the card, which may then be made of thin paper, without any thing to ſtiffen it. This ring being fixed below the card, and the needle above it, the centre of gravity is placed low enough to admit of the cap being put under the needle, whereby the hole in the needle becomes unneceſſary.

The above obſervations will be eaſily underſtood from viewing the ſeveral parts of the inſtrument as repreſented on Plate CXLIV. where fig. 6. is the card, with the needle KL, and its cap M, fixed upon it, being one third of the diameter of the real card. Fig. 8. is a perſpective view of the back ſide of the card, where AB repreſents the turning down of the braſs edge, C the under part of the cap, D and E two ſliding weights to balance the card, and F, G, two ſcrews that fix the braſs edge, &c. to the needle. Fig. 7. is the pedeſtal that ſupports the card, containing a ſcrewing needle, fixed in two ſmall grooves to receive it, by means of the collet C, in the manner of a port-crayon D, the ſtem, is filed into an octagon, that it may be the more eaſily unſcrewed. For its further illuſtration and application to uſe, ſee Navigation.

The invention of the compaſs is uſually aſcribed to Flavio da Melfi, or Flavio Gioia, a Neapolitan, about the year 1302; and hence it is, that the territory of Principato, which makes part of the kingdom of Naples, where he was born, has a compaſs for its arms. Others ſay that Marcus Paulus, a Venetian, making a journey to China, brought back the invention with him in 1260. What confirms this conjecture is, that at firſt they uſed the compaſs in the ſame manner as the Chineſe ſtill do; *i. e.* they let it float on a little piece of cork, inſtead of ſuſpending it on a pivot. It is added, that their emperor Chiningus, a celebrated aſtrologer, had a knowledge of it 1120 years before Chriſt. The Chineſe only divide their compaſs into 24 points. Fauchette relates ſome verſes of Guoyot de Provence, who lived in France about the year 1200, which ſeem to make mention of the compaſs under the name of *marinette*, or *mariner's ſtone*; which ſhow it to have been uſed in France near 100 years before either the Melfite or Venetian. The French even lay claim to the invention, from the *fleur de lys* wherewith all nations ſhall diſtinguiſh the north point of the card. With as much reaſon Dr. Wallis aſcribes it to the Engliſh, from its name *compaſs*, by which name moſt nations call it, and which he obſerves is uſed in many parts of England to ſignify a circle.

Though the mariner's compaſs has been long in uſe, the beſt conſtruction of it was attended with many inconveniences, till the late improvement which it has received from the invention and experiments of Dr. Gowin Knight, and the farther emendation of Mr. Smeaton, as has been deſcribed under the article Azimuth (Vol. II.)

The compaſs hath ſometimes been obſerved to be diſturbed by the electricity of its glaſs cover: and this from ſo ſlight an application of the finger as was barely neceſſary to wipe off a little duſt. The ſame glaſs, rubbed a little more with the finger, a bit of muſlin, or paper, would attract either end of the needle, ſo as to hold it to the glaſs for ſeveral minutes, far out of the due direction, according to that part of the glaſs which was moſt excited. And when the needle, after adhering to the glaſs, has dropped looſe, and made vibrations, thoſe would not be biſected as uſual by that point where the needle ſhould reſt, but would either be made all on one ſide, or be very unequally divided, by means of ſome remains of electrical virtue in that part of the glaſs which had attracted the needle, until at length, after 15 minutes or more, all the electricity being diſcharged, the magnetical power took place. The remedy for this inconvenience is to moiſten the ſurface of the glaſs; a wet finger will do it immediately and effectually. The mariner's compaſs with a chart is much leſs dangerouſly moved than the common compaſs with a bare needle: and the deeper, or farther diſtant, the needle hangs below the glaſs, the leſs diſturbance it is likely to receive.

Notwithſtanding the various contrivances that have been made to prevent the card from being much affected by the motions of the ſhip, they have always been found too delicate to encounter the ſhocks of a tempeſtuous ſea. Improved ſea-compaſſes have lately been conſtructed by Mr M'Culloch of London, (and for which he has obtained a patent), that are reported to be the beſt of any yet uſed. The particulars are as follow.

Plate CXLV.

Fig. 1. is a ſection of the ſteering compaſs. *Aaaaa*, The common wooden-box, with its lid. *bb*, The braſs compaſs-box. *cc*, The glaſs cover to ditto. *dd*, The hollow conical bottom. *e*, The prop upon which the compaſs is ſupported inſtead of gimbals; the ſpherical top which is finely poliſhed, and the apex of the hollow cone is fitted in a peculiar manner to receive it. *ff*, A quantity of lead run round the bottom and cone of the compaſs-box, to balance and keep it ſteadily horizontal. *gg*, The card and the magnetic needle, bent in ſuch a manner that the point of the conical pivot on which it moves and is ſupported, may be brought very near to the centre of gravity, as well as to the centre of motion. *hh*, Two guards, which by means of two pins *ii*, affixed to the compaſs-box, prevents it from turning round and deceiving the ſteerſman.

Fig. 2. a perſpective view of the ſteering compaſs, with the lid off and the front laid open. *hh*, The guards. *b*, The compaſs-box. *e*, The prop, &c. as in fig. 1.

Fig. 3. a view of the azimuth compaſs. *b*, The compaſs-box. *h*, One of the guards, *e*, The prop, as in fig. 1. and 2. with this difference, that in the azimuth compaſs, inſtead of being ſcrewed to the bottom of the wood-box, ſtands in a braſs ſocket, and may be turned round at pleaſure. 1. A braſs bar, upon which the ſight vanes are fixed. 2. A dark glaſs, which moves up or down on 3. the ſight vane. 4. A magnifying glaſs, which is alſo moveable on the other vane. 5. The nonius or vernier. 6. A ſlide for moving the vernier ſo as to ſtop the card in taking the azimuth. 7. A double convex glaſs, by which the diviſions on the vernier may be read with accuracy.

Fig. 4. is a ſection repreſenting another application of the magnetic needle and card, conſtructed by Mr M'Culloch. *Aaaa*, The common wood-box. *bb*, The braſs compaſs-box. *cc*, The braſs ſupport for the circle and pendulum. *d*, The pendulum. *e*, The agate. *ff*, The magnetic needle and card. *gg*, The braſs circle. *hh*, The glaſs cover and braſs ring. *i*, The lead weight. *N. B.* All the centres of motion are in the ſame plane.

" In one particular this patent compaſs is conſidered as an improvement on the common compaſſes, in as far as the needle is both longer and broader; hence its magnetiſm muſt be ſtronger, and of courſe the line of its magnetic direction correſpondent with the card. In another particular, in order to prevent the motions of the veſſel from affecting the needle, which is the moſt deſirable object, the patent compaſs-box, inſtead of ſwinging in gimbals at right angles to each other, is ſupported in its very centre upon a prop; and whatever motion the other parts of the box may have, this centre being in the vertex of the hollow cone, may be conſidered as relatively at reſt; and therefore gives little or no diſturbance to the needle. Again, the pivot or centre upon which the needle turns, is ſo contrived as to ſtand always perpendicular over the centre of the compaſs-box, or apex of the hollow cone, as upon a fixed point; and is therefore ſtill leſs affected by the motions of the veſſel. Thus the centres of motion, gravity, and of magnetiſm, are brought almoſt all to the ſame point; the advantages of which will be readily perceived by any perſon acquainted with mechanical principles. Experience therefore will aſcertain the utility of this improvement." *M'Culloch's Account.*

Of Dr Knight's *Azimuth Compaſs*, as improved by Mr Smeaton, a deſcription was given under the article Azimuth, and a figure in Plate LXXVII. The uſe of the azimuth compaſs is for finding the ſun's magnetical azimuth, or amplitude; and thence the variation of the compaſs. If the obſervation be for an amplitude at ſun-riſing, or for an azimuth before noon, apply the centre of the index on the weſt point of the card, within the box; ſo that the four lines on the edge of the card, and thoſe on the inſide of the box, may meet. If the obſervation be for the ſun's amplitude ſetting, or an azimuth in the afternoon, turn the centre of the index right againſt the eaſt point of the card, and make the lines within the box concur with thoſe on the card: the inſtrument thus fitted for obſervation, turn the index *bc* towards the ſun, till the ſhadow of the thread *ae* fall directly on the ſlit of the ſight, and on the line that is along the middle of the index: then will the inner edge of the index cut the degree and minute of the ſun's magnetical azimuth from the north or ſouth. But note, that if, when the compaſs is thus placed, the azimuth is leſs than 45° from the ſouth, and the index turned towards the ſun, it will paſs off the diviſions of the limb: the inſtrument therefore in this caſe muſt be turned juſt a quarter of the compaſs, *i. e.* the centre of the index muſt be placed on the north or ſouth point of the card, according as the ſun is from you; and then the edge will cut the degree of the magnetic azimuth, or the ſun's azimuth from the north, as before.

The ſun's magnetical amplitude thus found, the variation of the needle is thus determined. Being out at ſea the 15th of May 1717, in 45° north latitude, the tables give me the ſun's latitude 19° north, and his eaſt amplitude 27° 25' north: by the azimuth compaſs, I find the ſun's magnetical amplitude at his riſing and ſetting; and find he riſes, *v. gr.* between the 62d and 63d degree, reckoning from the north towards the eaſt point of the compaſs, *i. e.* between the 27th and 28th degree, reckoning from the eaſt. The magnetical amplitude, therefore, being here equal to the true one, the needle has no variation; but if the ſun at his riſing ſhould have appeared between the 52d and 53d degree from the north towards the eaſt; his magnetical amplitude would then have been between 37 and 38 degrees, *i. e.* about 10 degrees greater than the true amplitude; therefore, the needle would vary about 10 degrees north-eaſterly. If the magnetical eaſt amplitude found by the inſtrument ſhould be leſs than the true amplitude, their difference would ſhow the variation of the needle eaſterly. If the true eaſt amplitude be ſouthward, as alſo the magnetical amplitude, and this laſt be the greater; the variation of the needle will be north-weſt; and *vice verſa.*

What has been ſaid of north-eaſt amplitudes holds alſo of ſouth-weſt; and what of ſouth-eaſt amplitudes holds of north-weſt amplitudes. Laſtly, if amplitudes be found of different denominotions, *v. gr.* if the true amplitude be ſix degrees north, and the magnetical amplitude five degrees ſouth; the variation, which in this caſe is north-weſt, will be equal to the ſum of the magnetical and true amplitudes: underſtand the ſame for weſt amplitudes.

The variation may likewiſe be found from the azimuth: but in that caſe, the ſun's declination, latitude of the place, and his altitude, muſt be given, that his true azimuth may be found.

This inſtrument is alſo uſeful in ſettling the ſhip's wake, in order to find the lee-way; and alſo to find the bearings of head-lands, and other objects.

Compass is alſo an inſtrument of conſiderable uſe in ſurveying land, dialing, &c.

Its ſtructure, in the main, is the ſame with that of the mariner's compaſs; conſiſting, like that, of a box and needle: the principal difference conſiſts in this, that inſtead of the needle's being fitted into the card, and playing with it on a pivot, it here plays alone; the card being drawn on the bottom of the box, and a circle divided in 360 degrees on the limb. See fig. 5. Plate CXLIV. This inſtrument is of obvious uſe to travellers, to direct them in their road; and to miners, to ſhow them what way to dig, with other conſiderable uſes.

1. *To take the declination of a wall by the Compaſs.* Apply that ſide of the compaſs whereon the north is marked along the ſide of the wall; the number of degrees over which the north end of the needle fixes will be the declination of the wall, and on that ſide; *v. gr.* if the north point of the needle tends towards the north, that wall may be ſhone on by the ſun at noon; if it fix over fifty degrees, counting from the north towards the eaſt, the declination is ſo many degrees from north towards eaſt.

But ſince the needle itſelf declines from the north towards the weſt, with us, 13°; it muſt be noted, that to retrieve the irregularity, 13° are always to be added to the degrees ſhown by the needle, when the declination of the wall is towards the eaſt; on the contrary, when the declination is towards the weſt, the declination of the needle is to be ſubtracted.

2. *To take an angle with the Compaſs.* Suppoſe the angle required be DAE, fig. 4. apply that ſide of the compaſs whereon the north is marked to one of the lines AD; when the needle reſts, obſerve the degrees at which its north point ſtands, which ſuppoſe 80: ſo many degrees does the line decline from the meridian. In the ſame manner take the declination of the line AE, which ſuppoſe 215°; ſubtract 80° from 215, the remainder is 135; which ſubtracted from 180, there will remain 45°; the quantity of the angle required. But if the difference between the declination of the two lines exceed 180°; in that caſe, 180° muſt be ſubtracted from the difference: the remainder then is the angle required.

In meaſuring angles by the compaſs, there needs not any regard be had to the variation; that being ſuppoſed the ſame in all the lines of the angles.

3. *To take a plot of a field by the Compaſs.* Suppoſe the field A, B, C, D, E, fig. 10. for the greater accuracy let there be two ſights fitted to the meridian line of the compaſs, place it horizontal, and through the ſights look along the ſide AB, or a line parallel to it; applying the eye to the ſight at the ſouth point of the compaſs. Draw a rough ſketch of the field by

the eye, and on the correſponding line enter down the degree to which the needle points, which ſuppoſe 90, meaſure the length of the ſide, and enter that too, which ſuppoſe ten chains.

In this manner proceed with all the reſt of the ſides and angles of the field; the ſides, which ſuppoſe 70, 65, 70, 44, 50 fathom; and the angles, which ſuppoſe 30, 100, 130, 240, 300, degrees. To protract the field, ſet down the ſeveral angles obſerved, one after another, and ſubtract the leſſer from the next greater: thus will you have the quantity of the ſeveral angles, and the length of the lines that include them. For the reſt, ſee GEOMETRY.

Note, All the angles of the figure taken together, muſt make twice as many right angles; abating two if no miſtake has been committed.

Azimuth COMPASS. See AZIMUTH.

COMPASS-*Dials*, are ſmooth horizontal dials, fitted in braſs or ſilver boxes, for the pocket, to ſhow the hour of the day, by the direction of a needle that indicates how to place them right, by turning the dial about till the cock or ſtyle ſtand directly over the needle; but theſe can never be very exact, becauſe of the variation of the needle itſelf. See COMPASS and DIALING.

COMPASSES, or *Pair of* COMPASSES, a mathematical inſtrument for deſcribing circles, meaſuring figures, *&c.*

The common compaſſes conſiſt of two ſharp-pointed branches or legs of iron, ſteel, braſs, or other metal, joined together at the top by a rivet, whereon they move as on a centre. Thoſe compaſſes are of the beſt ſort in which the pin or axle on which the joint turns, and alſo half the joint itſelf, is made of ſteel, as the oppoſite metals wear more equable. The perfection of them may be known by the eaſy and uniform opening and ſhutting of their legs; one of which is ſometimes made to take in and out, in order to make room for two other points to deſcribe with ink, black-lead, or other materials.

There are now uſed compaſſes of various kinds and contrivances, accommodated to the various uſes they are intended for; as,

COMPASSES *of three Legs*, or *Triangular Compaſſes*, are, ſetting aſide the exceſs of a leg, of the ſame ſtructure with the common ones: their uſe being to take three points at once, and ſo to form triangles; to lay down three poſitions of a map, to be copied at once, *&c.*

Beam COMPASSES conſiſt of a long branch, or beam, made of braſs or wood, carrying two braſs curſors, the one fixed at one end, the other ſliding along the beam, with a ſcrew to faſten it on occaſion. To the curſors may be ſcrewed points of any kind, whether ſteel for pencils, or the like. It is uſed to draw large circles, to take great extents, *&c.* To the fixed curſor is ſometimes applied an adjuſting or micrometer ſcrew, by which an extent is obtained to extreme nicety. Mr Jones of Holborn has made beam compaſſes to adjuſt to the $\frac{1}{1000}$dth of an inch.

Caliber COMPASSES. See CALIBER.

Clockmaker's COMPASSES are joined like the common compaſſes, with a quadrant, or bow, like the ſpring compaſſes; only of different uſe, ſerving here to keep the inſtrument firm at any, opening. They are made very ſtrong, with the points of their legs of well tempered ſteel, as being uſed to draw lines on paſte-board or copper.

Cylindrical and Spherical COMPASSES, conſiſt of four branches, joined in a centre, two of which are circular, and two flat, a little bent on the ends: their uſe is to take the diameter, thickneſs, or caliber of round or cylindric bodies; ſuch as cannons, pipes, *&c.*

Elliptic COMPASSES. Their uſe is to draw ellipſes, or ovals of any kind: they conſiſt of a beam A B about a foot long, bearing three curſors; to one of which may be ſcrewed points of any kind: to the bottom of the other two are rivited two ſliding dove-tails, adjuſted in grooves made in the croſs branches of the beam. The dove-tails having a motion every way, by turning about the long branch, go backwards and forwards along the croſs; ſo that when the beam has gone half way about, one of theſe will have moved the whole length of one of the branches; and when the beam has got quite round, the ſame dove-tail has got back the whole length of the branch. Underſtand the ſame of the other dove-tail.

Plate CXLIV. fig. 9.

Note, the diſtance between the two ſliding dove-tails is the diſtance between the two foci of the ellipſis; ſo that by changing that diſtance, the ellipſis will be rounder or ſlenderer. Under the ends of the branches of the croſs are placed four ſteel points to keep it faſt.

The uſe of this compaſs is eaſy: by turning round the long branch, the ink, pencil, or other point, will draw the ellipſis required. Its figure ſhows both its uſe and conſtruction.

German COMPASSES have their legs a little bent outwards, towards the top; ſo that when ſhut, the points only meet.

Hair COMPASSES are ſo contrived within ſide by a ſmall adjuſting ſcrew to one of the legs, as to take an extent to a hair's breadth.

Lapidary's COMPASSES are a piece of wood, in form of the ſhaft of a plane, cleft at top, as far as half its length; with this they meaſure the angles, *&c.* of jewels and precious ſtones, as they cut them. There is in the cleft a little braſs rule, faſtened there at one end by a pin; but ſo that it may be moved in the manner of a braſs level: with this kind of a ſquare they take the angles of the ſtones, laying them on the ſhaft as they cut them.

Proportional COMPASSES are thoſe whoſe joint lies between the points terminating each leg: they are either ſimple or compound. In the former ſort the centre is fixed, ſo that one pair of theſe ſerves only for one proportion.

Compound proportional COMPASSES conſiſt of two parts or ſides of braſs, which lie upon each other ſo nicely as to appear but one when they are ſhut. Theſe ſides eaſily open, and move about a centre, which is itſelf moveable in a hollow canal cut through the greateſt part of their length. To this centre on each ſide is affixed a ſliding piece A of a ſmall length, with a fine line drawn on it ſerving as an index, to be ſet againſt other lines or diviſions placed upon the compaſſes on both ſides. Theſe lines are, 1. A line of lines. 2. A line of ſuperficies, areas, or planes. 3. A line of ſolids. 4. A line of circles, or rather of polygons to be inſcribed in circles. Theſe lines are all equally divided; the three firſt from 1 to 20, the laſt from 6 to 20. Their uſes are as follow:

Plate CXLV. fig. 6.

By the line of lines you divide a given line into any number of equal parts; for by placing the index A againſt 1, and ſcrewing it faſt, if you open the compaſſes, then the diſtance between the points at each end will be equal. If you place the index againſt 2, and open the compaſſes, the diſtance between the points of the longer legs B B, will be twice the diſtance between the ſhorter ones C C; and thus a line is biſected, or divided into two equal parts. If the index be placed againſt 3, and the compaſſes opened, the diſtances between the points will be as 3 to 1, and ſo a line is divided into three equal parts; and ſo you proceed for any other number of parts under 10.

The numbers of the line of planes anſwer to the ſquares of thoſe in the line of lines; for becauſe ſuperficies or planes are to each other as the ſquares of their like ſides; therefore, if the index be placed againſt 2 in the line of planes, then the diſtance between the ſmall points will be the ſide of a plane whoſe area is one; but the diſtance of the larger points will be the like ſide of a plane whoſe area is two; or twice as large. If the index be placed at 3, and the compaſſes opened, the diſtances between the points at each end will be the like ſide of planes whoſe area are as 1 to 3; and ſo of others.

The numbers of the line or ſolids anſwer to the cubes of thoſe in the line of lines; becauſe all ſolids are to each other as the cubes of their ſides or diameters: therefore, if the index be placed to number 2, 3, 4, &c. in the line of ſolids, the diſtance between the leſſer and larger points will be the like ſides of ſolids, which are to each other as 1 to 2, 1 to 3, 1 to 4, &c. For example: If the index be placed at 10, and the compaſſes be opened ſo that the ſmall points may take the diameter of a bullet whoſe weight is one ounce, the diſtance between the large points will be the diameter of a bullet or globe of 10 ounces, or which is 10 times as large.

Laſtly, The numbers in the line or circles are the ſides of polygons to be inſcribed in a given circle, or by which a circle may be divided into the equal parts, from 6 to 20. Thus, if the index be placed at 6, the points of the compaſſes at either end, when opened to the radius of a given circle, will contain the ſide of a hexagon, or divide the circle into ſix equal parts. If the index be placed againſt 7, and the compaſſes opened ſo that the larger points may take in the radius of the circle, then the ſhorter points will divide the circle into ſeven equal parts for inſcribing a heptagon. Again, placing the index to 8, and opening the compaſſes, the larger points will contain the radius, and the leſſer points divide the circle into eight equal parts for inſcribing an octagon or ſquare. And thus you may proceed for others.

Proportional COMPASSES *with the ſector lines.* The ſtructure of theſe is ſo like that of the common proportional compaſſes, only a little nicer, that it needs no particular deſcription. The lines on the firſt face are the line of lines, marked *lines;* it is divided into 100 equal parts, every tenth numbered: and the line of chords, which goes to 60°, is marked *chords.* On the other face are a line of ſines to 90°, and a line of tangents to 45°. On one ſide are the tangents from 45° to 71° 34′; on the other, ſecants from 0° to 70° 30′.

For the uſe of theſe compaſſes: 1. To divide a line into any number of equal parts leſs than 100: divide 100 by the number of parts required; ſlip the curſor till the line on the ſliding dove-tail be againſt the quotient on the line of lines: then the whole line being taken between the points of the compaſſes moſt remote from the centre, the aperture of the other will ſhow the diviſion required. 2. A right line given, ſuppoſed to be divided into 100 parts, to take any number of thoſe parts; ſlip the line on the ſliding dove-tail to the number of parts required; the whole line being taken between the points fartheſt from the centre, the aperture of the other two will include the number of diviſions required. 3. The radius being given, to find the chord of any arch under 60°; ſlip the line on the ſliding dove-tail to the degrees required on the line of chords: the radius being taken between the points fartheſt from the centre of the curſor; the aperture of the other line will be the chord required, provided the number of degrees be greater than 29: if it be leſs, the aperture taken from the radius will leave the chord required. 4. If the chord of an arch under 60° be given, and the radius required; ſlip the line on the dove-tail to the degrees given on the line of chords; the given chord being taken between the two points next the curſor, the aperture of the other will be the radius required. 5. The radius being given, to find the ſine of any number of degrees; ſlip the line on the dove-tail to the degree on the line of ſines whoſe ſine is required: the radius taken between the points furtheſt from the curſor, the aperture of the other will give the ſine of the angle required. But if the ſine ſought be leſs than 30°, the difference of the apertures of the oppoſite points will be the ſine required. 6. The radius being given, to find the tangent of any number of degrees under 71: if the tangent required be under 26° 30′, then ſlip the line on the dove-tail to the degree propoſed on the tangent line; the radius taken between the points fartheſt from the curſor, the aperture of the others will be the tangent of the degrees required: if the tangent required be above 26° 30′, but under 45°, the line on the curſor muſt be ſlipped to the degrees given on the tangent line: then the radius being taken between the points furtheſt from the curſor, the aperture of the others will be the tangent. If the tangent required be greater than 45°, but leſs than 56° 20′, ſlip the notch on the tangent ſide of the turned cheek to the degree 0 in the tangent line on the ſide of the compaſs; the radius taken between the points fartheſt from the curſor; the difference between the aperture of the other and theſe, added together, will be the tangent required. Thus, for the tangents of other degrees under 71. After the like manner may the ſecant of any number of degrees under 71 be found.

Mr Heath, a mathematical inſtrument-maker in London, conſtructed a pair of proportional compaſſes, in 1746, with a curious and uſeful contrivance for preventing the ſhorter legs from changing their poſition, when theſe compaſſes were uſed. It conſiſted of a ſmall beam ſoldered to a ſcrew, and running parallel to the leg of the compaſſes, nearly of the length of the groove; in this beam a ſlit was made, which admitted of a ſliding-nut, the other end of which fell into a hole in the bottom of the ſcrew, belonging to the great nut of the compaſſes. The ſcrew-pin of the beam paſſed through an adjuſter, by means of which the mark on the ſlider might be brought exactly to any diviſion. But the proportional compaſſes have been much out of uſe ſince the invention of the ſector.

Spring Compasses, or dividers; thoſe with an arched head, which by its ſpring opens the legs; the opening being directed by a circular ſcrew faſtened to one of the legs, and let through the other, worked with a nut. Theſe compaſſes are made of hardened ſteel.

Triſecting Compasses conſiſt of two central rules, and an arch of a circle of 120 degrees, immoveable, with its radius; which is faſtened with one of the central rules like the two legs of a ſector, that the central rule may be carried through all the points of the circumference of the arch. The radius and rule ſhould be as thin as poſſible; and the rule faſtened to the radius ſhould be hammered cold, to attain the greater elaſticity; and the breadth of the central rule ſhould be triple that of the radius: there muſt alſo be a groove in this rule, with a dove-tail faſtened on it for its motion, and a hole in the centre of each rule. The uſe of this inſtrument is to facilitate the triſection of angles geometrically; and it is ſaid to have been invented by M. Tarragen for that purpoſe.

Turn-up Compasses. The body of this inſtrument is like the common compaſſes: but towards the bottom of the legs, without-ſide, are added two other points beſides the uſual ones; the one whereof carries a drawing pen point, and the other a port-crayon, both adjuſted ſo as to turn round, and be in the way of uſe, or out of it, as occaſion requires. Theſe compaſſes have been contrived to ſave the trouble of changing the points.

COMPASSION, or Commisseration, in ethics, a mixed paſſion, compounded of love and ſorrow, and excited by the ſight or recital of diſtreſs. Hobbs makes this a merely ſelfiſh paſſion, and defines it, as being fear for ourſelves; Hutcheſon reſolves it into inſtinct; but Dr Butler much more properly conſiders compaſſion as an original, diſtinct, particular affection in human nature.

COMPATIBLE, ſomething that may ſuit or conſiſt with another. See Incompatible.

COMPEIGNE, a handſome town of the iſle of France, in the county of Senlis, with a palace, or caſtle, where the king often reſides. The maid of Orleans was taken priſoner here in 1430. It is ſeated on the river Oiſe, near a large foreſt. E. long. 3. 12. N. Lat. 49. 25.

COMPENDIUM, in matters of literature, denotes much the ſame as epitome or abridgement. See Abridgement.

COMPENSATION, in a general ſenſe, an action whereby any thing is admitted as an equivalent to another.

Compensation, in law. Where the ſame perſon is debtor and creditor to another, the mutual obligations, if they are for equal ſums, are extinguiſhed by compenſation; if for unequal, the leſſer obligation is extinguiſhed, and the greater diminiſhed, as far as the concourſe of debt and credit goes.

COMPETENCE, or Competency, in a general ſenſe, ſuch a quantity of any thing as is ſufficient.

Competence, in law, the right or authority of a judge, whereby he takes cognizance of any thing.

COMPETENTES, an order of catechumens, in the primitive Chriſtian church, being the immediate candidates for baptiſm. See Catechumen.

COMPETITION, in a general ſenſe, is the ſame with rivalſhip, or when two or more perſons contend for the ſame thing.

Competition, in Scots law. In eſcheats, ſee Law, Part III. N° clxvi. 17, *&c.* In confirmations by the ſuperior, in reſignations, and in perſonal rights of lands, *ibid.* clxviii. 5—9. In inhibitions, in adjudications, amongſt aſſignees, arreſters, and poinders, *ibid.* clxxi. 6. clxxii. 3. clxxvii. 2. clxxviii. 8, 9, 10. Amongſt creditors of a defunct, clxxxi. 19.

COMPITALIA, or Compitalita, feaſts held among the ancients in honour of the *lares*. The word comes from the Latin *compitum*, a croſs-way; by reaſon the feaſt was held in the meeting of ſeveral roads. The *capitalia* are more ancient than the building of Rome. Dionyſius Halicarnaſſeus, and Pliny, indeed, ſay, they were inſtituted by Servius Tullus; but this only ſignifies that they were then introduced into Rome. The feaſt being moveable, the day whereon it was to be obſerved was proclaimed every year. It was ordinarily held on the 4th of the nones of February, *i. e.* on the ſecond of that month. Macrobius obſerves, that they were held not only in honour of the *lares*, but alſo of *mania*, madneſs. The prieſts who officiated at them were ſlaves and liberti, and the ſacrifice a ſow. They were re-eſtabliſhed, after a long neglect, by Tarquin the Proud, on occaſion of an anſwer of the oracle, *that they ſhould ſacrifice heads for heads*; i. e. that for the health and proſperity of each family, children were to be ſacrificed: but Brutus, after expelling the kings, in lieu of thoſe barbarous victims ſubſtituted the heads of garlic and poppy; thus ſatisfying the oracle which had enjoined *capita*, heads. During the celebration of this feaſt, each family placed at the door of their houſe the ſtatue of the goddeſs *Mania*; they alſo hung up at their doors figures of wool, repreſenting men and women; accompanying them with ſupplications that the lares and mania would be contented with thoſe figures, and ſpare the people of the houſe.

COMPLEMENT, in geometry, is what remains of the quadrant of a circle, or 90°, after any certain arch has been taken away from it. Thus, if the arch taken away be 40°, its complement is 50; becauſe $50\times40=90$. The ſine of the complement of an arch is called the *co-ſine*, and that of the tangent the *co-tangent*, *&c.*

COMPLETUS flos, in botany. A flower is ſaid to be complete, which is provided with both the covers, *viz.* the calyx or flower-cup, and the petals. The term was invented by Vaillant, and is ſynonymous to *calyculatus flos* in Linnæus. Berkenhout erroneouſly confounds it with the *auctus* and *calyculatus calyx* of the ſame author.

COMPLEX, in a more general ſenſe, a term ſynonymous with compound; though in ſtrictneſs of ſpeech there is ſome difference.

Complex is properly applied where a thing contains divers others, or conſiſts of divers parts not really diſtinct from each other, but only imaginarily, or in our conceptions. In this ſenſe the ſoul may be ſaid to be complex, in reſpect to the underſtanding and will, which are two things that our reaſon alone diſtinguiſhes in it.

Complex Term or *Idea*, is a term compounded of ſeveral ſimple or incomplex ones. Thus in the propoſition, *A juſt God cannot leave crimes unpuniſhed;* the ſubject of this propoſition, viz. *a juſt God,* is a complex term, or ſtands for a complex idea compoſed of two ſimple or in complex ones, viz. *God and juſt.*

COMPLEXION, among phyſicians, the temperament, habitude, and natural diſpoſition, of the body; but more often the colour of the face and ſkin.

Few queſtions in philoſophy have engaged the attention of naturaliſts more than the diverſities among the human ſpecies, among which that of colour is the moſt remarkable. The great differences in this reſpect have given occaſion to ſeveral authors to aſſert, that the whole human race have not ſprung from one original; but that as many different ſpecies of men were at firſt created, as there are now different colours to be found among them. Under the article America, n°81 —100. we have ſhown that all the arguments which can be brought for ſpecific differences among mankind, whether drawn from a difference of colour, ſtature, or diſpoſition, muſt neceſſarily be inconcluſive. It remains, however, a matter of no ſmall difficulty to account for the remarkable variations of colour that are to be found among different nations. On this ſubject Dr Hunter hath publiſhed a theſis, in which he conſiders the matter more accurately than hath commonly been done, and determines abſolutely againſt any ſpecific difference among mankind. He introduces his ſubject by obſerving, that when the queſtion has been agitated, whether all the human race conſtitute only one ſpecies or not, much confuſion has ariſen from the ſenſe in which the term *ſpecies* has been adopted. He therefore thinks it neceſſary to ſet out with a definition of the term. He includes under the ſame ſpecies all thoſe animals which produce iſſue capable of propagating others reſembling the original ſtock from whence they ſprung. This definition he illuſtrates by having recourſe to the human ſpecies as an example. And in this ſenſe of the term he concludes, that all of them are to be conſidered as belonging to the ſame ſpecies. And as, in the caſe of plants, one ſpecies comprehends ſeveral varieties depending upon climate, ſoil, culture, and ſimilar accidents; ſo he conſiders the diverſities of the human race to be merely varieties of the ſame ſpecies, produced by natural cauſes. Of the different colours obſervable among mankind, he gives the following view:

Black.	Africans under the line. Inhabitants of New Guinea. Inhabitants of New Holland.
Swarthy.	The Moors in the northern parts of Africa. The Hottentots in the ſouthern parts of it.
Copper-coloured.	The Eaſt Indians.
Red-coloured.	The Americans.
Brown-coloured.	Tartars. Perſians. Arabs. Africans on the coaſt of the Mediterranean. Chineſe.
Brownish.	The inhabitants of the ſouther parts of Europe; as Sicilians, Abyſſinians, Spaniards, Turks, and likewiſe the Samoiedes and Laplanders.
White.	Moſt of the European nations; as Swedes, Danes, Engliſh, Germans, Poles, *&c.* Kabardinſki, Georgians, Inhabitants of the iſlands in the Pacific Ocean.

In attempting to inveſtigate the cauſes of theſe differences, our author obſerves, that there can be no diſpute of the ſeat of colour being placed in the ſkin; that it is not even extended over the whole of this, but confined to that part named the cuticle, conſiſting of the epidermis and reticulum; and that it chiefly occupies the latter of theſe. The cuticle is much thicker and harder in black people than in white ones; the reticulum in the latter being a thin mucus, in the former a thick membrane. He concludes that this ſeat of colour in whites is tranſparent, and either totally deprived of veſſels, or only furniſhed with very few; as the yellow colour appearing in jaundice vaniſhes on the cauſe of the diſeaſe being removed; which is not the caſe with ſtains in the cuticle from gunpowder, or ſimilar cauſes. He next points out three cauſes deſtroying the pellucidity of the cuticle, giving it a brown colour, and rendering it thicker. Theſe are, acceſs of air, naſtineſs, and the heat of the ſun. The influence of each of theſe he proves by many examples; and from theſe he is inclined to conſider the laſt as by much the moſt powerful. If, however, it be admitted that theſe cauſes have this effect, he thinks that all the diverſity of colour which is to be obſerved among mankind, may be thus accounted for. He remarks, that all the inhabitants of the torrid zone incline more or leſs to a black colour. When we obſerve the differences which occur amongſt them, we muſt at the ſame time remember, that a black colour is not referred to heat alone, but to the other cauſes alſo: and when we attend to the diverſity of temperature that occurs even in the torrid zone, the exiſtence of a white nation there would by no means deſtroy the argument. He is farther of opinion, that the exiſtence of a brown colour, and of conſiderable varieties from white, in the northern and coldeſt parts of Europe, may very eaſily be explained. This he accounts for from the manner of life of the inhabitants, by which they are either expoſed to the inclemency of the air, or to conſtant naſtineſs from ſmoky houſes.

Having thus attempted to account, from natural cauſes, for the varieties which occur among mankind with reſpect to colour, our author obſerves, that, to all this reaſoning, an objection will naturally be made, from conſidering that infants bring theſe marks into the world along with them, before they can be expoſed to any ſuch cauſes. Dr Hunter imagines, however, that this may readily be explained upon the ſuppoſition that many peculiarities acquired by parents are tranſmitted to their poſterity; and of this, he thinks, no one can entertain the leaſt doubt who attends to hereditary diſeaſes. Thus, gout, ſcrophula, mania, and many other affections, although at firſt induced by particular accidents, will continue to affect families for many generations. In the ſame manner, a parent expoſed to cauſes deſtroying the natural whiteneſs of his complexion, will beget ſwarthy children; and the ſame cauſes continuing to operate upon the ſon, the blackneſs will be increaſed. Thus all the different ſhades may have been at firſt induced, and afterwards continued.

The objection here obviated, however, might have been ſhortly anſwered by denying the fact; for it is now generally known, that the children of the blackeſt negroes are abſolutely *born white*, as will be afterwards noticed.

This ſubject of complexion has been very well illuſtrated by Mr Clarkſon, in a diſſertation introduced in his Eſſay on the commerce and ſlavery of the human ſpecies. The firſt point that occurs to be aſcertained, is, 'What part of the ſkin is the ſeat of colour?' The old anatomiſts uſually divided the ſkin into two parts or laminæ; the exterior or thinneſt, called by the Greeks *epidermis*, by the Romans *cuticula*, and hence by us *cuticle*; and the interior, called by the former *derma*, and by the latter *cutis*, or *true ſkin*. Hence they muſt neceſſarily have ſuppoſed, that, as the true ſkin was in every reſpect the ſame in all human ſubjects, however, various their external hue, ſo the ſeat of colour muſt have exiſted in the cuticle or upper ſurface.

Malpighi, an eminent Italian phyſician of the laſt century, was the firſt perſon who diſcovered that the ſkin was divided into three laminæ or parts; the cuticle, the true ſkin, and a certain coagulated ſubſtance ſituated between both, which he diſtinguiſhed by the title of *rete mucoſum*: which coagulated ſubſtance adhered ſo firmly to the cuticle, as, in all former anatomical preparations, to have come off with it; and, from this circumſtance, to have led the ancient anatomiſts to believe, that there were but two laminæ, or diviſible portions in the human ſkin. See ANATOMY, n° 74—76.

This diſcovery was ſufficient to aſcertain the point in queſtion: for it appeared afterwards that the cuticle, when divided according to this diſcovery from the other lamina, was ſemitranſparent; that the cuticle of the blackeſt negro was of the ſame tranſparency and colour as that of the pureſt white; and hence the true ſkins of both being invariably the ſame, that the rete mucoſum was the ſeat of colour.

This has been farther confirmed by all ſubſequent anatomical experiments; by which it appears, that, whatever is the colour of this intermediate coagulated ſubſtance, nearly the ſame is the apparent colour of the upper ſurface of the ſkin. Neither can it be otherwiſe; for the cuticle, from its tranſparency, muſt neceſſarily tranſmit the colour of the ſubſtance beneath it, in the ſame manner, though not in the ſame degree, as the cornea tranſmits the colour of the iris of the eye. This tranſparency is a matter of ocular demonſtration in white people. It is conſpicuous in every bluſh; for no one can imagine that the cuticle becomes red as often as this happens: nor is it leſs diſcoverable in the veins, which are ſo eaſy to be diſcerned; for no one can ſuppoſe that the blue ſtreaks, which he conſtantly ſees in the faireſt complexions, are painted, as it were, on the ſurface of the upper ſkin. From theſe, and a variety of other obſervations, no maxim is more true in phyſiology, than that on the rete mucoſum depends the colour of the human body; or, in other words, that the rete mucoſum being of a different colour in different inhabitants of the globe, and appearing through the cuticle or upper ſurface of the ſkin, gives them that various appearance which ſtrikes us ſo forcibly in contemplating the human race.

As this can be incontrovertibly aſcertained, it is evident, that whatever cauſes co-operate in producing this different appearance, they produce it by acting upon the rete mucoſum; which, from the almoſt incredible manner in which the cuticle is perforated, is as acceſſible as the cuticle itſelf. Theſe cauſes are probably thoſe various qualities of things, which, combined with the influence of the ſun, contribute to form what we call *climate*. For when any perſon conſiders, that the mucous ſubſtance before mentioned is found to vary in its colour, as the climates vary from the equator to the poles, his mind muſt be inſtantly ſtruck with the hypotheſis, and he muſt adopt it, without any heſitation, as the genuine cauſe of the phenomenon.

This fact, of the variation of the mucous ſubſtance, according to the ſituation of the place, has been clearly aſcertained in the numerous anatomical experiments that have been made; in which ſubjects of all nations have come under conſideration. The natives of many of the kingdoms and iſles of Aſia are found to have their rete mucoſum black; thoſe of Africa, ſituated near the line, of the ſame colour; thoſe of the maritime parts of the ſame continent, of a duſky brown, nearly approaching to it; and the colour becomes lighter or darker in proportion as the diſtance from the equator is either greater or leſs. The Europeans are the faireſt inhabitants of the world. Thoſe ſituated in the moſt ſouthern regions of Europe, have in their rete mucoſum a tinge of the dark hue of their African neighbours: hence the epidemic complexion, prevalent among them, is nearly of the colour of the pickled Spaniſh olive; while in this country, and thoſe ſituated nearer the north pole, it appears to be nearly, if not abſolutely, white.

Theſe are facts which anatomy has eſtabliſhed; and we acknowledge them to be ſuch, that we cannot diveſt ourſelves of the idea, that climate has a conſiderable ſhare in producing a difference of colour.

The only objection of any conſequence that has ever been made to the hypotheſis of climate, is this, that people under the ſame parallels are not exactly of the ſame colour. But this is no objection in fact; for it does not follow that thoſe countries which are at an equal diſtance from the equator, ſhould have their climates the ſame. Indeed nothing is more contrary to experience than this. Climate depends upon a variety of accidents. High mountains in the neighbourhood of a place make it cooler, by chilling the air that is carried over them by the winds. Large ſpreading ſucculent plants, if among the productions of the ſoil, have the ſame effect; they afford agreeable cooling ſhades, and a moiſt atmoſphere from their continual exhalations, by which the ardour of the ſun is conſiderably abated. While the ſoil, on the other hand, if of a ſandy nature, retains the heat in an uncommon degree, and makes the ſummers conſiderably hotter than thoſe which are found to exiſt in the ſame latitude where the ſoil is different. To this proximity of what may be termed *burning ſands*, and to the ſulphureous and metallic particles which are continually exhaling from the bowels of the earth, is aſcribed the different degree of blackneſs by which ſome African nations are diſtinguiſhable from each other, though under the ſame parrallels. To theſe obſervations we may add, that though the inhabitants of the ſame parallel are not exactly of the ſame hue, yet they differ only by ſhades of the ſame colour; or, to ſpeak with more preciſion, that there are no two people, in ſuch a ſituation, one of whom is white and the other black. To ſum up the whole——Suppoſe we were to take a common globe; to begin at the equator; to paint every country along the meridian line in ſucceſſion from thence to the poles; and to paint them with the ſame colour which prevails in the reſpective inhabitants of each, we ſhould ſee the black, with which we had been obliged to begin, inſenſibly changing to an olive, and the olive, through as many intermediate colours, to a white: and if, on the other hand, we ſhould complete any one of the parallels according to the ſame plan, we ſhould ſee a difference perhaps in the appearance of ſome of the countries through which it ran, though the difference would conſiſt wholly in ſhades of the ſame colour.

The argument, therefore, which is brought againſt the hypotheſis, is ſo far from being an objection, that it may be conſidered as one of the firſt arguments in its favour: for if climate has really an influence on the mucous ſubſtance of the body, it is evident, that we muſt not only expect to ſee a gradation of colour in the inhabitants from the equator to the poles, but alſo different ſhades of the ſame colour in the inhabitants of the ſame parallel.

To this argument may be added one that is uncontrovertible, which is, that when the black inhabitants of Africa are tranſplanted to colder, or the white inhabitants of Europe to hotter climates, their children, born there, are of a different colour from themſelves; that is, lighter in the firſt, and darker in the ſecond inſtance.

As a proof of the firſt, we ſhall give the words of the Abbé Raynal, in his admired publication. "The children," ſays he, "which they (the Africans) procreate in America, are not ſo black as their parents were. After each generation the difference becomes more palpable. It is poſſible, that after a numerous ſucceſſion of generations, the men come from Africa would not be diſtinguiſhed from thoſe of the country into which they may have been tranſplanted."

This circumſtance we have had the pleaſure of hearing confirmed by a variety of perſons who have been witneſſes of the fact; but particularly by many intelligent Africans who have been parents themſelves in America, and who have declared, that the difference is ſo palpable in the northern provinces, that not only they themſelves have conſtantly obſerved it, but that they have heard it obſerved by others.

Neither is this variation in the children from the colour of their parents improbable. The children of the blackeſt Africans are born white. In this ſtate they continue for about a month, when they change to a pale yellow. In proceſs of time they become brown. Their ſkin ſtill continues to increaſe in darkneſs with their age, till it becomes of a dirty ſallow black; and at length, after a certain period of years, gloſſy and ſhining. Now, if climate has any influence on the mucous ſubſtance of the body, this variation in the children from the colour of their parents is an event which muſt be reaſonably expected: for being born white, and not having equally powerful cauſes to act upon them in colder, as their parents had in the hotter climates which they left, it muſt neceſſarily follow, that the ſame effect cannot poſſibly be produced.

Hence alſo, if the hypotheſis be admitted, may be deduced the reaſon why even thoſe children who have been brought from their country at an early age into colder regions, have been obſerved to be of a lighter colour than thoſe who have remained at home till they arrived at a ſtate of manhood. For having undergone ſome of the changes which we mentioned to have attended their countrymen from infancy to a certain age, and having been taken away before the reſt could be completed, theſe farther changes, which would have taken place had they remained at home ſeem either to have been checked in their progreſs, or weakened in their degree, by a colder climate.

We come now to the ſecond and oppoſite caſe; for a proof of which we ſhall appeal to the words of Dr Mitchell in the Philoſophical Tranſactions, n° 476. ſect. 4. "The Spaniards who have inhabited America under the torrid zone for any time are become as dark coloured as our native Indians of Virginia, of which I myſelf have been a witneſs; and were they not to intermarry with the Europeans, but lead the ſame rude and barbarous lives with the Indians, it is very probable, that, in a ſucceſſion of many generations, they would become as dark in complexion."

To this inſtance we ſhall add one, which is mentioned by a late writer, who, deſcribing the African coaſt and the European ſettlements there, has the following paſſage. "There are ſeveral other ſmall Portugueſe ſettlements, and one of ſome note at Mitomba, a river in Sierra Leon. The people here called *Portugueſe*, are principally perſons bred from a mixture of the firſt Portugueſe diſcoverers with the natives, and now become, in their complexion and woolly quality, of their hair, perfect negroes, retaining, however, a ſmattering of the Portugueſe language."

Theſe facts with reſpect to the coloniſts of the Europeans are of the higheſt importance in the preſent caſe, and deſerve a ſerious attention. For when we know to a certainty from whom they are deſcended; when we know that they were, at the time of their tranſplantation, of the ſame colour as thoſe from whom they ſeverally ſprung; and when, on the other hand, we are credibly informed that they have changed it for the native colour of the place which they now inhabit;

the evidence in ſupport of theſe facts is as great as if a perſon, on the removal of two or three families into another climate, had determined to aſcertain the circumſtance; as if he had gone with them and watched their children; as if he had communicated his obſervations at his death to a ſucceſſor; as if his ſucceſſor had proſecuted the plan: and thus an uninterrupted chain of evidence had been kept up from their firſt removal to any determined period of ſucceeding time.

But though theſe facts ſeem ſufficient of themſelves to confirm our opinion, they are not the only facts which can be adduced in its ſupport. It can be ſhown, that the members of the very ſame family, when divided from each other, and removed into different countries, have not only changed their family complexion, but that they have changed it to as many different colours as they have gone into different regions of the world. We cannot have, perhaps, a more ſtriking inſtance of this than in the Jews. Theſe people are ſcattered over the face of the whole earth. They have preſerved themſelves diſtinct from the reſt of the world by their religion; and as they never intermarry with any but thoſe of their own ſect, ſo they have no mixture of blood in their veins that they ſhould differ from each other: and yet nothing is more true, than that the Engliſh Jew is white, the Portugueſe ſwarthy, the Armenian olive, and the Arabian copper; in ſhort that there appear to be as many different ſpecies of Jews as there are countries in which they reſide.

To theſe facts we ſhall add the following obſervation, that if we can give credit to the ancient hiſtorians in general, a change from the darkeſt black to the pureſt white muſt have actually been accompliſhed. One inſtance, perhaps, may be thought ſufficient. Herodotus relates, that the Colchi were black, and that they had criſped hair. Theſe people were a detachment of the Æthiopian army under Seſoſtris, who followed him in his expedition, and ſettled in that part of the world where Colchis is uſually repreſented to have been ſituated. Had not the ſame author informed us of this circumſtance, we ſhould have thought it ſtrange that a people of this deſcription ſhould have been found in ſuch a latitude. Now as they were undoubtedly ſettled there, and as they were neither ſo totally deſtroyed, nor made any ſuch rapid conqueſts, as that hiſtory ſhould notice the event, there is great reaſon to preſume that their deſcendants continued in the ſame, or ſettled in the adjacent, country; from whence it will follow, that they muſt have changed their complexion to that which is obſerved in the inhabitants of this particular region at the preſent day; or, in other words, that the black inhabitants of Colchis muſt have been changed into the fair Circaſſians. Suppoſe, without the knowledge of any hiſtorian, they had made ſuch conſiderable conqueſts as to have ſettled themſelves at the diſtance of 1000 miles in any one direction from Colchis, ſtill they muſt have changed their colour: For had they gone in an eaſtern or weſtern direction, they muſt have been of the ſame colour as the Circaſſians; if to the north, whiter; if to the ſouth, of a copper. There are no people within that diſtance of Colchis who are black.

From the whole of the preceding obſervations on the ſubject, we may conclude, that as all the inhabitants of the earth cannot be otherwiſe than the children of the ſame parents, and as the difference of their appearance muſt have of courſe proceeded from incidental cauſes, the cauſes are a combination of thoſe qualities which we call *climate:* that the blackneſs of the Africans is ſo far engrafted in their conſtitution, in a courſe of many generations, that their children wholly inherit it if brought up in the ſame ſpot; but that it is not ſo wholly interwoven in their nature, that it cannot be removed if they are born and ſettled in another.

The ſame principles with the above we find adopted and further illuſtrated by Profeſſor Zimmerman of Brunſwick, in his celebrated work *The Geographical Hiſtory of Man*, &c. He there proves in the moſt ſatisfactory manner, That the complexion of the human ſpecies is uniformly correſpondent with the degree of heat or cold to which they are habitually expoſed. In maintaining this poſition, he makes a very proper diſtinction with regard to climate. By *climates* we are to underſtand, not ſimply or ſolely thoſe diſtinguiſhed by the geographical diviſions of the globe, to the excluſion of what he terms *phyſical* climate, or that which depends on the changes produced in any given latitude by ſuch adventitious circumſtances as the lower or more elevated ſituations of a country, its being encompaſſed by water or large tracts of land, overſpread or ſurrounded with foreſts, placed in an extenſive plain, or environed by lofty mountains. Peculiarities of the like kind, as has been already noticed, frequently prevent the *phyſical* climate from correſponding entirely with the *geographical*, as a country influenced by them is often much warmer or colder than other regions placed under the ſame degree of latitude. The influence of theſe ſecondary or modifying circumſtances has been already adverted to, and need not be further enlarged upon: we ſhall here only obſerve, that the erroneous reaſoning of Lord Kames on this ſubject ſeems to have been owing to his inattention to the difference above mentioned. At Senegal, and in the adjacent lands, the thermometer is often at 112 or 117 degrees in the ſhade; and here we find the inhabitants jet black, with woolly hair. The heat is equally great in Congo and Loango, and theſe countries are inhabited by negroes only; whereas in Morocco, to the north of theſe regions, and at the Cape of Good Hope, to the ſouth, the heat is not ſo intenſe, nor are the inhabitants of ſo deep a hue. Lord Kames aſks, Wherefore are not the Abyſſinians and the inhabitants of Zaara of as dark a complexion as the Moors on the coaſt of Guinea? M. Zimmerman anſwers, that "theſe countries are much cooler. The deſert is not only farther from the equator, but the winds blowing over the Atlas mountains, which like the Alps are covered with ſnow, and the weſterly wind coming from the ſea, muſt conſiderably mitigate the heat. Nor is Abyſſinia ſo warm as either Monomotopa or Guinea. The north-eaſt winds from the ſide of Perſia and Arabia are cooled by their paſſage over the Red Sea: the northern winds from Egypt loſe much of their heat on the chain of mountains that is extended between the countries: the winds from the ſouth and the weſt are ſea-winds. Thus the only quarter from which they can derive exceſſive heat is from the weſt, as the air on this ſide muſt paſs over tracts of heated lands." For a ſimilar reaſon it is that negroes are not found either in Aſia or South America

merica under the equator. The ſituations of theſe countries, our author obſerves, expoſe them to ſea-breezes and cooling winds from the continent. He confirms this hypotheſis by obſerving, that the mountaineers of warm climates, as in Barbary and Ceylon, are much fairer than the inhabitants of the valleys: that the Saracens and Moors, who conquered the north-eaſt part of Africa in 1700, from being brown, are become like the negroes near the equator: that the Portugueſe, who ſettled at Senegal in 1400, became blacks; and Tudela the Jew aſſerts, that his countrymen in Abyſſinia acquired the dark complexion of the original natives.

Upon the whole: Colour and figure may be ſtyled habits of the body. Like other habits, they are created, not by great and ſudden impreſſions, but by continual and almoſt imperceptible touches. Of habits both of mind and body, nations are ſuſceptible as well as individuals. They are tranſmitted to offspring, and augmented by inheritance. Long in growing to maturity, national features, like national manners, become fixed only after a ſucceſſion of ages. They become, however, fixed at laſt; and if we can aſcertain any effect produced by a given ſtate of weather or of climate, it requires only repetition during a ſufficient length of time to augment and impreſs it with a permanent character. The ſanguine countenance will, for this reaſon, be perpetual in the higheſt latitudes of the temperate zone; and we ſhall for ever find the ſwarthy, the olive, the tawny, and the black, as we deſcend to the ſouth.

The uniformity of the effect in the ſame climate, and on men in a ſimilar ſtate of ſociety, proves the power and certainty of the cauſe. If the advocates of different human ſpecies ſuppoſe that the beneficent Deity hath created the inhabitants of the earth of different colours, becauſe theſe colours are beſt adapted to their reſpective zones; it ſurely places his benevolence in a more advantageous light to ſay, he has given to human nature the power of accommodating itſelf to every zone. This pliancy of nature is favourable to the unions of the moſt diſtant nations, and facilitates the acquiſition and the extenſion of ſcience, which would otherwiſe be confined to few objects and to a very limited range. It opens the way particularly to the knowledge of the globe which we inhabit; a ſubject ſo important and intereſting to man. It is verified by experience. Mankind are for ever changing their habitations by conqueſts or by commerce; and we find them in all climates, not only able to endure the change, but ſo aſſimilated by time, that we cannot ſay with certainty whoſe anceſtor was the native of the clime, and whoſe the intruding foreigner.

All the foregoing obſervations have been well recapitulated, illuſtrated by new facts, and enforced by additional reaſoning founded on experience, by the Reverend Dr S. S. Smith, profeſſor of moral philoſophy in the college of New Jerſey, in his *Eſſay on the Cauſes of the Variety of Complexion and Figure in the Human Species;* to which the reader who wiſhes for further ſatiſfaction on the ſubject is referred.

COMPLEXUS; and *Complexus Minor,* or *Trahelo-maſtoidæus:* two muſcles in the poſterior part of the trunk. See ANATOMY, *Table of the Muſcles.*

COMPLICATION, in general, denotes the blending, or rather interweaving, of ſeveral different things together: thus, a perſon afflicted with ſeveral diſorders at the ſame time, is ſaid to labour under a complication of diſorders.

COMPLINE, the laſt diviſion of the Romiſh breviary. It was inſtituted to implore God's protection during the night, as the *prime* is for the day. It is recited after ſun-ſet; and is ſo called, becauſe it completes the office for the 24 hours.

COMPLUTENSIAN BIBLE. See BIBLE *(Greek).*

COMPONE, or COMPONED, or *Gobony,* in heraldry. A bordure compone is that formed or compoſed of a row of angular parts, or chequers of two colours.

COMPONED, or COMPOSED, is alſo uſed in general for a bordure, a pale, or a feſs, compoſed of two different colours or metals diſpoſed alternately, ſeparated and divided by fillets, excepting at the corners; where the junctures are made in the form of a goat's foot.

COMPOSITE, in general, denotes ſomething compounded, or made up of ſeveral others united together: thus,

Composite Numbers, are ſuch as can be meaſured exactly by a number exceeding unity; as 6 by 2 or 3, or 10 by 5, &c. ſo that 4 is the loweſt compoſite number. Compoſite numbers between themſelves, are thoſe which have ſome common meaſure beſides unity; as 12 and 15, as being both meaſured by 3.

Composite Order, in architecture, the laſt of the five orders of columns; ſo called becauſe its capital is compoſed out of thoſe of the other columns, borrowing a quarter-round from the Tuſcan and Doric, a row of leaves from the Corinthian, and volutes from the Ionic. Its corniche has ſimple modillions or dentils. It is alſo called the *Roman* or *Italic* order, as having been invented by the Romans. By moſt authors it is ranked after the Corinthian, either as being the next richeſt, or the laſt invented. See ARCHITECTURE, n° 48.

COMPOSITION, in a general ſenſe, the uniting or putting together ſeveral things, ſo as to form one whole, called a *compound.*

Composition of Ideas, an act of the mind, whereby it unites ſeveral ſimple ideas into one conception or complex idea.

When we are provided with a ſufficient ſtock of ſimple ideas, and have by habit and uſe rendered them familiar to our minds, they become the component parts of other ideas ſtill more complicated, and form what we may call a ſecond order of compound notions. This proceſs may be continued to any degree of compoſition we pleaſe, mounting from one ſtage to another, and enlarging the number of combinations.

COMPOSITION, in grammar the joining of two words together; or prefixing a particle to another word, to augment, diminiſh, or change its ſignification.

COMPOSITION in logic, a method of reaſoning, whereby we proceed from ſome general ſelf-evident truth to other particular and ſingular ones.

In diſpoſing and putting together our thoughts, there are two ways of proceeding equally within our choice: for we may ſo ſuppoſe the truths, relating to any part of knowledge, as they preſented themſelves to the mind in the manner of inveſtigation; carrying on the ſeries of proofs in a reverſe order, till they at laſt terminate in firſt principles: or beginning with theſe principles, we may take the contrary way; and from them deduce, by a direct train of reaſoning, all the ſeveral propoſitions we want to eſtabliſh.

This diverſity in the manner of arranging our thoughts gives riſe to the twofold diviſion of method eſtabliſhed among logicians; the one called *analytic* method, or the method of *reſolution*, inaſmuch as it traces things back to their ſource, and reſolves knowledge into its firſt and original principles. This method ſtands in contradiſtinction to the method of compoſition; or, as it is otherwiſe called, the *ſynthetic* method: for here we proceed by gathering together the ſeveral ſcattered parts of knowledge, and combining them into one ſyſtem, in ſuch a manner as that the underſtanding is enabled diſtinctly to follow truth through all the different ſtages of gradation.

COMPOSITION, in muſic, is the art of inventing and writing airs; of accompanying them with a ſuitable harmony; in ſhort, of forming a complete piece of muſic in all its parts.

The knowledge of melody, harmony, and its rules, is the foundation of compoſition. Without doubt, it is neceſſary to know in what manner chords ſhould be filled, how to prepare and reſolve diſſonances, how to find the fundamental baſs, and how to put in practice all the other minutiæ of elementary knowledge; but with the mechanical rules of harmony alone, one is by no means better qualified to underſtand the art, and operate in the practice of compoſition, than to form himſelf for eloquence upon all the rhetorical precepts exhibited in grammar. We need not ſay, that beſides this, it is neceſſary to underſtand the genius and compaſs of voices and inſtruments; to judge what airs may be of eaſy, and what of difficult execution; to obſerve what will, and what will not, be productive of any effect; to feel the character of different movements, as well as that of different modulations, that both may be always ſuitably applied; to know the different rules eſtabliſhed by convention, by taſte, by caprice, or by pedantry, as fugues, imitations, or in pieces where the ſubject is confined to uniform laws in its harmony, melody, rhithmus, &c. All theſe acquiſitions are ſtill no more than preparatives for compoſition: but the compoſer muſt find in his own genius the ſources of beautiful melody, of ſublime harmony, the pictureſque, and the expreſſive in muſic; he muſt, in ſhort, be capable of perceiving, and of forming, the order of the whole piece; to follow the relations and aptitudes of which it is ſuſceptible in every kind; to inflame his ſoul with the ſpirit and enthuſiaſm of the poet, rather than childiſhly amuſe himſelf with punning in harmony, or adapting the muſic to each particular word. It is with reaſon that our muſicians have given the name of *words* to the poems which they ſet to muſic. It appears evident from their manner of expreſſing them, that, in their apprehenſion, they ſeemed words, and words alone. One would be tempted to imagine, particularly during ſome of theſe laſt years, that the rules for the formation and ſucceſſion of chords have cauſed all the reſt to be neglected or forgot; and that harmony has made no acquiſitions but at the expence of what is general and eſſential in the muſical art. All our artiſts know how to fill a chord with its conſtituent ſounds, or a piece of harmony with its conſtituent parts; but not a ſoul amongſt them feels a ray of compoſition. As to what remains, though the fundamental rules of counterpoint, or muſic in parts, continue ſtill the ſame, they are more or leſs rigorous and inflexible in proportion as the parts increaſe in number; for according as the parts are multiplied, the difficulty of compoſition is heightened, and the rules are leſs ſevere.—Compoſitions in two parts are called *duettos* when the two performers ſing equally; that is to ſay, when the ſubject is no further extended, but divided between them: but if the ſubject is in one part alone, and the ſubordinate harmony no more than an accompanyment, the firſt part is then either called a *recitative* or a *ſolo;* and the other an *accompanyment*, or *continued baſs*, if it is a baſs. It is the ſame caſe with the *trio*, with compoſitions in three, in four, or in five parts.

The name of *compoſition* is likewiſe given to ſuch pieces of muſic themſelves as are formed according to the rules of the art. For this reaſon the *duetts*, *trios*, *quartettos*, which have juſt been mentioned, are called *compoſitions*.

Compoſitions are either formed for the voice alone, or for inſtruments, or for voices and inſtruments joined. Full choruſes and ſongs are the only compoſitions principally intended for the voice, though ſometimes inſtruments are joined with it to ſupport it. Compoſitions for inſtruments are intended to be executed by a band in the orcheſtra, and then they are called *ſymphonies*, *concertos;* or for ſome particular ſpecies of inſtruments, and then they are called *pieces* or *ſonatas*.

Such compoſitions as are deſtined both for voices and inſtruments, have been generally divided into two capital ſpecies, *viz.* the *ſacred* and the *ſecular*. The compoſitions deſtined for the church, whether pſalms, hymns, anthems, or reſponſives, are in general diſtinguiſhed by the name of *church-muſic*, and characterized by their intention to be ſung with words. Secular muſic in general may likewiſe be divided into two kinds; *theatrical* and *chamber* muſic. Of the firſt kind is that uſed in the operas; the ſubdiviſions of the ſecond are endleſs. Solos, concertos, cantatas, ſongs, and airs, almoſt of every kind, which are not adapted to the church or the ſtage, may be included in the idea of *chamber-muſic*.

In general, it is thought, that ſacred muſic requires deeper ſcience, and a more accurate obſervation of rules; the ſecular ſpecies gives more indulgence to genius, and ſubſiſts in greater variety.

But we muſt here obſerve, that the eccleſiaſtical muſic now uſed, or rather profaned and murdered, amongſt us, though regular in its harmony, is ſimple in its compoſition, and demands not that profound knowledge in the art, either to form or comprehend it, which Rouſſeau, whom till now we have followed in this article, ſeems to imagine. His aſſertion can only be applicable to the church-muſic of Italy. That which is now eſtabliſhed amongſt us ſeems not to be indigenous, but transferred with the Calviniſtical liturgy from Geneva; and as it is intended for popular uſe, it can by no means be eſteemed an high exertion of the muſical art: yet, however ſimple, it is pleaſing; and, when properly performed, might elevate the ſoul to a degree of devotion, and even of rapture, which at preſent we are ſo far from feeling, that we rather ſeem to ſleep or to howl, than to ſing the praiſe of God. Perhaps the clergy may find more advantage in cultivating their farms; but they would ſurely feel a higher and diviner pleaſure in cultivating the taſtes and voices of their people. The one, however, is not incompatible with the other. An hour of relaxation in a winter evening might ſerve for the accompliſhment of this pious purpoſe; and one ſhould imagine, that, independent of religious conſiderations, the ſpirit of the order might dictate ſuch a meaſure as calculated to produce popular entertainment and gain popular affection.

In compoſition, the author either confines himſelf, as a ſubject, to the mere mechanical modulations and arrangements of ſound; and, as his end, to the pleaſure of the ear alone; or otherwiſe he ſoars a nobler height; he aſpires to imitative muſic; he endeavours to render the hearts and ſouls of his auditors ductile by his art, and thus to produce the nobleſt emotions and moſt ſalutary effects. In the firſt view, it is only neceſſary that he ſhould look for beautiful ſounds and agreeable chords; but in the ſecond, he ought to conſider muſic in its conformity with the accents of the human voice, and in the expreſſive powers of notes harmonically combined to ſignify or paint ſuch objects as are ſuſceptible of imitation. In Rouſſeau's article *Opera*, ſome ideas may be found by which the art may be ennobled and elevated, by forming muſic into a language more powerful and pathetic than eloquence itſelf. See OPERA.

COMPOSITION, in literature, the art of forming and arranging ſentiments, and cloathing them with language ſuitable to the nature of the ſubject or diſcourſe. See the articles LANGUAGE, ORATORY, POETRY, DIALOGUE, EPISTLE, and HISTORY.

COMPOSITION, in chemiſtry, is the union and combination of ſeveral ſubſtances of different natures, from which a compound body reſults. From this union of bodies of different natures, a body is formed, of a mixed nature, which Becker and Stahl have called a *mixture*, and which may be called a *combination*, or *chemical compoſition*, to avoid the equivocal ſenſe of the word *mixture*. By this laſt, we underſtand only a mere appoſition of parts; and which would therefore give a very falſe idea of chemical compoſition, in which a mutual adheſion takes place between the combined ſubſtances.

COMPOSITION, in painting, includes the invention as well as diſpoſition of the figures, the choice of attitudes, &c.

Compoſition, therefore, conſiſts of two parts; one of which finds out, by means of hiſtory, proper objects for a picture; and the other diſpoſes them to advantage. See PAINTING.

COMPOSITION, in pharmacy, the art or act of mixing divers ingredients together into a medicine ſo as they may aſſiſt each other's virtues, ſupply each other's defects, or correct any ill qualities thereof. See PHARMACY.

COMPOSITION, in commerce, a contract between an inſolvent debtor and his creditors, whereby the latter accept of a part of the debt in compoſition for the whole, and give a general acquittance accordingly.

COMPOSITION, in printing, commonly termed *compoſing*, the arranging of ſeveral types or letters in the compoſing-ſtick, in order to form a line; and of ſeveral lines ranged in order, in the galley, to make a page; and of ſeveral pages to make a form. See PRINTING.

COMPOSITÆ, in botany. The name of a claſs in Hermannus and Royen; as likewiſe of an order in Linnæus's fragments of a natural method, conſiſting in general of the plants which have the characters enumerated in the following article. A particular deſcription of this order is given under the article SYNGENESIA, which includes all the compound flowers.

COMPOSITUS FLOS, in botany, an aggregate flower compoſed of many *floſculi ſeſſiles*, on a common entire receptaculum, with a common perianthium, and whoſe antheræ being five in number unite in the form of a cylinder; the floſculi are monopetalous, and under each of them is a monoſpermous germen. Compound flowers are either *ligulati*, *tubuloſi*, or *radiati*.

COMPOST, in agriculture, denotes a certain kind of mixture deſigned to aſſiſt the ſoil in the way of vegetation, inſtead of dung. The requiſites for a compoſt are, 1. That it ought to be cheaper than the quantity of dung required for an equal extent of ſoil. 9. It ought to be leſs bulky; and, 3. It ought to produce equal effects.

Under the article AGRICULTURE, we have endeavoured to ſhow, that the true vegetable food conſiſts in reality of the putrid effluvia proceeding from decayed animal and vegetable ſubſtances. If this theory is admitted, the hope of making compoſts as a ſuccedaneum for dung is but very ſmall, unleſs they are made of putrefied animal and vegetable ſubſtances: in which caſe, unleſs in very ſingular circumſtances, they will prove much dearer than dung itſelf. Several attempts, however, have been made by thoſe who had other views concerning the nature of the true vegetable food. An oil-compoſt is recommended in the Georgical Eſſays, upon a ſuppoſition that the food of vegetables is of an oily nature. It is made as follows: "Take of North American potaſh 12 lb. Break the ſalt into ſmall pieces, and put it into a convenient veſſel with four gallons of water. Let the mixture ſtand 48 hours; then add coarſe train oil 14 gallons. In a few days the ſalt will be diſſolved, and the mixture, upon ſtirring, will become nearly uniform. Take 14 buſhels of ſand, or 20 of dry mold; upon theſe pour the above liquid ingredients. Turn this compoſition frequently over, and in ſix months it will be fit for uſe. When the liquid ingredients are put to one or two hogſheads of water, a liquid compoſt will be formed, which muſt be uſed with a water cart."

This compoſt, however, the inventor himſelf owns to be inferior to rotten dung, as indeed may very naturally be ſuppoſed: yet in ſome caſes it ſeems capable of doing ſervice, as will appear from ſome of the following experiments which we extract from the eſſays abovementioned.

Exp. I. By the author of the eſſays. "I took four pots, nº 1, 2, 3, 4. Nº 1. contained 12lb. of barren ſand, with 1 oz. of the ſand oil compoſt. Nº 2. contained 12lb. of ſand without any mixture. Nº 3. had 12lb. of ſand with half an ounce of ſlaked lime. Nº 4.

had 12lb. of ſand with 4oz. of the ſand oil compoſt. In the month of March, I put ſix grains of wheat into each pot, and during the ſummer, I occaſionally watered the plants with filtrated water. All the time the plants were conſuming the farina, I could obſerve very little difference in their appearance. But after one month's growth, I remarked that n° 1. was the beſt; n° 2. the next; n° 3. the next; and n° 4. much the worſt." The ſame differences were obſerved in Auguſt, when n° 1. the beſt, had five ſmall ears, which contained a few poor grains of wheat.

Exp. II. By the ſame. "In the month of June, I ſelected four lands of equal goodneſs in a field intended for turnips. The ſoil was a light ſand, with a tolerable quantity of vegetable earth amongſt it. It was ploughed out of ſward in November, and had not borne a crop for many years. I ſhall diſtinguiſh my experimental lands by n° 1, 2, 3, 4. N° 1. was manured with rotten dung; n° 2. with oil-compoſt; n° 3. with lime; n° 4. was left without any dreſſing. On the 20th of June they were all ſown with turnip-ſeed broad-caſt, and during the courſe of the ſeaſon were twice hoed. In November I viewed the field, and made the following remarks. N° 1. the beſt; n° 2. the next; n° 3. the worſt; n° 4. better than n° 3." Here the oil-compoſt appears in a favourable light; but other trials, made with equal accuracy, ſeem rather to prove, that it is not proper for turnips, barley, or quick growing vegetables. It requires being meliorated by the atmoſphere, and therefore is better adapted for winter crops.

Exp. III. by the ſame. "In the month of May, I planted 12 alleys that lay between my aſparagus beds with cauliflower plants. Each alley took up about 30 plants. One of the alleys I ſet apart for an experiment with the oil-compoſt, prepared according to the directions already given. About an handful of the compoſt was put to the root of each cauliflower plant. In all other reſpects the alley was managed like the reſt. The plants in general flowered very well; but thoſe to which I applied the compoſt ſprung up haſtily with ſmall ſtalks, and produced very poor flowers. I imputed this unfavourable appearance to the freſhneſs of the compoſt, which was only a few weeks old. In the September following this unſucceſsful experiment, I planted the ſame alleys with early cabbages. The neceſſity of meliorating the compoſt was in this trial fully confirmed. For the cabbages that grew upon the alley, which in May had received the compoſt, were larger and in all reſpects finer than the others."

Exp. IV. by James Stovin, Eſq; of Doncaſter. "In the year 1769, I made the following trial with the oil-compoſt, prepared as above directed. One acre ſown with barley, and manured with oil-compoſt at 18s. produced five quarters five buſhels. An acre adjoining, ſown with barley, and manured with 12 loads of rotten dung at 3l. produced four quarters three buſhels and two pecks. The compoſt-barley was bolder and better corn than the other. In the year 1770, the dunged acre produced of rye, three quarters. The compoſt acre of ditto, two quarters ſix buſhels. In the year 1771, the ſame lands were ſown with oats, and the produce was greatly in favour of the dunged acre. Theſe experimental lands were in a common field that had been long under the plough."

Exp. V. by Richard Townly, Eſq. of Belfield. "In the ſpring 1770, I prepared a piece of ground for onions. It was laid out into ſix beds of the ſame ſize, and which were all ſown at the ſame time. Over two of them, the oil compoſt was ſcattered in a very moderate quantity. Over other two, pigeon's dung; and over the remaining two, ſome of my *weed-compoſt* (formed of putrefied vegetables), which I eſteem one of the beſt manures, for moſt vegetables, that can be made. The onions came up very well in all the beds; but, in about ſix weeks, thoſe that were fed with the oil-compoſt, plainly diſcovered the advantage they had over the reſt, by their luxuriancy and colour, and at the end of the ſummer perfected the fineſt crop I had ever ſeen, being greatly ſuperior to the others both in quantity and ſize. The ſame ſpring I made an experiment upon four rows of cabbages, ſet at the diſtance of four feet every way. Two were manured with oil-compoſt, and two with my own. All the plants were unluckily damaged, juſt before they began to form, by ſome turkies getting into the field and plucking off the greateſt part of the leaves. However, they ſo far recovered, in the September following, from 22 to 28lb. a-piece. The rows proved ſo equal in goodneſs, that I could not determine which had the advantage. The ſame year, one part of a field of wheat expoſed to the north-eaſt winds, which, that ſpring, continued to blow for a month or five weeks, appeared very poor and languid at the time of tillering. Over it I ordered ſome of the oil-compoſt to be ſown with the hand; which not only recovered, but alſo puſhed forwards the wheat plants in that part of the field, ſo as to make them little inferior, if any, to the reſt. The ſame ſpring, I made a comparative experiment, upon four contiguous lands of oats, between the oil-compoſt and my own weed-compoſt. The latter had manifeſtly the advantage, though the other produced a very large and fine crop. I alſo tried the oil-compoſt upon carrots, and it anſwered exceedingly well. I did the ſame this year (1771) both upon them and my onions, and have the fineſt crops of theſe vegetables I ever ſaw any where upon the ſame compaſs of ground."

Exp. VI. by Mr J. Broadbent of Berwick, in Elmet near Leeds.——"On the firſt of October 1771, I ſowed two acres of a light channelly ſoil with wheat, and harrowed in the compoſt with the grain. Being at a conſiderable diſtance from a large town, we find it very difficult and expenſive to procure rotten dung in ſufficient quantity for our tillage lands, for which reaſon we have recourſe to land-dreſſings both for our winter and ſpring-corn. Rape-duſt and ſoot are principally uſed; but the preſent price of both theſe articles is a heavy tax upon the farmer. To obviate that inconvenience, I reſolved to make trial of the oil-compoſt; and from what I have obſerved in this one experiment, I am encouraged to make a more extenſive uſe of it the next year. Being well acquainted with the nature and efficacy of ſoot, I am ſatisfied, that the above two acres produced as good a crop of wheat as if they had been dreſſed with that excellent manure."

On the ſuppoſition that vegetables are ſupported by

Compoſt.

matters of a ſaline nature, compoſts formed of different ſorts of ſalts have been contrived, but with leſs ſucceſs than the one above treated of. A famous compoſition of this kind was lately ſold by patent, under the name of *Baron Van Haak's compoſt*. The following experiment is mentioned in the Georgical Eſſays, as made with a view to determine the virtues of it compared with the oil-compoſt and ſoot mixed with aſhes.—" In the beginning of April 1773, an acre of land was ſown with forward oats. I pitched upon one land in the middle of the piece, which I eſteemed better than any of the reſt, and upon this I ſcattered Baron Van Haak's compoſt, in the quantity directed in his inſtructions. On one ſide I manured a land with the oil-compoſt, but rather with a leſs quantity than directed; and, on the other ſide, I manured two lands with dry coal-aſhes ſifted fine, and an equal quantity of ſoot. The lands upon which this experiment was made, were much worn out with a long ſucceſſion of crops. The lands which had the benefit of the aſhes and ſoot, produced an exceeding fine crop; the oil-compoſt produced a tolerable good one; but that which had only the aſſiſtance of the baron's compoſt, produced a very poor one. It could not have been worſe had it been left deſtitute of every aſſiſtance."

Compoſts, made with putrefied animal ſubſtances, will no doubt anſwer much better, in moſt caſes, than any other kind of manure, but they are difficult to be procured. The following is recommended by Dr Hunter of York.—" Take a ſufficient quantity of ſawduſt, incorporate it with the blood and offal of a ſlaughter-houſe, putting a layer of one and a layer of the other till the whole becomes a moiſt and fetid compoſition. Two loads of this compoſt, mixed with three loads of earth, will be ſufficient for an acre of wheat or ſpring-corn. Being a kind of top-dreſſing, it ſhould be put on at the time of ſowing, and harrowed in with the grain. The preſent year I have a field of wheat manured in this manner, and have the pleaſure to ſay, that it is extremely clean, and has all the appearance of turning out an excellent crop. As this kind of compoſt lies in a ſmall compaſs, it ſeems well adapted for the uſe of ſuch farmers as are obliged to bring their manures from a diſtance. It is beſides extremely rich, and will probably continue in the land much longer than fold-yard or ſtable-dung. I apprehend that it is capable of reſtoring worn out land to its original freſhneſs; and I am induced to be of that opinion, from the appearance of the above crop, which is now growing upon land much impoveriſhed by bad management."

Another compoſt, prepared from whales fleſh, is recommended by Mr Charles Chaloner.—" I have a particular pleaſure (ſays he) in deſcribing and making public the beſt method of forming a compoſt from whales fleſh, as recommended to me by Dr Hunter. Having marked out the length and breadth of your intended dung hill, make the firſt layer of earth about a foot in thickneſs. Moor-earth, or ſuch as is taken from ant-hills, is the beſt for this purpoſe. Over the earth lay one layer of long litter, from the fold-yard or ſtable, about 12 inches in thickneſs, then a layer of whale-fleſh, and over that another layer of dung. Repeat the operations till the heap be raiſed about ſix feet, then give it a thick covering of earth, and coat the heap with ſods. In this manner each layer of fleſh will be placed between two layers of dung. In about a month turn the whole in the uſual manner, which will occaſion a ſtrong degree of heat and fermentation. When turned, coat with earth as before, with a view to confine the putrid ſteam which would otherwiſe eſcape. In a month or two the heap will be found to be conſiderably fallen, when it ſhould have a ſecond turning as before. The operation of turning muſt be repeated at proper intervals, till the whole becomes an uniformly putrid maſs. The whale-fleſh is of different degrees of firmneſs, ſome of it being almoſt liquid; and, in proportion to its firmneſs, the heap will become ſooner or later fit for uſe. In general, the compoſt ſhould not be uſed till 12 months old; but that depends upon circumſtances. Guard the heap from dogs, pigs, badgers, and vermin, as theſe animals are remarkably fond of whale-fleſh. This animal compoſt may with great advantage be applied to all purpoſes where good rotten dung is required. I have uſed it with great ſucceſs for cabbages, and find it an excellent dreſſing for meadow-ground. According to the beſt computation, one hogſhead of whale refuſe will make eight loads of dung, which, when we conſider the great facility with which this baſis of our dung-hill may be carried, is a momentous concern to ſuch farmers as lie remote from a large town." See Manure.

Compoſt, Compoſtella.

Compost, in gardening, is a mixture of ſeveral earths, earthy ſubſtances and dungs, either for the improvement of the general ſoil of a garden, or for that of ſome particular plants. Almoſt every plant delights in ſome peculiar mixture of ſoils or compoſt, in which it will thrive better than in others. The moſt remarkable and generally uſeful of theſe, are taken notice of under the deſcription of the ſeveral botanical articles, as they occur in the order of the alphabet.

COMPOSTELLA, a celebrated town of Spain, and capital of Galicia, with an archbiſhop's ſee, and an univerſity. The public ſquares, and the churches, particularly the Metropolitan church, are very magnificent. It has a great number of monaſteries, for both ſexes, and about 2000 houſes. It is pretended that the body of St James was buried here which draws a great number of pilgrims from moſt parts of Chriſtendom. They walk in proceſſion to the church, and viſit his wooden image, which ſtands on the great altar, and is illuminated with 40 or 50 wax-candles. They kiſs it three times with a very reſpectful devotion, and then put their hats on its head. In the church there are 30 ſilver lamps, always lighted, and ſix chandeliers of ſilver, five feet high. The poor pilgrims are received into an hoſpital, built for that purpoſe, which ſtands near the church; and round it are galleries of free ſtone, ſupported by large pillars. The archbiſhop is one of the richeſt prelates in Spain, having 70,000 crowns a-year. From this town the military order of St Jago, or St James, had its original. It is ſeated in a peninſula, formed by the rivers Tambra and Ulla, in a pleaſant plain. W. Long. 7. 17. N. Lat. 42. 54.

New Compostella, a town of North America, in New Spain, and province of Xaliſco, built in 1531.

It is ſeated near the South Sea. W. Long. 110. 12. N. Lat. 21. 0.

COMPOUND, in a general ſenſe, an appellation given to whatever is compoſed or made up of different things; thus we ſay, a compound word, compound ſound, compound taſte, &c.—*Compound* differs from *complex*, and ſtands oppoſed to *ſimple*. See COMPLEX and SIMPLE.

COMPOUND Flower. See *COMPOSITUS Flos*.

COMPOUND Intereſt, called alſo *intereſt upon intereſt*, is that which is reckoned not only upon the principal, but upon the intereſt itſelf forborn; which hereby becomes a ſort of ſecondary principal. See INTEREST.

COMPOUND Motion, that motion which is effected by ſeveral conſpiring powers. Powers are ſaid to conſpire if the direction of the one be not quite oppoſite to that of the other; as when the radius of a circle is conceived to revolve about a centre, and at the ſame time a point to move ſtraight along it.

COMPOUND Numbers, thoſe which may be divided by ſome other number beſides unity, without leaving any remainder; ſuch are 18, 20, &c. the firſt being meaſured by the numbers 2, 6, or 9; and the ſecond by the numbers 2, 4, 5, 10.

COMPOUND Quantities. See ALGEBRA.

COMPOUND Ratio, is that which the product of the antecedents of two or more ratios has to the product of their conſequents. Thus, 6 to 72 is in a ratio compounded of 2 to 6, and of 3 to 12.

COMPOUND (ſubſtantive), the reſult or effect of a compoſition of different things; or a maſs formed by the union of many ingredients.

COMPREHENSION, in Engliſh church-hiſtory, denotes a ſcheme propoſed by Sir Orlando Bridgman in 1667-8, for relaxing the terms of conformity in behalf of proteſtant diſſenters, and admitting them into the communion of the church. A bill for this purpoſe was drawn up by Lord Chief-Baron Hale, but diſallowed. The attempt was renewed by Tillotſon and Stillingfleet in 1674, and the terms were ſettled to the ſatisfaction of the non-conformiſts; but the biſhops refuſed their aſſent. This ſcheme was likewiſe revived again immediately after the Revolution; the king and queen expreſſed their deſire of an union: however the deſign failed after two attempts; and the act of toleration was obtained.

COMPREHENSION, in metaphyſics, is that act of the mind whereby it apprehends or knows any object that is preſented to it, on all the ſides whereon it is capable of being apprehended or known. To comprehend a thing is defined by the ſchoolmen, *rem aliquam totam et totaliter cognoſcere*.

COMPREHENSION, in rhetoric, a trope or figure whereby the name of a whole is put for a part; or that of a part for a whole; or a definite number of any thing for an indefinite.

COMPRESS, in ſurgery, a bolſter of ſoft linen cloth, folded in ſeveral doubles, frequently applied to cover a plaſter, in order not only to preſerve the part from the external air, but alſo the better to retain the dreſſings or medicines.

COMPRESSION, the act of preſſing or ſqueezing ſome matter together, ſo as to ſet its parts nearer to each other, and make it poſſeſs leſs ſpace. *Compreſſion* properly differs from *condenſation*, in that the latter is performed by the action of cold, the former by ſome external violence.

COMPROMISE, a treaty or contract, whereby two contending parties eſtabliſh one or more arbitrators to judge of and terminate their difference in an amicable manner.

COMPTON (Henry), biſhop of London, was the youngeſt ſon of Spencer Earl of Northampton, and born in 1632. After the reſtoration of Charles II. he became cornet of a regiment of horſe: but ſoon after quitting the army for the church, he was made biſhop of Oxford in 1674; and about a year after tranſlated to the ſee of London. He was entruſted with the education of the two princeſſes Mary and Anne, whom he alſo afterwards married to the princes of Orange and Denmark: and their firmneſs in the Proteſtant religion was in a great meaſure owing to their tutor, to whom, when popery began to prevail at court, it was imputed as an unpardonable crime. He was ſuſpended from his eccleſiaſtical function by James II. but was reſtored by him again on the prince of Orange's invaſion. He and the biſhop of Briſtol made the majority for filling the vacant throne with a king: he performed the ceremony of the coronation; was appointed one of the commiſſioners for raiſing the liturgy; and laboured with much zeal to reconcile diſſenters to the church. His ſpirit of moderation made him unpopular with the clergy, and in all probability checked his further promotion. He died in 1713; but, living in buſy times, did not leave many writings behind him.

COMPTROLLER. See CONTROLLER.

COMPULSOR, an officer under the Roman emperors, diſpatched from court into the provinces, to compel the payment of taxes, &c. not paid within the time preſcribed. The word is formed of the verb *compellere*, "to oblige, conſtrain." Theſe were charged with ſo many exactions, under colour of their office, that Honorius caſhiered them by a law in 412.

The laws of the Viſigoths mention military compulſors; which were officers among the Goths, whoſe buſineſs was to oblige the tardy ſoldiers to go into the fight, or to run to an attack, &c.

Caſſian mentions a kind of monaſtic compulſors, whoſe buſineſs was to declare the hours of canonical office, and to take care the monks went to church at thoſe hours.

COMPUNCTION, in theology, an inward grief in the mind for having offended God. The word comes from *compungere*, of *pungere*, "to prick."—The Romaniſts own their confeſſion inſignificant unleſs attended with compunction or pricking of heart.

Among ſpiritualiſts, compunction bears a more extenſive ſignification; and implies not only a grief for having offended God, but alſo a pious ſenſation of grief, ſorrow, and diſpleaſure, on other motives. Thus, the miſeries of life, the danger of being loſt in the world, the blindneſs of the wicked, &c. are to pious people motives of compunction.

COMPURGATOR, one that by oath, juſtifies another perſon's innocence. Compurgators were introduced as evidences in the juriſprudence of the middle ages. Their number varied according to the importance of the ſubject in diſpute, or the nature of the crime with which a perſon was charged.

COMPUTATION, in a general ſenſe, the manner of eſtimating time, weights, meaſure, moneys, or quantities of any kind.—The word is ſometimes alſo uſed among mathematicians in the like ſenſe as calculation.

COMUM (anc. geog.), a town of the Orobii, of an ancient ſtanding, and formerly powerful, daring to diſpute with the Romans: *Comenſes*, the people; *Comenſis Ager*, the epithet. It became afterwards no inconſiderable municipium, to which Julius Cæſar added 5000 new coloniſts (Strabo); whence it was generally called *Novocomum*, and the people *Novocomenſes*. But in time it recovered its ancient name, *Comum;* Pliny the Younger, a native of that place, calling it by no other name. Now *Como*, in the duchy of Milan, at the ſouth end of the lake of that name. E. Long. 9. 35. N. Lat. 46.

COMUS, in mythology, the god of jollity or feſtivity. There is great reaſon to believe he was the Chamos of the Moabites; Beel-Phegor, Baal-Peor, Priapus, and Bacchus. He is repreſented under the appearance of a young man, with an inflamed red countenance, his head inclined, and crowned with flowers; his air drowſy; leaning on a huntſman's ſpear in his left hand, and holding an inverted torch in his right. His ſtatue was placed at the chamber doors of new married perſons; his pedeſtal crowned with flowers.

CON, or COND. See COND.

CONANT (Dr John,) a learned Engliſh divine, born in 1608. He took his degrees at Exeter College Oxford; was, by the parliament, conſtituted one of the aſſembly of divines, though he ſeldom, if ever, ſat with them; and in 1657 was admitted vice-chancellor of the univerſity. On the reſtoration he was one of the commiſſioners, and aſſiſted at the conferences in the Savoy; but was deprived by the act of uniformity: after eight years he was confirmed, and was made arch-deacon of Norwich, and prebendary of Worceſter. In 1686 he loſt his ſight; and died in 1693; leaving a number of admired ſermons, afterwards publiſhed in ſix volumes.

CONARION, or CONOIDES, a name for the pineal gland. See ANATOMY, n° 132.

CONATUS, a term frequently uſed in philoſophy and mathematics, defined by ſome to be a quantity of motion, not capable of being expreſſed by any time or length; as the *conatus recedendi ab axe motus*, is the endeavour which a body, moved circularly, makes to recede, or fly off from the centre or axis of its motion.

CONCA (Sebaſtian), called *Cavalier*, a celebrated hiſtory and portrait painter, was born at Gaeta in 1679, and placed as a diſciple with Franceſco Solimena, an incomparable maſter. Under his direction Conca exerted his utmoſt induſtry to obtain a proper knowledge of the true principles of the art of painting; nor did he permit any kind of amuſement to withdraw his attention from his ſtudies. Solimena ſoon perceived in his diſciple ſuch talents, and ſuch a diſpoſition, as would qulify him to make a very great progreſs; and on that account he conceived ſo ſtrong an affection for him, that he not only afforded him the beſt inſtructions, but often employed him to ſketch after his own deſigns; took him along with him to Monte Caſſino, where he was to paint a chapel in freſco; and there made Conca acquainted with every thing relative to that manner of painting. At his return to Naples with Solimena, he was, if poſſible, ſtill more aſſiduous to improve himſelf to the utmoſt; and entered on a project that might at once advance his income, and add to his expertneſs in his profeſſion. That project was, to paint portraits in a ſmall ſize and at a low rate; by which ſcheme all ranks of perſons crowded to him; and beſide the pecuniary advantages reſulting from it, he acquired an extraordinary freedom of hand in penciling and colouring; a good habit of imitating nature with an elegant choice; and likewiſe great diverſity of airs of heads, which were of extraordinary uſe to him in his future beautiful compoſitions. As he had a great deſire to ſee Rome, he obtained permiſſion from Solimena to indulge his inclination; and although he was near thirty years of age when he viſited that city; yet he ſpent eight years in conſtant ſtudy after the antiques, after Buonaroti, Raphael, and the Caracci, and perfected himſelf in every part of his profeſſion. The fame of his works ſoon ſpread throughout Rome, and procured him the patronage of Cardinal Ottobuoni, who was a princely encourager of artiſts; and Conca having ſhown an elegant proof of his abilities in a compoſition repreſenting Herod inquiring of the wiſe men the place of the birth of the Meſſiah, the figures being as large as life, the Cardinal thought it ſo excellent a performance that he rewarded him in a munificent manner, entertained him in his own palace, and introduced him to Pope Clement XI. who appointed Conca to paint the picture of the prophet Jeremiah in the church of S. John Lateran; which he executed with univerſal applauſe. On that occaſion the pope was deſirous to give him ſome particular mark of his eſteem; and therefore, in a general aſſembly of the academicians of St Luke, he conferred on him the order of knighthood, and the cardinal preſented him with a rich diamond croſs, which Conca, out of reſpect to his patron, always wore at his boſom. From that time he was inceſſantly employed, and his works were ſolicited by moſt of the princes of Europe. The churches and chapels of every part of Italy are enriched with ſome of his compoſitions; of which he painted an incredible number, as he lived to a very advanced age, and never diſcontinued his labours. He was earneſtly invited by Philip V. of Spain to viſit his court, but he could not be prevailed on to leave Rome. He painted two admirable pictures for the king of Poland, with figures as large as life; in one was repreſented Alexander preſenting Bucephalus to Philip, after he had managed him; a grand compoſition, with a multitude of figures, correctly deſigned, and charmingly grouped and diſpoſed; the whole being adorned with moſt elegant architecture, in true and beautiful perſpective. The other was the marriage of Alexander with Roxana, the daughter of Darius, which was in every reſpect equal to the former. He was at laſt ſo ſtrongly preſſed to go to Naples, that he undertook the journey; and was received in that kingdom with all the reſpect and honour due to his merit; and there he finiſhed ſeveral noble deſigns, as alſo at Gaeta his native city. While he continued at Naples, he received in the royal preſence a ſnuff-box of very great value, preſented to him in the king's name by the marquis of Tanucci, at that time prime miniſter; and in the year

1757, the king was pleaſed to ennoble him and all his deſcendants. At that time he was 78, and it is confidently ſaid that he died in 1761 aged 82, which is very probable, though not poſitively certain. He underſtood perſpective and architecture thoroughly, and added to it a fine underſtanding of the chiaro-ſcuro. His ſtyle of compoſition is grand and elegant; his deſign very correct: his diſpoſition ingenious; his attitudes and expreſſion full of truth, nature, and variety; and his colouring is excellent. The hiſtory of Diana and Actæon, by Conca, is in the poſſeſſion of the earl of Pembroke at Wilton.

CONCALE BAY, is on the coaſt of France in Brittany, where the Engliſh forces landed in June 1758, in order to go to St Maloes; which they did, and burnt all the ſhips in that harbour, which were above 100, of all ſorts. Concale is the town which gives name to the bay, and is famous for oyſters. It is 18 miles eaſt of St Maloes, and 197 weſt of Paris. W. Long. 1. 47. N. Lat. 48. 41.

CONCARNEAU, a town of France, in Bretagne, with a harbour and a caſtle. E. Long. 3. 45. N. Lat. 47. 55.

CONCATENATION, a term chiefly uſed in ſpeaking of the mutual dependence of ſecond cauſes upon each other.

CONCAVE, an appellation uſed in ſpeaking of the inner ſurface of hollow bodies, but more eſpecially of ſpherical ones.

CONCAVE Glaſſes, ſuch as are ground hollow, and are uſually of a ſpherical figure, though they may be of any other, as parabolical, &c. All objects ſeen through concave glaſſes appear erect and diminiſhed.

CONCENTRATION, in general, ſignifies the bringing things nearer a centre. Hence the particles of ſalt, in ſea-water, are ſaid to be concentrated; that is, brought nearer each other, by evaporating the watery part.

CONCENTRIC, in mathematics, ſomething that has the ſame common centre with another: it ſtands in oppoſition to *excentric*.

CONCEPTION, in logic, the ſimple apprehenſion or preception which we have of any thing, without proceeding to affirm or deny any thing about it. Some writers, as Lord Kames, diſtinguiſh between conception and perception; making the latter to denote the conſciouſneſs of an object when preſent, or to include the reality of its object; whereas conception expreſſes the forming an idea of an object whether preſent or abſent, or without any conviction of its reality.

CONCEPTION, in medicine, denotes the firſt formation of the embryo, or fœtus, in the womb.

Conception is no other than ſuch a concourſe and commixture of the prolific ſeed of the male with that of the female, in the cavity of the uterus, as immediately produces an embryo.

The ſymptoms of conception or pregnancy are, when, in a few days after the conjugal act, a ſmall pain is perceived about the navel, and is attended with ſome gentle commotions in the bottom of the abdomen; and within one, two, three, or even four, months, the menſes ceaſe to flow, or prove in leſs quantity than uſual. Upon the firſt failure of this kind, the woman begins to count the ſeries of her weeks, without taking any notice of the time before elapſed; after this, or between the ſecond or third months, but generally about the third, the motions of the embryo become perceivable to the mother; who hereupon becomes troubled with a nauſea, vomiting, loathing, longing, &c. About this time the breaſts begin to ſwell, grow hard and painful, and contain a little milk; the nipples alſo become larger, firmer, and darker coloured, a livid circle appearing round them: the eyes ſeem ſunk and hollow. During the two firſt months of pregnancy, the woman grows thinner and ſlenderer; the abdomen being alſo depreſſed; though it afterwards diſtends, and grows gradually larger.

The manner wherein conception is effected is thus laid down by the modern writers: In the ſuperficies of the ovaries of women, there are found little pellucid ſpherules, conſiſting of two concentric membranes filled with a lymphatic humour, and connected to the ſurface of the ovaria, underneath the tegument, by a thick calyx, contiguous to the extremities of the minute ramifications of the Fallopian tubes.

Theſe ſpherules, by the uſe of venery, grow, ſwell, raiſe and dilate the membrane of the ovary into the form of papillæ; till, the head propending from the ſtalk, it is at length ſeparated from it; leaving behind it a hollow cicatrix in the broken membrane of the ovary; which, however, ſoon grows up again.

Now, in theſe ſpherules, while ſtill adhering to the ovary, fœtuſes have been frequently found; whence it appears, that theſe are a kind of ova, or eggs, deriving their ſtructure from the veſſels of the ovary, and their liquor from the humours prepared therein.

Hence alſo it appears, that the Fallopian tubes being ſwelled and ſtiffened by the act of venery, with their muſcular fimbriæ, like fingers, may embrace the ovaries, compreſs them, and by that compreſſion expand their own mouths: and thus the eggs, now mature, and detached as before, may be forced into their cavities, and thence conveyed into the cavity of the uterus; where they may either be cheriſhed and retained, as when they meet with the male ſeed; or, if they want that, again expelled.

Hence the phenomena of falſe conceptions, abortions, fœtuſes found in the cavity of the abdomen, the Fallopian tubes, &c. For in coition, the male ſeed, abounding with living animalcules, agitated with a great force, a briſk heat, and probably with a great quantity of animal ſpirits, is violently impelled through the mouth of the uterus, which on this occaſion is opener, and through the valves of the neck of the uterus, which on this occaſion are laxer than ordinary, into the uterus itſelf; which now, in like manner, becomes more active, turged, hot, inflamed, and moiſtened with the flux of its lymph and ſpirits, by means of the titillation excited in the nervous papillæ by the attrition againſt the rugæ of the vagina.

The ſemen thus diſpoſed in the uterus, is retained, heated, and agitated, by the convulſive conſtriction of the uterus itſelf; till meeting with the ova, the fineſt and moſt animated part enters through the dilated pores of the membranula of the ovum, now become glandulous; is there retained, nouriſhed, dilated; grows to its umbilicus or navel; ſtifles the other leſs lively animalcules; and thus is conception effected.

Hence it appears, that conception may happen in any part where the ſemen meets with an ovum; thus whether it be carried through the Fallopian tube to the ovary, and there caſt upon the ovum; or whether it meet with it in ſome receſs of the tube itſelf; or, laſtly, whether it join it in the cavity of the uterus, it may ſtill have the ſame effect, as it appears from obſervation actually to have done. But it is probable, that conception is then moſt perfect when the two, viz. the ſemen and ovum, are carried at the ſame time into the uterus, and there mixed, &c.

Other anatomiſts chooſe to ſuppoſe the male ſeed taken up, before it arrives in the uterus, by the veins which open into the vagina, &c. and thus mixed with the blood; by which, in the courſe of circulation, it is carried, duly prepared, into the ovary, to impregnate the eggs.

It has been advanced by ſeveral writers, that women may poſſibly conceive in their ſleep, and be with child without any knowledge of the occaſion of it. As ridiculous and abſurd as this doctrine may appear to the generality of the world, no leſs an author than Gentili has thought it worthy a particular diſſertation.

CONCEPTION *Immaculate of the Holy Virgin*, is a feaſt eſtabliſhed in honour of the holy virgin, particularly with regard to her having been conceived and born *immaculate*, i. e. without original ſin, held in the Romiſh church on the 8th of December. The immaculate conception is the great head of controverſy between the Scotiſts and Thomiſts; the former maintaining, and the latter impugning it. In the three Spaniſh military orders, of St James of the ſword, Calatrava, and Alcantara, the knights take a vow at their admiſſion to defend the immaculate conception. This reſolution was firſt taken in 1652. Peter d'Alva has publiſhed 48 huge volumes in folio on the myſteries of the conception.

CONCEPTION, an epiſcopal town of Chili in South America. It is ſituated in W. Long. 79. 12. S. Lat. 36. 43; and is the oldeſt European ſettlement in Chili, and the ſecond in point of dignity. On their firſt ſettlement here, the Spaniards were repeatedly driven off by the Indians, ſo that they were obliged to take up their reſidence at St Jago. Since that time both the cities of Conception and St Jago have been frequently deſtroyed by earthquakes. In the year 1730 both of them were laid in ruins by a dreadful ſhock, the firſt concuſſions of which were attended with an unuſual ſwelling of the ſea, that overturned the few houſes which had eſcaped the ravages of the earthquake. The harbour is good, and pretty much frequented; on which account the city is regarded as a place of conſequence. The king allows annually 350,000 pieces of eight for the ſupport of a garriſon of 3500 men; a corps that is ſeldom complete. None of the fortifications are conſiderable; but thoſe towards the land are wretched. The Spaniards now live in tolerable ſecurity with reſpect to the Indians, and have no notion of any attack from the land ſide. It is ſaid indeed, that not only this but all the ſettlements in Chili and Peru would fall an eaſy prey to the attacks of a foreign enemy; the fortifications being in ruins, and the garriſons ſcarce half the number required by the king: owing to the avarice, ignorance, and ſupine negligence of the governors, who ſtudy nothing but to enrich themſelves.

CONCEPTION, a town of North America, in New-Spain, and in the Audience of Guatimala. It is ſeated near the ſea-coaſt, 100 miles weſt of Porto-bello, and a ſmall river that runs into the ſea. W. Long. 83. 5. N. Lat. 10. 0.

CONCERT, or CONCERTO, in muſic, a number or company of muſicians, playing or ſinging the ſame piece of muſic or ſong at the ſame time.

CONCERTATO intimates the piece of muſic to be compoſed in ſuch a manner, as that all the parts may have their recitativos, be it for two, three, four, or more voices or inſtruments.

CONCERTO GROSSI, the grand chorus of a concert, or thoſe places where all the ſeveral parts perform or play together.

CONCESSION, in general, ſignifies either the act of granting or yielding any thing, or the thing itſelf which is ſo granted or yielded.

CONCESSION, in rhetoric, a figure, whereby ſomething is freely allowed, that yet might bear diſpute, to obtain ſomething that one would have granted to him, and which he thinks cannot fairly be denied, as in the following conceſſion of Dido, in Virgil:

"The nuptials he diſclaims, I urge no more;
"Let him purſue the promis'd Latian ſhore.
"A ſhort delay is all I aſk him now;
"A pauſe of grief, an interval from wo."

CONCHA, in zoology, a ſynonime of the MYTILUS SOLEN, and other ſhell-fiſh.

CONCHES, a town of Normandy, with a Benedictine abbey, which carries on a conſiderable trade. It is ſeated on the top of a mountain, in the territory of Ouche, 45 miles north-weſt of Paris. E. Long. 0. 51. N. Lat. 48. 58.

CONCHITES MARMOR, a name given by the ancients to a ſpecies of marble dug near Megara, and remarkable for containing a great number of ſea-ſhells, and other marine bodies immerſed in it.

CONCHOID, in geometry, the name of a curve, given to it by its inventor Nicomedes. See FLUXIONS.

CONCHYLIA, a general name for all petrified ſhells, as limpets, cochleæ, nautili, conchæ, lepades, &c.

CONCIATOR, in the glaſs art, is, for the cryſtal-glaſs, what the founder is at the green-glaſs houſes. He is the perſon that weighs and proportions the ſalt on aſhes and ſand, and works them with a ſtrong fire till they run into lumps and become white; and if the metal be too hard, and conſequently brittle, he adds ſalt or aſhes, and if too ſoft, ſand; ſtill mixing them to a fit temper, which is only known by the working.

CONCINNOUS INTERVALS, in muſic, are ſuch as are fit for muſic, next to, and in combination with concords; being neither very agreeable nor diſagreeable in themſelves; but having a good effect, as by their oppoſition they heighten the more eſſential principles of pleaſure: or as, by their mixture and combination with them, they produce a variety neceſſary to our being better pleaſed.

CONCINNOUS Syſtem, in muſic. A ſyſtem is ſaid to be concinnous, or divided concinnouſly, when its parts, conſidered as ſimple intervals, are concinnous; and are beſides placed in ſuch an order between the extremes, as that the ſucceſſion of ſounds, from one extreme to the other, may have an agreeable effect.

CONCLAMATIO, in antiquity, a ſhout raiſed by thoſe preſent at burning the dead, before they ſet fire to the funeral pile. See SHOUT. The word was alſo applied to the ſignal given to the Roman ſoldiers to decamp, whence the expreſſion *conclamare vaſa*; and *conclamari arma*, was a ſignal for battle. It was likewiſe uſed for a practice of calling to a perſon deceaſed three times by his name; and when no reply was returned, they thus expreſſed his deceaſe, *conclamatum eſt*. Whence the ſame term was afterwards applied to the ceſſation of the Roman empire.

CONCLAVE, the place in which the cardinals of the Romiſh church meet, and are ſhut up, in order to the election of a pope.

The conclave is a range of ſmall cells, 10 feet ſquare, made of wainſcot: theſe are numbered, and drawn for by lot. They ſtand in a line along the galleries and hall of the Vatican, with a ſmall ſpace between each. Every cell has the arms of the cardinal over it. The conclave is not fixed to any one determinate place, for the conſtitutions of the church allow the cardinals to make choice of ſuch a place for the conclave as they think moſt convenient; yet it is generally held in the Vatican.

The conclave is very ſtrictly guarded by troops: neither the cardinals, nor any perſon ſhut up in the conclave, are ſpoke to, but at the hours allowed of, and then in Italian or Latin; even the proviſions for the conclave are examined, that no letters be conveyed by that means from the miniſters of foreign powers, or other perſons who may have an intereſt in the election of the pontiff.

CONCLAVE is alſo uſed for the aſſembly, or meeting, of the cardinals ſhut up for the election of a pope.

CONCLUSION, in logic, the conſequence or judgement drawn from what was aſſerted in the premiſes; or the previous judgments in reaſoning, gained from combining the extreme ideas between themſelves.

CONCOCTION, in medicine, the change which the food undergoes in the ſtomach, &c. to become chyle. See CHYLE.

CONCOMITANT, ſomething that accompanies or goes along with another.

CONCORD, in grammar, that part of conſtruction called *ſyntax*, in which the words of a ſentence agree; that is, in which nouns are put in the ſame gender, number, and caſe; and verbs in the ſame number and perſon with nouns and pronouns. See GRAMMAR.

CONCORD, in muſic, the relation of two ſounds that are always agreeable to the ear, whether applied in ſucceſſion or conſonance.

Form of CONCORD, in eccleſiaſtical hiſtory, a ſtandard-book among the Lutherans, compoſed at Torgaw, in 1576, and thence called the Book of Torgaw, and reviewed at Berg by ſix Lutheran doctors of Germany, the principal of whom was James Andreæ. This book contains in two parts, a ſyſtem of doctrine, the ſubſcription of which was a condition of communion, and a formal and very ſevere condemnation of all who differed from the compilers of it, particularly with reſpect to the majeſty and omnipreſence of Chriſt's body, and the real manducation of his fleſh and blood in the euchariſt. It was firſt impoſed on the Saxons by Auguſtus, and occaſioned great oppoſition and diſturbance. The diſpute about it was revived in Switzerland in 1718, when the magiſtrates of Bern publiſhed an order for adopting it as the rule of faith; the conſequence of which was a conteſt, that reduced its credit and authority.

CONCORDANCE, a dictionary or index to the Bible, wherein all the leading words, uſed in the courſe of the inſpired writings, are ranged alphabetically; and the various places where they occur referred to; to aſſiſt in finding out paſſages, and comparing the ſeveral ſignifications of the ſame word.

Cardinal Hugo de St Charo, is ſaid to have employed 500 monks at the ſame time in compiling a Latin concordance: beſides which, we have ſeveral other concordances in the ſame language; one, in particular, called the *concordance* of England, compiled by J. Darlington, of the order of Predicants; another more accurate one, by the Jeſuit de Zamora.

R. Mordecai Nathan has furniſhed us with a Hebrew concordance, firſt printed at Venice in 1523, containing all the Hebrew roots branched into their various ſignifications, and under each ſignification all the places in ſcripture wherein it occurs: but the beſt and moſt uſeful Hebrew concordance is that of Buxtorf, printed at Baſil in 1632.

Dr Taylor publiſhed, in 1754, a Hebrew concordance in two volumes folio, adapted to the Engliſh Bible, and diſpoſed after the manner of Buxtorf.

The Greek concordances are only for the New Teſtament: indeed we have one of Conr. Kircher's on the Old; but this is rather a concordantial dictionary than a concordance; containing all the Hebrew words in an alphabetical order; and underneath all the interpretations or ſenſes the LXX. give them; and in each interpretation, all the places where they occur in that verſion.

In 1718, Trommius publiſhed his Greek concordance for the Septuagint at Amſterdam, in two volumes folio; and Schmidius improving on a ſimilar work of H. Stephen, has given an excellent Greek concordance for the New Teſtament, the beſt edition of which is that of Leipſic, an. 1717.

Calaſius, an Italian Cordelier, has given us concordances of the Hebrew, Latin, and Greek, in two columns: the firſt, which is Hebrew, is that of R. Mordecai Nathan, word for word, and according to the order of the books and chapters: in the other column is a Latin interpretation of each paſſage of ſcripture quoted by R. Mordecai; this interpretation is Calaſius's own; but in the margin he adds that of the LXX. and the vulgate, when different from his. The work is in 4 vols folio, printed at Rome in 1621.

We have ſeveral very copious concordances in Engliſh, as Newmann's, &c. but the laſt and beſt eſteemed, is that in 4to. by Alex. Cruden.

CONCORDANT VERSES, ſuch as have ſeveral words in common; but which, by the addition of other words, convey an oppoſite, at leaſt a different meaning. Such are thoſe,

$$\textit{Et} \left\{\begin{matrix}\textit{canis}\\ \textit{lupus}\end{matrix}\right\} \textit{in ſilva} \left\{\begin{matrix}\textit{venatur}\\ \textit{nutritur}\end{matrix}\right\} \textit{\& omnia} \left\{\begin{matrix}\textit{ſervat.}\\ \textit{vaſtat.}\end{matrix}\right.$$

CONCORDAT, in the Canon law, denotes a covenant or agreement concerning ſome beneficiary matter, as a reſignation, permutation, promotion, or the like.

The council of Trent, ſeſſ. vi. *de reform.* cap. 4. ſpeaking of concordats made without the authority and approbation of the pope, calls them *concordias quæ tantum ſuos obligant auctores, non ſucceſſores.* And the congregation of cardinals, who have explained this decree, declares alſo that a concordat cannot be valid ſo as to bind ſucceſſors, unleſs confirmed by the pope.

Concordat is alſo uſed, abſolutely, among the French, for an agreement concluded at Bologna in 1516, betwixt pope Leo X. and Francis I. of France, for regulating the manner of nominating to benefices.

The concordat ſerves in lieu of the Pragmatic ſanction, which has been abrogated; or, rather, it is the pragmatic ſanction ſoftened and reformed. The concordat between the pope and the republic of Venice reſembles the former.

There is alſo a German concordat, made between the emperor Frederic III. and the princes of Germany, in 1448, relating to beneficiary matters, confirmed by pope Nicholas V.

CONCORDIA, a town of Italy, in the duchy of Mirandola; ſeated on the river Sechia, 5 miles weſt of Mirandola, and 15 miles ſouth-eaſt of Mantua; ſubject to the houſe of Auſtria. E. Long. 11. 22. N. Lat. 44. 52.

Concordia (anc. geog), a town of the Veneti, ſituated at the confluence of the rivers Romatinus Major and Minor, 31 miles to the weſt of Aquileia, (Pliny, Ptolemy, Antonine); a colony ſurnamed *Julia*. Its ruins ſtill go by the name of *Concordia*.—Another Concordia (Ptolemy), of Luſitania, to the north-weſt of Trajan's bridge, on the Tagus.—A third of the Nemetes in Belgica, on the weſt ſide of the Rhine; a Roman fortreſs, ſituated between Brocomagus and Noviomagus. Now Druſenheim, in Alſace. E. Long. 8°, Lat. 48° 40'.

Concordia, a Pagan divinity of the Romans. She had a temple on the declivity of the capitol; another in the portico of Livia; and a third on Mount Palatine, built of braſs by Cn. Flavius, on account of a vow made for reconciling the ſenate and people. She was pictured with a cup in her right hand; in her left was ſometimes a ſceptre, and ſometimes a *cornucopia*. Her ſymbols were two hands joined, as is ſeen in a coin of Aurelius Venus, and another of Nero; alſo two ſerpents twiſting about a caduceus. She was addreſſed to promote the peace and union of families and citizens.

CONCOU, in botany, a name given by the people of Guinea to an herb, which is in great eſteem among them for killing that troubleſome ſort of worm called the *Guinea-worm*, that breeds in their fleſh. They bruiſe the leaves, and mixing them with oil, apply them in form of a cataplaſm.

CONCRETE, in the ſchool-philoſophy, an aſſemblage or compound.

Concrete, in natural philoſophy and chemiſtry, ſignifies a body made up of different principles, or any mixed body: thus, ſoap is a factitious concrete, mixed together by art; and antimony is a natural concrete, or a mixed body compounded in the bowels of the earth.

CONCRETION, the uniting ſeveral ſmall particles of a natural body into ſenſible maſſes or concretes, whereby it becomes ſo and ſo figured and determined, and is endued with ſuch and ſuch properties.

Concretion is alſo the act whereby ſoft bodies are rendered hard; or an inſenſible motion of the particles of a fluid or ſoft body, whereby they come to a conſiſtence. It is indifferently uſed for induration, condenſation, congelation, and coagulation.

CONCUBINAGE ſometimes expreſſes a criminal or prohibited commerce between the two ſexes; in which ſenſe it comprehends adultery, inceſt, and ſimple fornication.

In its more reſtrained ſenſe, concubinage is uſed for a man's and a woman's cohabiting together in the way of marriage, without having paſſed the ceremony thereof.

Concubinage was anciently tolerated: the Roman law calls it an allowed cuſtom, *licita conſuetudo*. When this expreſſion occurs in the conſtitutions of the Chriſtian emperors, it ſignifies what we now call a *marriage in conſcience*.

The concubinage tolerated among the Romans in the time of the republic, and of the heathen emperors, was that between perſons not capable of contracting marriage together: nor did they even refuſe to let inheritances deſcend to children which ſprung from ſuch a tolerated cohabitance. Concubinage between ſuch perſons they looked on as a kind of marriage, and even allowed it ſeveral privileges; but then this concubinage was confined to a ſingle perſon, and was of perpetual obligation as much as marriage itſelf. Hottoman obſerves, that the Roman laws had allowed of concubinage long before Julius Cæſar made that law whereby every one was allowed to marry as many wives as he pleaſed. The emperor Valentinian, Socrates tells us, allowed every man two.

Concubinage is alſo uſed for a marriage performed with leſs ſolemnity than the formal marriage; or a marriage with a woman of inferior condition, and to whom the huſband does not convey his rank or quality. Cujas obſerves, that the ancient laws allowed a man to eſpouſe, under the title of *concubine*, certain perſons, ſuch as were eſteemed unequal to him, on account of the want of ſome qualities requiſite to ſuſtain the full honour of marriage. He adds, that though concubinage was beneath marriage, both as to dignity and civil effects; yet was concubine a reputable title, very different from that of miſtreſs among us. The commerce was eſteemed ſo lawful, that the concubine might be accuſed of adultery in the ſame manner as a wife.

This kind of concubinage is ſtill in uſe in ſome countries, particularly in Germany, under the title of a *half-marriage*, *morgengabic marriage*, or *marriage with the left-hand*; alluding to the manner of its being contracted, viz. by the man's giving the woman his left hand inſtead of the right. This is a real marriage, though without ſolemnity: the parties are both bound for ever; though the woman be thus excluded from the common rights of a wife for want of quality or fortune.

The children of concubines were not reputed either legitimate or baſtards, but natural children, and were capable only of donations. They were deemed to retain the low rank of the mother; and were on this ground unqualified for inheriting the effects of the father.

Concubinage, in a legal ſenſe, is uſed as an exception againſt her that ſueth for dower, alleging thereby, by, that ſhe was not a wife lawfully married to the party, in whoſe lands ſhe ſeeks to be endowed, but his concubine.

CONCUBINE, a woman whom a perſon takes to cohabite with him, in the manner, and under the character, of a wife, without being authorized thereto by a legal marriage.

Concubine is alſo uſed for a real, legitimate, and only wife, diſtinguiſhed by no other circumſtance but a diſparity of birth or condition between her and the huſband. Du Cange obſerves, that one may gather from ſeveral paſſages in the epiſtles of the popes, that they anciently allowed of ſuch concubines. The ſeventeenth canon of the firſt council of Toledo declar that he who, with a faithful wife, keeps a concubi is excommunicated; but that if the concubine ſerved him as a wife, ſo that he had only one woman, under the title of concubine, he ſhould not be rejected from communion: which ſhows that there were legitimate wives under the title of concubines.

In effect, the Roman laws did not allow a man to eſpouſe whom he pleaſed; there was required a kind of parity, or proportion, between the conditions of the contracting parties: but a woman of inferior condition, who could not be eſpouſed as a wife, might be kept as a concubine; and the laws allowed of it, provided the man had no other wife.

It is certain the patriarchs had a great number of wives, and that theſe did not all hold the ſame rank; ſome being ſubaltern to the principle wife; which were what we call *concubines* or half wives. The Romans prohibited a plurality of concubines, and only had regard to the children iſſuing from a ſingle concubine, becauſe ſhe might become a legitimate wife. Solomon had 700 wives and 300 concubines: the emperor of China has ſometimes two or three thouſand concubines in his palace. Q. Curtius obſerves, that Darius was followed in his army by 365 concubines, all in the equipage of queens.

CONCUPISCENCE, according to divines, an irregular appetite, or luſt after carnal things, inherent in the nature of man ever ſince the fall.

COND, Con, or Conn, in ſea language, ſignifies to guide or conduct a ſhip in her right courſe. He that cons her, ſtands aloft with a compaſs before him, and gives the word of direction to the man at the helm how he is to ſteer. If the ſhip go before the wind, or, as they call it, betwixt the ſheets, the word is either ſtarboard, or port the helm: according as the conder would have the helm put to the right or left ſide of the ſhip, upon which the ſhip always goes the contrary way. If he ſays, helm a mid-ſhip, he would have the ſhip to go right before the wind, or directly between her two ſheets. If the ſhip ſail by a wind, or on a quarter wind, the word is, aloof, keep your luff, fall not off, veer no more, keep her to, touch the wind, have a care of the lee-latch: all which expreſſions are of the ſame import, and imply that the ſteerſman ſhould keep the ſhip near the wind. On the contrary, if he would have her ſail more large, or more before the wind, the word is eaſe the helm, no near, bear up. If he cries ſteady, it means, keep her from going in and out, or making yaws (as they call it), howſoever ſhe ſails, whether large or before a wind: and when he would have her go juſt as ſhe does, he cries, keep her thus, thus, &c.

CONDATE (anc. geog.), a town of Armorica in Gaul: called *Civitas Rhedonum*, in the Notitia; afterwards *Redonae*; Redonica Regio, the diſtrict. Hence the modern name *Rennes*, in Brittany. W. Long. 1. 45. Lat. 48. 5. Another Condate of Britain (Antonine); now thought to be Congleton, in Yorkſhire; others ſay in Lancaſhire.

CONDE (Lewis de Bourbon prince of), was born at Paris Sept. 7. 1621. He was ſtyled Duke d'Enguien, till he ſucceeded to the title of Prince of Conde by his father's death in 1646. As he was of a tender and delicate conſtitution, the prince ſent him to the caſtle of Montrod in Berry, that he might breathe a more pure and ſalutary air. Here he was educated in his infancy by ſome experienced and prudent citizens wives. When he was of a proper age, the prince took upon himſelf the taſk of governor, and appointed for his aſſiſtant M. de la Bouſſieres, a private gentleman, a man of honour, fidelity, and good nature, and who made it a rule to obſerve inviolably the orders that were given him. Two Jeſuits diſtinguiſhed for their genius and knowledge were alſo given him for preceptors. He formed him a houſehold of 15 or 20 officers, all men of the greateſt virtue and diſcretion.

With theſe attendants the duke d'Enguien went to ſettle at Bourges, where he frequented the college of Jeſuits. Here, beſides the ordinary ſtudies, he was taught ancient and modern hiſtory, mathematics, geography, declamation; alſo riding and dancing, in which laſt he ſoon excelled. He made ſuch a ſurpriſing progreſs, that before the age of 13 he defended in public ſome queſtions in philoſophy with incredible applauſe. At his return from Montrond, he had for his tutor M. de Merille; a man deeply verſed in the knowledge of common law, of ancient and modern laws, of the holy ſcriptures, and of the mathematics. Under his direction the duke went through that new courſe with prodigious ſucceſs. He acquired a critical taſte in the arts and ſciences, which he retained all his life; he never ſuffered a day to paſs without dedicating two or three hours at leaſt to reading; his thirſt for knowledge was univerſal, and he endeavoured to ſearch every thing to the bottom. His chief inclination, however, lay towards the military art; and at the age of 18 he obtained permiſſion to make his firſt campaign as a volunteer in the army commanded by M. de la Meilleraye. This campaign was unfortunate; and the duke d'Enguien was only a witneſs of the marſhal's imprudence and diſgrace. Nevertheleſs, in this campaign he laid the foundation of that renown which made him afterwards conſidered as the greateſt general of his age.

On his return to Paris, the duke waited upon cardinal Richelieu at Ruel. That miniſter was ſo pleaſed with his converſation, that he ſoon after made propoſals of an alliance with the prince of Conde, by marrying the duke d'Enguien to Claire Clemence de Maille Breza, the cardinal's niece. The duke conſented to this match out of obedience to his father; but the force he put upon himſelf by yielding to it was ſo great, that he fell dangerouſly ill. It was long before he got the better of his diſtemper : but at length he not only recovered, but became ſo ſtrong as afterwards to bear the greateſt fatigues with eaſe.

The duke made two more campaigns as a volunteer ; the one under the marſhal de la Meilleraye, the other in the army of Louis XIII. which conquered Rouſſillon. In 1643, at the age of 22, he obtained from the king, at the perſuaſion of cardinal Mazarine, the command of the army deſtined to cover Champaigne and Picardy ; which command was confirmed to him after the king's death by the queen regent, Anne of Auſtria, to whoſe intereſt he was ſtrongly devoted. In this ſtation, though he never had been preſent at any battle, he ſoon gave ſuch a ſpecimen of his abilities as crowned him with glory. The Spaniards, who threatened France with an invaſion, were defeated by him at Rocroi ; and this ſignal victory made him from that time conſidered as the guardian genius of his country. He next formed the project of beſieging Theonville, and propoſed it to the council of regency. They conſented with fear and diſtruſt ; but the duke carried it into execution with ſuch ſkill, activity, and courage, that he became juſtly the ſubject of general admiration. In two months time Theonville ſurrendered. At length, having covered Alſace and Lorrain from the enterprizes of the Imperialiſts, the duke returned to Paris, where he obtained the government of Champaigne, and of the city of Stenai.

The three following years were little more than a ſeries of military operations. The three battles of Fribourg, in which the duke d'Enguien triumphed over Velt Marſhal count de Mercy, the greateſt general in all Germany : the taking of Philipſbourg, and a great number of other places, which rendered him maſter of the palatinate, and of the whole courſe of the Rhine ; the victory of Nortlingue, by which he revenged the viſcount du Turenne's defeat at Mariendal ; the ſiege and conqueſt of Dunkirk ; the good and bad ſucceſs of his arms in Catalonia, where, though he was forced to raiſe the ſiege of Lorida, he kept the Spaniards in awe, and cut to peices their rear guard ; theſe are the principal events which diſtinguiſh the campaigns of 1644, 1645, and 1646.

The victories of the duke d'Enguien, his great reputation and eſteem with the people, began now to give umbrage to Mazarin. The cardinal's diſlike to him appeared on the death of the duke de Breze, admiral of France. The prince of Conde earneſtly demanded for his ſon the duke de Breze's places. But Mazarin, afraid of increaſing the wealth and power of a prince whom his victories and the love and confidence of the people and the army had already rendered too formidable to him, evaded his requeſt, by perſuading the queen to take the admiralty to herſelf. On the death of his father, the miniſter's diſlike to the young prince of Conde became ſtill more apparent. By the miniſter's perſuaſion he had accepted of the command of the army in Catalonia ; but, on his arrival at Barcelona, he found neither troops, money, artillery, proviſions, nor ammunition. Enraged at this deception, he vented his reſentment in bitter complaints and ſevere threats : but by the reſources that he found in this dilemma, the prince added new luſtre to his glory.

The campaign of 1648 was as glorious to Conde as thoſe which preceded it had been. To diſconcert at once the projects of the arch-duke Leopold, the prince reſolved to attack him even in the heart of the Low Countries ; and notwithſtanding the conſiderable difficulties which he had to ſurmount, he beſieged the important city of Ypres, and took it in ſight of all the enemies forces.

Notwithſtanding this ſucceſs, Conde ſaw himſelf at the point of experiencing the greateſt reverſe of fortune. His army was a prey to ſcarcity, to nakedneſs, contagious diſtempers, and deſertion. For eight months it received no ſupply from the miniſter, but half a muſter. Every thing was ſupplied by the prince himſelf ; he laviſhed his money, and borrowed more to ſupply his troops. When it was repreſented to him that he was in danger of ruining himſelf by ſuch an enourmous expence, he replied, that "ſince he every day ventured his life for the ſervice of his country, he could very well ſacrifice his fortune to it. Let but the government exiſt (added he), and I ſhall want for no thing."

The French army having been reinforced by 4000 of the troops of Weimar, Conde attacked the Spaniards advantageouſly encamped near Lens, and gained a complete victory over them, which diſabled them from attempting any thing more, and even from ſupporting themſelves. Afterwards he beſieged Furnes, the garriſon of which, 500 men, ſurrendered themſelves priſoners of war. But the prince was wounded there in the trenches by a muſket ſhot above the right hip ; and the contuſion was ſo great, that he was forced to ſubmit to ſeveral inciſions.

The French court, animated with the victory at Lens, thought this a proper time to take vengeance on the factions which for ſome time had violently agitated the kingdom ; and accordingly impriſoned Brouſſel and Blancmenil, two of the principal leaders of the country party. This vigorous proceeding, however, occaſioned a general revolt. Two hundred thouſand men took arms in Paris, barricaded the ſtreets, inveſted the palais-royal, and demanded the priſoners. It was neceſſary to releaſe them ; but from that time the regal authority was annihilated ; the queen was expoſed to a thouſand inſults, and Mazarin dared no longer venture out of the palais-royal. In this embarraſſment the queen recalled the prince of Conde, as the only one from whom ſhe could hope for ſupport. He retired to Ruel, whether the regent had gone with the young king and Mazarin. Anne of Auſtria propoſed to him the reducing of Paris by force of arms : but he calmed the reſentments of that princeſs ; and inſtead of being acceſſary to her vengeance he directed all his views to pacify the kingdom, and at length brought about an accommodation between the parties, who deſired it with equal ardour. But new incidents ſoon rekindled the combuſtion. The treachery of Mazarin, and the artifices of the leaders of the country party, occaſioned new cabals and freſh troubles. Conde was careſſed by the leaders of both parties ; but at laſt, enraged at the arrogance of the malcontents, who every day formed new pretenſions, he took part openly with the court, though he thought it ungrateful, and protected the miniſter, though he did not eſteem him.

The royal family, the duke of Orleans, Conde, and Mazarin, left Paris privately in the night between the 5th and 6th of January 1649, and went to St Germains. The parliament ſent deputies to learn from the queen herſelf the reaſons of her departure, and to beg her to name the citizens whom ſhe ſuſpected, that they might be tried. Mazarin had the imprudence to diſmiſs them without any anſwer. Exaſperated at this, the people again took up arms in order to defend themſelves againſt the enterprizes of the court, who had determined to block up and to ſtarve the capital, in order to ſuppreſs the party of malcontents. With 7 or 8000 men, the broken relics of the laſt campaign, the prince of Conde formed a deſign of reducing above 500,000 intrenched behind walls. He had neither money nor magazines; he ſaw himſelf in the depth of a moſt ſevere winter; nevertheleſs he triumphed over Paris, and this great ſucceſs completed his glory. It did him ſo much the more honour, as during the ſiege he conſtantly defeated the troops of the malcontents; he prevailed on the army that marched to their aſſiſtance under Turenne, to abandon that general; he ſtopped the progreſs of the duke de Longueville, who had cauſed an inſurrection in Normandy; and got the ſtart of the Spaniards, who were advancing to give him battle.

Condi de Retz, co-adjutor of Paris, and afterwards cardinal, was the life and ſoul of the revolters, and directed all their motions. He had taken Catiline for his model; and was equally intrepid and capable of the greateſt actions of an exalted genius, but governed by his ambition. He diſtinguiſhed his hatred to Mazarin by arming the malcontents: and he himſelf raiſed at his own expence a regiment which he called the regiment of *Corinth:* as ſoon as this corps took the field during the blockade of Paris, it was defeated and diſperſed. This check was called *the firſt to the Corinthians.* The peace was ſigned at St Germains; but neither party carried its point, and ſcarce any one but Conde acquired glory by this war. After the concluſion of the treaty, the prince repaired to the capital, and traverſed all the ſtreets in his coach alone. All perſons of any conſequence paid their compliments to him, and the parliament ſent a ſolemn deputation to thank him for the peace to which he had ſo powerfully contributed. The people, however, made loud complaints on account of the king's abſence (for the court was not yet returned to Paris), and the malcontents gave reaſon to apprehend a new inſurrection. Conde encouraged the king and queen to return; and at length brought them to Paris, amidſt the acclamations and bleſſings of the public.

The important ſervice which Conde had juſt done the court intitled him to the acknowledgements of the queen, and eſpecially of Mazarin; but the dark ſoul of that cardinal only remembered it to puniſh a too fortunate and two powerful protector. He privately ſwore the prince's deſtruction; at leaſt that he ſhould give the whole kingdom a pattern of ſubmiſſion and dependence on his will. However, not to excite the public indignation, he ſtill kept up appearances with the prince, while he ſecretly ſpread about him diſguſts, ſuſpicions, ſnares of every kind, and the moſt heinous calumnies. The ungrateful miniſter deceived the prince by making him the moſt flattering propoſals; and with the moſt alluring promiſes which he always found means to avoid fulfilling. The enraged prince deſpiſed the miniſter, and treated him with diſdain. After this they were reconciled again only to be again at variance. Each of them in their turn courted the country party, in order to make it ſubſervient to their deſigns. At laſt Mazarin thought of an expedient, which but too effectually anſwered his purpoſe, of making an irreconcileable quarrel between that party and the prince. There was among the malcontents one marquis de la Boulaie, a man of an infamous character, who had obtained the confidence of the party by falſe appearances of hatred to the cardinal, but who ſecretly kept up a correſpondence with him. It is pretended that he made him an offer of privately killing Conde. Mazarin was charmed with the propoſal; yet he only required Boulaie to exhibit all the proofs of an aſſaſſination, and to act in ſuch a manner that every thing might concur to render the country party ſuſpected of that crime. He was punctually obeyed; the coach was ſtopped; ſome piſtols were fired at it; by which two of the footmen were dangerouſly wounded; and, after that ſhameful exploit, la Boulaie took refuge in the hotel of the duke of Beaufort, who was the hero of the party, in order no doubt to countenance the prince's ſuſpicion of the malcontents. Luckily Conde was not in his coach when it was ſtopped; the cardinal had ſpread the report of his intended aſſaſſination; and in concert with the queen and the prince he had prevailed to have the coach ſent away empty, to prove the reality of the attempt. Mazarin counterfeited a zeal for the prince's life, he furiouſly declaimed againſt the malcontents, who, he pretended, had made an attempt on a life ſo precious to the ſtate; and he inflamed Conde's reſentment againſt the duke of Beaufort and the coadjutor, whom he ſuppoſed to be the authors of this heinous outrage. The prince was ſo ſtrongly prejudiced, that he refuſed to hear them when they appeared before him to juſtify themſelves. He demanded juſtice againſt them of the king; he formally accuſed them before the parliament, and remained inflexible in ſpite of the pains which the leaders of the party took to demonſtrate to him that he had been impoſed upon. However, the affair was brought before the parliament; the accuſed defended themſelves, and the coadjutor, who had diſcovered the cardinal's ſecret, unmaſked him ſo well, that the prince agreed to a private negociation with the malcontents; he required nothing more than the coadjutor's leaving Paris, but with the rank of ambaſſador to Rome or Vienna. That prelate would have conſented to it, to ſatisfy Conde, if Mazarin, ſome days after, had not given him the choice of any recompence, in order to engage his concurrence in the prince's deſtruction. Affairs were now in ſuch a dangerous ſituation, that the cardinal ſaw clearly it was neceſſary to haſten to the winding up of the plot. Maſter of the queen's mind, which he guided as he pleaſed; and ſure of having inflamed againſt Conde all the reſentment of the malcontents; he ſought and obtained, by means of the ducheſs Chevreuſe, the ſupport of that powerful faction, which connected itſelf the more readily with him, in hopes that the prince's fall would ſoon enable it to cruſh without difficulty the cardinal himſelf. The coadjutor had private conferences with the queen and the miniſter. Conde had notice of it; and in order to diſcover if it were true, he endeavoured to ſurpriſe it from Mazarin's own mouth. "Cardinal (ſaid he, one day), it is publicly reported that you have nightly meetings with the coadjutor, diſguiſed like a trooper." He accompanied this ſpeech with a quick and penetrating look: but the cardinal, who was a perfect maſter of diſſimulation, anſwered him in ſuch a free, artleſs like manner, that he entirely removed Conde's apprehenſions; and he ſlighted the information he had received, of the plot forming againſt him.

Mazarin wanted nothing but the ſupport of the duke of Orleans; and at laſt found means, by the ducheſs of Chevreuſe, to inflame the jealouſy of that fickle and inconſtant prince, and to engage him to conſent to the impriſonment of Conde. Having thus united all parties, and fearing no other obſtacle, this ungrateful and perfidious miniſter made preparations for privately arreſting the prince; the order for it was ſigned January 18th 1650. Conde having that day repaired as uſual to the palais-royal, to aſſiſt at council with the prince of Conti and the duke of Longueville, the queen gave orders to arreſt them all three, and convey them without any noiſe to the caſtle of Vincennes. She was inſtantly obeyed, and the princes were ſtrictly guarded to that priſon.

In this unexpected reverſe of fortune, the fortitude and greatneſs of Conde's mind appeared only the more remarkable. Confined with the other two princes in the tower of Vincennes, where neither ſupper, furniture, nor beds, were provided, he contented himſelf with two new laid eggs, and threw himſelf in his cloaths, on a truſs of ſtraw, where he ſlept 12 hours without waking. He ſtill retained his cheerfulneſs, and dedicated the greateſt part of his time to reading, the reſt to converſation, playing at battle-door and ſhuttle-cock, to bodily exerciſes, and the cultivation of flowers.

Mazarin triumphed at the diſgrace of the princes, proſcribed all thoſe who were attached to Conde, and behaved in the moſt inſolent and arbitrary manner. The prince's friends, however, notwithſtanding their being ſtrictly watched, found means to keep up a punctual correſpondence with him. They made various attempts to releaſe him: they raiſed troops; in particular, the dukes of Bouillon and Rochefocault, and the viſcount de Turenne. The princeſs of Conde engaged the province of Guienne to declare in his favour; ſhe made war, in order to force the court to releaſe him; at length the partizans of the prince ſigned a treaty with the Spaniards, to labour in concert for his enlargement. But all theſe efforts would, perhaps, have been ineffectual, if other more powerful reſources had not been employed.

In that gallant and warlike age, every thing was managed by the paſſions and intrigues of five or ſix women, who poſſeſſed the confidence of the leaders of the ſtate, and of the various parties. The princeſs of Mantua, wife to one of the ſons of the elector Palatine, king of Bohemia, principally directed the counſels in the party of the princes. She found means to reconcile the duke of Orleans, the coadjutor, and the malcontents, with the friends of the prince, and united their efforts againſt the cardinal. The parliament, on the other ſide, loudly demanded the releaſe of the priſoners. All the orders of the ſtate united in ſoliciting it, inſomuch that the queen was at laſt prevailed on to give her conſent. At this news, Mazarin was ſo confounded, that he fled in the diſguiſe of a trooper, and arrived at the gates of Richlieu, where a body of horſe waited for him. The parliament, informed by the queen of his flight, thundered forth an arret, by which he was obliged to leave the kingdom, with his family and foreign ſervants, in the ſpace of 15 days, under the penalty of being expoſed to a criminal proſecution. The queen deſired to follow him with the king; but the nobles and burghers inveſted the palais-royal, and prevented the execution of this project, which would have kindled a civil war. Mazarin, therefore, perceiving that it was impoſſible for the queen to join him, determined to go himſelf to reſtore the princes to their liberty, and to get the ſtart of the deputies who were coming to acquaint them with it. On his arrival at Havre, he informed the princes that they were free; he entreated Conde's friendſhip; and was ſo abject as to proſtrate himſelf at the feet of him whom he had ſo baſely oppreſſed. Conde gave him a polite reception, and ſpoke to him in a free and cheerful tone; but tired with the mean ſubmiſſions which the cardinal laviſhed upon him, he left him without making any promiſe, and ſet out on his return to Paris, which he entered as it were in triumph, amidſt the acclamations of all orders of men, and the demonſtrations of a moſt ſincere and general joy.

After this a civil war enſued, in which the prince of Conde ſided with the malcontents. Being preſſed by the king's army, he retired into the ſuburbs of St Anthony, where he behaved with the utmoſt bravery; when the citizens opened their gates and received him in; and a peace enſued ſoon after. His hatred of the cardinal, however, made him quit Paris, and take refuge among the Spaniards, who made him generaliſſimo of their forces; and he took Rocroi. The peace of the Pyrenees reſtored him to his country; and he again ſignalized himſelf at the head of the king's armies. Being afflicted with the gout, he refuſed the command of the army in 1676, and retired to Chartilley, where he was as much eſteemed for the virtues of peace, as he had been before for his military ones. He died in 1686, at Fontainbleau.

Conde, a town of the French Netherlands, in the province of Hainhault, with the title of a principality, and a caſtle. It is one of the ſtrongeſt towns in this country, and ſeated near the confluence of the rivers Haiſne and Scheld. E. Long. 3. 29. N. Lat. 50. 27.

Conde, a town of France, in Normandy, and in the Beſſin, which carries on a conſiderable trade; ſeated on the river Nereau. W. Long. 0. 37. N. Lat. 48. 50.

CONDEMNATION, the act of giving judgment, paſſing or pronouncing ſentence againſt a perſon ſubjected thereby to ſome penalty or puniſhment, either in reſpect of life, reputation, or fortune.

CONDENSATION, the act whereby a body is rendered more denſe, compact, and heavy. The word is commonly applied to the converſion of vapour into water, by diſtillation, or naturally in the clouds. The way in which vapour commonly condenſes, is by the application of ſome cold ſubſtance. On touching it, the vapour parts with its heat which it had before abſorbed; and on doing ſo, it immediately loſes the proper characteriſtics of vapour, and becomes water. But though this is the moſt common and uſual way in which we obſerve vapour to be condenſed, nature certainly proceeds after another method: ſince we often obſerve the vapours moſt plentifully condenſed when the weather is really warmer than at other times. See the articles Cloud, Evaporation, &c.

CONDENSER, a pneumatic engine, or ſyringe, whereby an uncommon quantity of air may be crowded into a given ſpace; ſo that ſometimes ten atmoſpheres, or ten times as much air as there is at the ſame time in the ſame ſpace, without the engine, may be thrown in by means of it, and its egreſs prevented by valves properly diſpoſed. See Plate CXLVI.

It conſiſts of a braſs cylinder, wherein is a moveable piſton; which being drawn out, the air ruſhes into the cylinder through a hole provided on purpoſe; and when the piſton is again forced into the cylinder, the air is driven into the receiver through an orifice, furniſhed with a valve to hinder its getting out.

The receiver or veſſel containing the condenſed air, ſhould be made very ſtrong, to bear the force of the air's ſpring thus increaſed; for which reaſon they are generally made of braſs: its orifice is fitted with a female ſcrew to receive the male ſcrew at the end of the condenſer.

If glaſs be uſed for a condenſer, it will not ſuffer ſo great a degree of condenſation; but the experiment will be more entertaining, ſince the ſubject may be viewed in the condenſed air.

CONDITION, in the civil law, a clauſe of obligation ſtipulated as an article of a treaty or a contract; or in a donation of a teſtament, legacy, &c. in which laſt caſe a donee does not loſe his donative if it be charged with any diſhoneſt or impoſſible conditions.

CONDITIONAL, ſomething not abſolute, but ſubject to conditions.

Conditional Conjunctions, in grammar, are thoſe which ſerve to make propoſitions conditional; as *if*, *unleſs*, *provided*, &c.

Conditional Propoſitions, in logic, ſuch as conſiſt of two parts connected together by a conditional particle.

Conditional Syllogiſm, a ſyllogiſm where the major is a conditional propoſition. Thus,

If there is a God, he ought to be worſhipped.
But there is a God;
Therefore he ought to be worſhipped.

CONDIVICNUM, (anc. geog.), the capital of the Namnetes, in Armorica. Now Nants in Brittany, on the Loire, from its name *Civitas Namnetum*. W. Long. 1. 30. Lat. 47. 15

CONDOM, a town of Gaſcony in France, capital of the Condomois, with a biſhop's ſee. It is but a poor place, and the trade is very ſmall. It is ſeated on the river Geliſſe, in E. Long. 0. 22. N. Lat. 44.

CONDOR, or Contor, in ornithology. See Vultur.

CONDORMIENTES, in church-hiſtory, religious ſectaries, who take their name from lying all together, men and women, young and old. They aroſe in the 13th century, near Cologne; where they are ſaid to have worſhipped an image of Lucifer, and to have received anſwers and oracles from him.

CONDRIEU, a town of Lyonnois in France, remarkable for its excellent wines. It is ſeated at the foot of hill near the river Rhone, E. Long. 4. 33. N. Lat. 45. 28.

CONDRUSII, (anc. geog.), a people of Belgica, originally Germans, dwelling about the Maeſe. Their country is now called *Condrotz*, in the biſhopric of Liege, between Luxemburg and the Maeſe.

CONDUCTOR, in ſurgery, an inſtrument which ſerves to conduct the knife in the operation of cutting for the ſtone, and in laying up ſinuſes and fiſtulas.

Conductors, in electrical experiments, are thoſe bodies that receive and communicate electricity; and thoſe that repel it are called *non-conductors*. See Electricity.

CONDUIT, a canal or pipe for the conveyance of water, or other fluid.

There are ſeveral ſubterraneous conduits through which the waters paſs that form ſprings. Artificial conduits for water are made of lead, ſtone, caſt-iron, potter's earth, timber, &c.

CONDYLOID and Coronoid proceſſes. See Anatomy, n° 26.

CONDYLOMA, in medicine, a tubercle, or callous eminence, which ariſes in the folds of the anus, or rather a ſwelling or hardening of the wrinkles of that part.

CONDYLUS, a name given by anatomiſts to a knot in any of the joints, formed by the epiphyſis of a bone.

CONE, in geometry, a ſolid figure, having a circle for its baſe, and its top terminated in a point or vertex. See Conic Sections.

Melting Cone, in chemiſtry, is a hollow cone formed of copper or braſs, with a handle, and with a flat bottom adjoining to the apex of the cone, upon which it is intended to reſt. Its uſe is to receive a maſs of one or more metals melted together, and caſt into it. This maſs, when cold, may be eaſily ſhook out of the veſſel, from its figure. Alſo, if a melted maſs conſiſting of two or more metals, or other ſubſtances not combined together, be poured into this veſſel, the conical figure facilitates the ſeparation of theſe ſubſtances according to their reſpective denſities. The cone ought to be well heated before the melted maſs is thrown into it; that it may not contain any moiſture, which would occaſion a dangerous exploſion. It ought alſo to be greaſed internally with tallow, to prevent the adheſion of the fluid matter.

Cone of Rays, in optics, includes all the ſeveral rays which fall from any radiant point upon the ſurface of a glaſs.

Cone, in botany. See Conus.

CONESSI, a ſort of bark of a tree, which grows on the Coromandel coaſt in the Eaſt Indies. It is recommended in a letter to Dr Monro, in the Medical Eſſays, as a ſpecific in diarrhœas. It is to be finely pulverized, and made into an electuary with ſyrup of oranges. The bark ſhould be freſh, and the electuary new made every day, or ſecond day, otherwiſe it loſes its auſtere but grateful bitterneſs on the palate, and its proper effects on the inteſtines.

CONFARREATION, a ceremony among the ancient Romans, uſed in the marriage of perſons whoſe children were deſtined for the honour of the prieſt-hood.

Confarreation was the moſt ſacred of the three modes of contracting marriage among that people; and conſiſted, acccording to Servius, in this, that the *pontifex maximus* and *flamen dialis* joined and contracted the man and woman, by making them eat of the ſame cake of ſalted bread; whence the term, *far* ſignifying *meal* or *flour*.

Ulpian ſays, it conſiſted in the offering up of ſome pure wheaten bread; rehearſing, withal, a certain formula, in preſence of ten witneſſes. Dionyſius Halicarnaſſeus adds, that the huſband and wife did eat of the ſame wheaten bread, and threw part on the victims.

CONFECTION, in pharmacy, ſignifies, in general, any thing prepared with ſugar: in particular it imports ſomething preſerved, eſpecially dry ſubſtances. It alſo ſignifies a liquid or ſoft electuary, of which there are various ſorts directed in diſpenſatories. See PHARMACY.

CONFECTOR, among the ancient Romans, a ſort of gladiator, hired to fight in the amphitheatre againſt beaſts: thence alſo denominated *beſtiarius*.

The *confectores* were thus called *à conficiendis beſtiis*, from their diſpatching and killing beaſts.

The Greeks called them παραϐολοι, q. d. *daring*, *raſh*, *deſperate*; whence the Latins borrowed the appellations *parabolani* and *parabolarii*. The Chriſtans were ſometimes condemned to this ſort of combat.

CONFECTS, a denomination given to fruits, flowers, herbs, roots, &c. when boiled or prepared with ſugar or honey, to diſpoſe them to keep, and render them more agreeable to the taſte.

CONFEDERACY, in law, is when two or more perſons combine to do any damage to another, or to commit any unlawful act. Confederacy is puniſhable, though nothing be put in execution; but then it muſt have theſe four incidents: 1. That it be declared by ſome matter of proſecution, as by making of bonds or promiſes to one another; 2. That it be malicious, as for unjuſt revenge; 3. That it be falſe, *i. e.* againſt the innocent; and, laſtly, That it be out of court, voluntary.

CONFERVA, in botany: A genus belonging to the cryptogamia claſs of plants: and in the natural method ranking under the 57th order, *Algæ*. The tubercles are of different ſizes, on capillary, very long fibres. There are 21 ſpecies, moſt of them growing on ſtones in ſlow ſtreams, on the ſides of ciſterns, or in ponds.

CONFESSION, in a civil ſenſe, a declaration or acknowledgement of ſome truth, though againſt the intereſt of the party who makes it; whether it be in a court of juſtice or out of it. It is a maxim, that in civil matters, the confeſſion is never to be divided, but always taken entire. A criminal is never condemned on his ſimple confeſſion, without other collateral proofs: nor is a voluntary extrajudical confeſſion admitted as any proof. A perſon is not admitted to accuſe himſelf, according to that rule in law, *Non auditur perire volens.* See ARRAIGNMENT.

CONFESSION, among divines, the verbal acknowledgement which a Chriſtian makes of his ſins.

Among the Jews it was the cuſtom, on the annual feaſt of expiation, for the high-prieſt to make confeſſion of ſins to God in the name of the whole people: beſides this general confeſſion, the Jews were enjoined, if their ſins were a breach of the firſt table of the law, to make confeſſion of them to God; but violations of the ſecond table were to be acknowledged to their brethren. The confeſſion of the primitive Chriſtians were all voluntary, and not impoſed on them by any laws of the church; yet private confeſſion was not only allowed, but encouraged.

The Romiſh church requires confeſſion not only as a duty, but has advanced it to the dignity of a ſacrament: this confeſſion is made to the prieſt, and is private and auricular; and the prieſt is not to reveal them under pain of the higheſt puniſhment.

CONFESSION of Faith, a liſt of the ſeveral articles of belief in any church.

CONFESSIONAL, or CONFESSIONARY, a place in churches under the great altar, where the bodies of deceaſed ſaints, martyrs, and confeſſors, were depoſited.

This word is alſo uſed by the Romaniſts for a deſk in the church where the confeſſor takes the confeſſions of the penitents.

CONFESSOR, a Chriſtian who has made a ſolemn and reſolute profeſſion of the faith, and has endured torments in its defence. A mere ſaint is called a confeſſor, to diſtinguiſh him from the roll of dignified ſaints: ſuch as apoſtles, martyrs, &c. In eccleſiaſtical hiſtory, we frequently find the word confeſſors uſed for martyrs: in after-times, it was confined to thoſe who, after having been tormented by the tyrants, were permitted to live and die in peace. And at laſt it was alſo uſed for thoſe who, after having lived a good life, died under an opinion of ſanctity. According to St Cyprian, he who preſented himſelf to torture, or even to martyrdom, without being called to it, was not called a *confeſſor* but a *profeſſor*: and if any out of a want of courage abandoned his country, and became a voluntary exile for the ſake of the faith, he was called *exterris*.

CONFESSOR is alſo a prieſt, in the Romiſh church, who has a power to hear ſinners in the ſacrament of penance, and to give them abſolution. The church calls him in Latin *confeſſarius*, to diſtinguiſh him from confeſſor, which is a name conſecrated to ſaints. The confeſſors of the kings of France, from the time of Henry IV. have been conſtantly Jeſuits: before him the Dominicans and Cordeliers ſhared the office between them. The confeſſors of the houſe of Auſtria have alſo, ordinarily, been Dominicans and Cordeliers; but the latter emperors have all taken Jeſuits.

CONFIGURATION, the outward figure which bounds bodies, and gives them their external appearance: being that which, in a great meaſure, conſtitutes the ſpecific difference between bodies.

CONFIRMATION, in a general ſenſe, the act of ratifying or rendering a title, claim, report, or the like more ſure and indiſputable.

CONFIRMATION, in law, a conveyance of an eſtate, or right in *eſſe*, from one man to another, whereby a voidable eſtate is made ſure and unavoidable, or a particular eſtate is increaſed, or a poſſeſſion made perfect.

Confirmation, in theology, the ceremony of laying on of hands, for the conveyance of the Holy Ghoſt. The antiquity of this ceremony is, by all ancient writers, carried as high as the apoſtles, and founded upon their example and practice. In the primitive church, it uſed to be given to Chriſtians immediately after baptiſm, if the biſhop happened to be preſent at the ſolemnity. Among the Greeks, and throughout the Eaſt, it ſtill accompanies baptiſm: but the Romaniſts make it a diſtinct independent ſacrament. Seven years is the ſtated time for confirmation: however, they are ſometimes confirmed before, and ſometimes after, that age. The perſon to be confirmed has a god-father and god-mother appointed him, as in baptiſm. The order of confirmation in the church of England, does not determine the preciſe age of the perſons to be confirmed.

CONFISCATION, in law, the adjudication of goods or effects to the public treaſury; as the bodies and effects of criminals, traitors, &c.

CONFLAGRATION, the general burning of a city, or other conſiderable place.

This word is commonly applied to that grand period or cataſtrophe of our world, when the face of nature is to be changed by fire, as formerly it was by water. The ancient Pythagoreans, Platoniſts, Epicureans, and Stoics, appear to have had a notion of the conflagration: though whence they ſhould derive it, unleſs from the ſacred books, is difficult to conceive; except, perhaps, from the Phœnicians, who themſelves had it from the Jews. Seneca ſays expreſsly, *Tempus advenerit quo ſidera ſideribus incurrent, & omni flagrante materia uno igne, quicquid nunc ex depoſito lucet, ardebit.* This general diſſolution the Stoics call εκπυρωσις, *ecpyroſis.* Mention of the conflagration is alſo made in the books of the Sybils, Sophocles, Hyſtaſpes, Ovid, Lucan, *&c.* Dr Burnet, after F. Tachard and others, relates that the Siameſe believe that the earth will at laſt be parched up with heat; the mountains melted down; the earth's whole ſurface reduced to a level, and then conſumed with fire. And the Bramins of Siam do not only hold that the world ſhall be deſtroyed by fire; but alſo that a new earth ſhall be made out of the cinders of the old.

Various are the ſentiments of authors on the ſubject of the conflagration; the cauſe whence it is to ariſe, and the effects it is to produce. Divines ordinarily account for it metaphyſically; and will have it take its riſe from a miracle, as a fire from heaven. Philoſophers contend for its being produced from natural cauſes; and will have it effected according to the laws of mechanics. Some think an eruption of the central fire ſufficient for the purpoſe; and add, that this may be occaſioned ſeveral ways, *viz.* either by having its intenſion increaſed; which again, may be effected either by being driven into leſs ſpace by the encroachments of the ſuperficial cold, or by an increaſe of the inflammability of the fuel whereon it is fed; or by having the reſiſtance of the impriſoning earth weakened; which may happen, either from the diminution of its matter, by the conſumption of its central parts, or by weakening the coheſion of the conſtituent parts of the maſs by the exceſs of the defect of moiſture. Others look for the cauſe of the conflagration in the atmoſphere; and ſuppoſe, that ſome of the meteors there engendered in unuſual quantities, and exploded with unuſual vehemence, from the concurrence of various circumſtances, may effect it, without ſeeking any further. The aſtrologers account for it from a conjunction of all the planets in the ſign Cancer; as the deluge, ſay they, was occaſioned by their conjunction in Capricorn. Laſtly, others have recourſe to a ſtill more effectual and flaming machine, and conclude the world is to undergo its conflagration from the near approach of a comet in its return from the ſun.

CONFLUENT, among phyſicians, &c. an appellation given to that kind of Small-pox wherein the puſtules run into each other.

CONFLUENTES (anc. geog.), a place at the confluence of the Rhine and Moſelle, ſuppoſed to be one of the 50 forts erected by Druſus on the Rhine, in Gallia Belgica: Now *Coblentz*, a town of Triers. E. Long. 7. 15. Lat. 50. 30.

CONFORMATION, the particular conſiſtence and texture of the parts of any body, and their diſpoſition to compoſe a whole.

Conformation, in medicine, that make and conſtruction of the human body which is peculiar to every individual. Hence, a *mala conformatio* ſignifies ſome fault in the firſt rudiments; whereby a perſon comes into the world crooked, or with ſome of the viſcera or cavities unduly framed or proportioned. Many are ſubject to incurable aſthmas, from a too ſmall capacity of the thorax, and the like vitious conformations.

CONFORMITY, in the ſchools, is the congruency, or relation of agreement between one thing and another; as between the meaſure and the thing meaſured, the object and the underſtanding, the thing and the diviſion thereof, &c.

CONFRONTATION, the act of bringing two perſons in preſence of each other, to diſcover the truth of ſome fact which they relate differently.

The word is chiefly uſed in criminal matters; where the witneſſes are confronted with the accuſed, the accuſed with one another, or the witneſſes with one another.

CONFUCIUS, a Chineſe philoſopher, who lived about 500 years before our Saviour's birth, in the kingdom of Lu, now called the province of *Xantung.* His wit and judgment got him a reputation from his very youth: and being a mandarin, and employed in the government of the kingdom of Lu, his profound knowledge of morals and politics made him be greatly admired. Notwithſtanding his care, his prince's court was much diſordered; and Confucius finding the king would not liſten to his advice, quitted the court, and taught moral philoſophy with ſuch applauſe that he ſoon had above 3000 ſcholars, whereof 72 ſurpaſſed the reſt in learning and virtue, for whom the Chineſe have ſtill a particular veneration. He divided his doctrine into four parts, and his ſcholars into four claſſes: the firſt order was of thoſe who ſtudied to acquire virtue; the 2d, thoſe who learned the art of reaſoning well; the 3d ſtudied the government of the ſtate and the duty of magiſtrates; the 4th were wholly taken up in noble diſcourſes of all that concerned morals. In ſpite of all his pains to eſtabliſh pure morality and religion, he was nevertheleſs the innocent cauſe of their corruption. It is ſaid, that when he was complimented upon the excellency of his philoſophy, he replied, that he fell greatly ſhort of the perfect degree of virtue; but that in the weſt the moſt holy was to be found. This made a ſtrong impreſſion on the learned; and in the 66th year after Chriſt's birth, the emperor Mon-ti ſent ambaſſadors toward the weſt to ſeek this holy man. They ſtopped at an iſland near the Red Sea, and found a famous idol named Fohi, repreſenting a philoſopher that lived 500 years before Confucius. They carried this idol back with them, with inſtructions concerning the worſhip rendered to it; and ſo introduced a ſuperſtition that aboliſhed in ſeveral places the maxims of Confucius. His tomb is in the academy where he taught, near the town Xio-fu, upon the banks of the river Xu. This philoſopher has been in great veneration in China above 2000 years; and is ſtill ſo eſteemed, that each town has a palace conſecrated to his memory. There was one of his deſcendants who was very conſiderable in the kingdom in 1646, whom Xanchi king of Tartary, who then conquered China, received with a great deal of honour. All thoſe of his family are mandarins by birth; and have a privilege common with the princes of the blood, not to pay any tribute.

CONFUSION, in a general ſenſe, is oppoſed to *order*, in a perturbation whereof confuſion conſiſts; *e.gr.* when things prior in nature do not precede, or poſterior do not follow, &c.

In a logical ſenſe, confuſion is oppoſed to diſtinctneſs or perſpicuity; and may happen either in words, as when miſcontrived or miſapplied; or in ideas, as when the idea of any thing preſents ſomething along with it, which does not properly belong to that thing. See IDEA and NOTION.

In a phyſical ſenſe, confuſion is a ſort of union or mixture by mere contiguity. Such is that between fluids of contrary nature, as oil and vinegar, &c.

CONFUSION, in Scots law, is a method of ſuſpending and extinguiſhing obligations. See LAW, Part III. Nº clxxvi. 8.

CONFUSION of Tongues, in the hiſtory of mankind, is a memorable event, which happened in the one hundred and firſt year according to the Hebrew chronology, and the four hundred and firſt year by the Samaritan, after the flood, at the overthrow of Babel; and which was providentially brought about in order to facilitate the diſperſion of mankind and the population of the earth. Until this period there had been one common language, which formed a bond of union that prevented the ſeparation of mankind into diſtinct nations; and ſome have ſuppoſed, that the tower of Babel was erected as a kind of fortreſs, by which the people intended to defend themſelves againſt that ſeparation which Noah had projected.

There has been a conſiderable difference of opinion as to the nature of this confuſion, and the manner in which it was effected. Some learned men, prepoſſeſſed with the notion that all the different idioms now in the world did at firſt ariſe from one original language to which they may be reduced, and that the variety among them is no more than muſt naturally have happened in a long courſe of time by the mere ſeparation of the builders of Babel, have maintained, that there were no new languages formed at the confuſion; but that this event was accompliſhed by creating a miſunderſtanding and variance among the builders without any immediate influence on their language. But this opinion, advanced by Le Clerc, &c. ſeems to be directly contrary to the obvious meaning of the word שפה, *ſhapha*, "lip," uſed by the ſacred hiſtorian. Others have imagined, that this was brought about by a temporary confuſion of their ſpeech, or rather of their apprehenſions, cauſing them, whilſt they continued together and ſpoke the ſame language, to underſtand the words differently. Scaliger is of this opinion. Others, again, account for this event by the privation of all language, and by ſuppoſing that mankind were under a neceſſity of aſſociating together, and of impoſing new names on things by common conſent. Another opinion aſcribes the confuſion to ſuch an indiſtinct remembrance of the original language which they ſpoke before, as made them ſpeak it very differently; ſo that by the various inflections, terminations, and pronunciations of divers dialects, they could no more underſtand one another, than they who underſtand Latin can underſtand thoſe who ſpeak French, Italian, or Spaniſh, though all theſe languages ariſe out of it. This opinion is adopted by Cauſabon, and by Biſhop Patrick in his Commentary *in loc.* and is certainly much more probable than either of the former. And Mr Shuckford maintains, that the confuſion aroſe from ſmall beginnings, by the invention of new words in either of the three families of Shem, Ham, and Japhet, which might contribute to ſeparate them from one another; and that in each family new differences of ſpeech might gradually ariſe, ſo that each of theſe families went on to divide and ſubdivide among themſelves. Others again, as Mr Joſ. Mede and Dr Wotton, &c. not ſatisfied with either of the foregoing methods of accounting for the diverſity of languages among mankind, have recourſe to an extraordinary interpoſition of divine power, by which new languages were framed and communicated to different families by a ſupernatural infuſion or inſpiration; which languages have been the roots and originals from which the ſeveral dialects that are, or have been, or will be ſpoken, as long as this earth ſhall laſt, have ariſen, and to which they may with eaſe be reduced. As to the number of languages thus introduced, many opinions have been adopted. If there were no more than there were nations or heads of nations, then the number would be ſeven for Japhet, four for Ham, and five for Shem; but if there were as many as there were families, which is the more probable opinion, their number cannot be certainly aſſigned. However, the Hebrews fancy they were 70, becauſe the deſcendents from the ſons of Noah, enumerated Geneſis x. were juſt ſo many. Allowing, then, the languages of the chief families to have been fundamentally different from each other, the ſub-languages and dialects within each branch would probably have had a mutual affinity, greater or leſs as they ſettled nearer or farther from each other. But whichſoever of theſe hypotheſes is adopted, the primary object of the confuſion at Babel was the ſeparation and diſperſion of mankind.

Dr Bryant, in the third volume of his Analyſis of Ancient Mythology, has advanced a ſingular hypotheſis, both with reſpect to the confuſion of tongues and the diſperſion. He ſuppoſes that the confuſion of language was local and partial, and limited to Babel only.

By כל־הארץ, Gen. xi. 1. and 8, which our tranſlators render *the whole earth*, he underſtands *every region*; and by the ſame words in ver. 9. *the whole region* or province. This confuſion was occaſioned, as he ſuppoſes, by a labial failure; ſo that the people could not articulate. Thus their ſpeech was confounded, but not altered; for, as ſoon as they ſeparated, they recovered their true tenor of pronunciation, and the language of the earth continued for ſome ages nearly the ſame. The interviews between the Hebrews and other nations, recorded in Scripture, were conducted without an interpreter; and he farther obſerves, that the various languages which ſubſiſt at this day retain ſufficient relation to ſhow, that they were once dialects from the ſame matrix, and that their variety was the effect of time. See Dispersion.

CONFUTATION, in rhetoric, &c. a part of an oration, wherein the orator ſeconds his own arguments and ſtrengthens his cauſe, by refelling and deſtroying the oppoſite arguments of the antagoniſt. This is done by denying what is apparently falſe, by detecting ſome flaw in the reaſoning of the adverſe party, by granting their argument, and ſhowing its invalidity, or retorting it upon the adverſary.

CONGE, in the French law, a licence, or permiſſion, granted by a ſuperior to an inferior, which gives him a diſpenſation from ſome duty to which he was before obliged. A woman cannot obligate herſelf without the *conge* or licence of her huſband; a monk cannot go out of his convent, without the *conge* of his ſuperiors.

Conge' *d'Elire*, in eccleſiaſtical policy, the king's permiſſion royal to a dean and chapter in the time of a vacancy, to chooſe a biſhop; or to an abbey, or priory, of his own foundation, to chooſe their abbot or prior.

The king of England, as ſovereign patron of all archbiſhoprics, biſhoprics, and other eccleſiaſtical benefices, had of ancient time free appointment of all eccleſiaſtical dignities, whenſoever they chanced to be void; inveſting them firſt *per baculum & annulum*, and afterwards by his letters-patent; and in courſe of time he made the election over to others, under certain forms and limitations, as that they ſhould at every vacation, before they chooſe, demand the king's congé d'elire, and after the election crave his royal aſſent, *&c.*

Conge', in architecture, a mould in form of a quarter round, or a cavetto, which ſerves to ſeparate two members from one another; ſuch as that which joins the ſhaft of the column to the cincture, called alſo *apophyge*.

Conges are alſo rings or ferrels formerly uſed in the extremities of wooden pillars, to keep them from ſplitting, afterwards imitated in ſtone-work.

CONGELATION, ſignifies the paſſing of any body from a fluid to a ſolid ſtate: ſo that the term is thus applicable to metals when they reſume their ſolid form after being heated, to water when it freezes, to wax, ſpermaceti, &c. when they become ſolid after having been rendered fluid by heat; and in general to all proceſſes, where the whole ſubſtance of the fluid is converted into ſolid: but it differs from cryſtallization; becauſe in the latter proceſs, though the ſalt paſſes from a fluid to a ſolid ſtate, a conſiderable quantity of liquid is always left, ſo that the term *congelation* is never applied in this caſe.

1 Differs from cryſtallization.

2 Is always attended with an emiſſion of heat.

The proceſs of congelation in all caſes depends upon, or at leaſt is accompanied with, the emiſſion of heat, as has been evinced by experiments made not only in water, but on ſpermaceti, wax, &c. for in all of theſe, tho' the thermometer immerſed in them while fluid continued to deſcend gradually till a certain period, yet it was as conſtantly obſerved to remain ſtationary, or even to aſcend while the congelation went on. The principle on which the phenomenon depends is thus aſcertained; but why this heat ſhould be emitted, is a queſtion which has not yet been thoroughly inveſtigated. Some conjectures relative to this are indeed mentioned in the article Chemistry, when treating of elementary fire, though experiments are ſtill to be wiſhed for on the ſubject.

3 Congelation of quickſilver.

It is not known whether all kinds of fluids are naturally capable of congelation or not; though we are certain that there are very great differences among them in this reſpect. The moſt difficult of all thoſe of which the congelation has been actually aſcertained is quickſilver. This was long thought capable of reſiſting any degree of cold whatever; and it is only within a few years that its congelation by artificial means was known, and ſtill more lately that ſome climates were found to be ſo ſevere as to congeal this fluid by the cold of the atmoſphere.

4 Experiments of Mr Braun.

The congelation of quickſilver was firſt aſcertained by M. Joſeph Adam Braun profeſſor of philoſophy at Peterſburg. He had been employed in making thermometrical experiments, not with a view to make the diſcovery he actually did, but to ſee how many degrees of cold he could produce. An excellent opportunity for this occurred on the 14th of December 1759, when the mercury ſtood naturally at —34, which is now known to be only five or ſix degrees above its point of congelation. Mr Braun having determined to avail himſelf of this great degree of natural cold, prepared a freezing mixture of aquafortis and pounded ice, by means of which his thermometer was reduced to —69. Part of the quickſilver had now really congealed; yet ſo far was M. Braun from entertaining any ſuſpicion of the truth, that he had almoſt deſiſted from further attempts, being ſatisfied with having ſo far exceeded all the philoſophers who went before him. Animated, however, by the hopes of producing a ſtill greater degree of cold, he renewed the experiment; but having expended all his pounded ice, he was obliged to ſubſtitute ſnow in its place. With this freſh mixture the mercury ſunk to —100, 240, and 352°. He then ſuppoſed that the thermometer was broken; but on taking it out to obſerve whether it was ſo or not, he found the quickſilver fixed, and continuing ſo for 12 minutes. On repeating the ſame experiment with another thermometer which had been graduated no lower than —220, all the mercury ſunk into the ball, and became ſolid as before, not beginning to reaſcend till after a ſtill longer interval of time. Hence the profeſſor concluded that the quickſilver was really frozen, and prepared for making a deciſive experiment. This was accompliſhed on the 25th of the ſame month, and the bulb of the thermometer broken as ſoon as the metal was congealed. The mercury was now converted ed into a ſolid and ſhining metallic maſs, which extended under the ſtrokes of a peſtle, in hardneſs rather inferior to lead, and yielding a dull ſound like that metal. Profeſſor Æpinus made ſimilar experiments at the ſame time, employing both thermometers and tubes of a larger bore; in which laſt he remarked, that the quickſilver fell ſenſibly on being frozen, aſſuming a concave ſurface, and likewiſe that the congealed pieces ſunk in fluid mercury.

The fact being thus eſtabliſhed, and fluidy no longer to be conſidered as an eſſential property of quickſilver, Mr Braun communicated an account of his experiments to the Peterſburg Academy, on the 6th of September 1760; of which a large extract was inſerted in the Philoſophical Tranſactions, vol. lii. p. 156. Five years afterwards he publiſhed another treatiſe on the ſame ſubject, under the title of Supplements to his former diſſertation. In theſe he declared, that, ſince his former publication, he had never ſuffered any winter to elapſe without repeating the experiment of congealing quickſilver, and never failed of ſucceſs when the natural cold was of a ſufficient ſtrength for the purpoſe. This degree of natural cold he ſuppoſes to be —10 of Fahrenheit, though ſome commencement of the congelation might be perceived when the temperature of the air was as high as +2. The reſults of all his experiments were, that with the abovementioned frigorific mixtures, and once with rectified ſpirits and ſnow, when the natural cold was at —28°, he congealed the quickſilver, and diſcovered that it is a real metal which melts with a very ſmall degree of heat. Not perceiving, however, the neceſſary conſequence of its great contraction in freezing, he, in this work, as well as in the former, confounded its point of congelation with that of its greateſt contraction in freezing, and thus marked the former a great deal too low; though the point of congelation was very uncertain according to him, various difficulties having occurred to his attempts of finding the greateſt point of contraction while freezing.

5
Of Mr Blumenbach.

The experiments of M. Braun were not repeated by any perſon till the year 1774, when Mr John Frederic Blumenbach, then a ſtudent of phyſic at Gottingen, performed them to more advantage than it appears M. Braun had ever done. He was encouraged to make the attempt by the exceſſive cold of the winter that year. "I put (ſays he), at five in the evening of January 11th, three drachms of quickſilver into a ſmall ſugar-glaſs, and covered it with a mixture of ſnow and Egyptian ſal-ammoniac. This mixture was put looſe into the glaſs, ſo that the quickſilver lay perfectly free, being only covered with it as by pieces of ice: the whole, together with the glaſs, weighed ſomewhat above an ounce. It was hung out at a window in ſuch a poſition as to expoſe it freely to the northweſt; and two drachms more of ſal-ammoniac mixed with the ſnow on which it ſtood. The ſnow and ſal-ammoniac, in the open air ſoon froze into a maſs like ice: no ſenſible change, however, appeared in the quickſilver that evening: but at one in the morning it was found frozen ſolid. It had divided into two large and four ſmaller pieces: one of the former was hemiſpherical, the other cylindrical, each ſeemingly rather above a drachm in weight: the four ſmall bits might amount to half a ſcruple. They were all with their flat ſide frozen hard to the glaſs, and no where immediately touched by the mixture; their colour was a dull pale white with a bluiſh caſt, like zinc, very different from the natural appearance of quickſilver. Next morning about ſeven o'clock I found that the larger hemiſphere began to melt, perhaps becauſe it was moſt expoſed to the air, and not ſo near as the others to the ſal ammoniac mixture which lay beneath. In this ſtate it reſembled an amalgam, ſinking to that ſide on which the glaſs was inclined; but without quitting the ſurface of the glaſs, to which it was yet firmly congealed: the five other pieces had not yet undergone any alteration, but remained frozen hard. Toward eight o'clock the cylindrical piece began to ſoften in the ſame manner, and the other four ſoon followed. About eight they fell from the ſurface of the glaſs, and divided into many fluid ſhining globules, which were ſoon loſt in the interſtices of the frozen mixture, and reunited in part at the bottom, being now exactly like common quickſilver." At the time this experiment was made, the thermometer ſtood at —10° in the open air.

6
Remarks on this experiment.

The circumſtances attending this experiment are ſtill unaccountable; for, in the firſt place, the natural cold was ſcarcely ſufficient, along with that of the artificial mixture, which produces 32° more, to have congealed the quickſilver; which yet appears to have been very effectually done by the length of time it continued ſolid. 2. It is not eaſy to account for the length of time required for congealing the quickſilver in this experiment, ſince other frigorific mixtures begin to act almoſt immediately; and, 3. There was not at laſt even the appearance of action, which conſiſts in a ſolution of the ſnow, and not in its freezing into a maſs. "The whole experiment (ſays Dr Blagden *) remains involved in ſuch obſcurity, that ſome perſons have ſuppoſed the quickſilver itſelf was not frozen, but only covered over with ice; to which opinion, however, there are great objections. It is worthy of remark, that Gottingen, though ſituated in the ſame latitude as London, and enjoying a temperate climate in general, becomes ſubject at times to a great ſeverity of cold. This of 11th of January 1774 is one inſtance; I find others there where the thermometer ſunk to —12°, —16°, or —19°; and at Cattlenburg, a ſmall town about two German miles diſtant, to —30°. By watching ſuch extraordinary occaſions, experiments on the freezing of quickſilver might eaſily be performed in many places, where the poſſibility of them is at preſent little ſuſpected. The cold obſerved at Glaſgow in 1780 would have been fully ſufficient for that purpoſe."

7
Experiments of Mr Hutchins, Dr Bicker, &c.

In conſequence of the publication of Mr Braun's Experiments, the Royal Society deſired their late ſecretary Dr Maty to make the neceſſary application to the Hudſon's-bay company, in order to repeat the experiment in that country. Mr Hutchins, who was then at London, and going out with a commiſſion as governor of Albany Fort, offered to undertake the experiments, and executed them very completely, freezing quickſilver twice in the months of January and February 1775. The account of his ſucceſs was read before the Royal Society at the commencement of the ſevereſt winter that had been known for many years in Europe; and at this time the experiment was repeated by two gentlemen of different countries. One was Dr Lambert Bicker, ſecretary to the Batavian ſociety at Rotterdam; who on the 28th of January 1776, at

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* *Phil. Tranſ.* vol. iii.

eight in the morning, made an experiment to try how low he could bring the thermometer by artificial cold, the temperature of the atmoſphere being then + 2°. He could not, however, bring it lower than —94°, at which point it ſtood immoveable: and on breaking the thermometer, part of the quickſilver was found to have loſt its fluidity, and was thickened to the conſiſtence of an amalgam. It fell out of the tube in little bits, which bore to be flattened by preſſure, without running into globules like the inner fluid part. The experiment was repeated next day, when the thermometer ſtood at +8°, but the mercury would not then deſcend below—80°; and as the thermometer was not broken, it could not be known whether the mercury had congealed or not. All that could be inferred from theſe experiments therefore was, that the congealing point of mercury was not below—94° of Fahrenheit's thermometer. The other who attempted the congelation of this fluid was the late Dr Anthony Fothergill; but it could not be determined whether he ſucceeded or not. An account of his experiment is inſerted in the Philoſophical Tranſactions, Vol. lxvi.

8
Point of congelation determined by Mr Hutchins.

No other attempts were made to congeal quickſilver until the year 1781, when Mr Hutchins reſumed the ſubject with great ſucceſs, inſomuch that from his experiment the freezing point of mercury is now almoſt as well ſettled as that of water. Preceding philoſophers, indeed, had not been altogether inattentive to this ſubject. Profeſſor Braun himſelf had taken great pains to inveſtigate it: but for want of paying the requiſite attention to the difference betwixt the contraction of the fluid mercury by cold and that of the congealing metal by freezing, he could determine nothing certain concerning it. Others declared it as their opinion, that nothing certain could be determined by merely freezing mercury in a thermometer filled with that fluid. Mr Cavendiſh and Dr Black firſt ſuggeſted the proper method of obviating the difficulties on this ſubject. Dr Black, in a letter to Mr Hutchins, dated October 5. 1779, gave the following directions for making the experiment with accuracy: "Provide a few wide and ſhort tubes of thin glaſs, ſealed at one end and open at the other; the wideneſs of theſe tubes may be from half to three quarters of an inch, and the length of them about three inches. Put an inch or an inch and a half depth of mercury into one of theſe tubes, and plunging the bulb of the thermometer into the mercury, ſet the tube with the mercury and the thermometer in it into a freezing mixture, which ſhould be made for this purpoſe in a common tumbler or water-glaſs: and, *N. B.* in making a freezing mixture with ſnow and ſpirit of nitre, the quantity of the acid ſhould never be ſo great as to diſſolve the whole of the ſnow, but only enough to reduce it to the conſiſtence of panada. When the mercury in the wide tube is thus ſet in the freezing mixture, it muſt be ſtirred gently and frequently with the bulb of the thermometer; and if the cold be ſufficiently ſtrong, it will congeal by becoming thick and *broaſy* like an amalgam. As ſoon as this is obſerved, the thermometer ſhould be examined without lifting it out of the congealing mercury; and I have no doubt that in every experiment thus made with the ſame mercury, the inſtrument will always point to the ſame degree, provided it has been made and graduated with accuracy."

9
Dr Black's directions for making the experiment.

10
Apparatus recommended by Mr Cavendiſh.

The apparatus recommended by Mr Cavendiſh, and which Mr Hutchins made uſe of, conſiſted of a ſmall mercurial thermometer, the bulb of which reached about 1½ inches below the ſcale, and was incloſed in a glaſs cylinder ſwelled at the bottom into a ball, which when uſed was filled with quickſilver, ſo that the bulb of the thermometer was entirely covered with it. If this cylinder be immerſed in a freezing mixture till great part of the quickſilver in it is frozen, it is evident that the degree ſhown at that time by the incloſed thermometer is the preciſe point at which mercury freezes; for as in this caſe the ball of the thermometer muſt be ſurrounded for ſome time with quickſilver, part of which is actually frozen, it ſeems impoſſible that the thermometer ſhould be ſenſibly above that point; and while any of the quickſilver in the cylinder remains fluid, it is impoſſible that it ſhould ſink ſenſibly below it. The diameter of the bulb of the thermometer was rather leſs than a quarter of an inch, that of the ſwelled part of the cylinder two-thirds; and as it was eaſy to keep the thermometer conſtantly in the middle of the cylinder, the thickneſs of quickſilver betwixt it and the glaſs could never be much leſs than the ſixth part of an inch. The bulb of the thermometer was purpoſely made as ſmall as it conveniently could, in order to leave a ſufficient ſpace between it and the cylinder, without making the ſwelled part larger than neceſſary, which would have cauſed more difficulty in freezing the mercury in it.

11
Accounts of the experiments.

The firſt experiment with this apparatus was made on the 15th of December 1781; the thermometer had ſtood the evening before at —18°. A bottle of ſpiritus nitri fortus was put on the houſe-top, in order to cool it to the ſame temperature. The thermometers made uſe of had been hung up in the open air for three weeks to compare their ſcales. On the morning of the experiment they were about 23° below 0.—in making it, the thermometer of the apparatus was ſuſpended in the bulb of the cylinder by means of ſome red worſted wound about the upper part of its ſtem, to a ſufficient thickneſs to fill the upper part of its orifice; and a ſpace of near half an inch was left empty between the quickſilver and worſted.

The apparatus was placed in the open air, on the top of the fort, with only a few deer ſkins ſewed together for a ſhelter; the ſnow lay 18 inches deep on the works, and the apparatus was ſtuck into the ſnow in order to bring it the ſooner to the temperature of the air. The inſtruments were afterwards placed in three freſh freezing mixtures, in hopes of being able by their means to produce a greater degree of cold, but without effect; nor was any greater cold produced by adding more ſpirit of nitre. The mercury, however was very completely frozen, that in the thermometer deſcending to 448°. On plunging the mercury into the freezing mixture, is deſcended in leſs than one minute to 40° below 0.

The ſecond experiment was made the day following; and the ſame quantity of quickſilver employed that had been uſed in the former. As too ſmall a quantity of the freezing mixture, however, had been originally made, it was neceſſary to add more during the operation of congealation; by which means the ſpirit of nitre, in pouring it upon the ſnow, ſometimes touched the bulb of the thermometer, and inſtantly raiſed it much higher; nor did the mercury ever deſcend below 206°, which was not half ſo far as it had done the day before, though the temperature of the atmoſphere had been this day at — 43° before the commencement of the operation. That in the apparatus, however ſunk to —95°. The apparatus was taken out of the mixture for half a minute, in order to examine whether the mercury was perfectly congealed or not, and during that time it ſhowed no ſign of liquefaction.

The third experiment was made the ſame day, and with the freezing mixture uſed in the laſt. By it the point of congelation was determined to be not below 40°.

The fourth experiment was made January 7th 1782; and in it he obſerved, the the mercury in the apparatus thermometer, after ſtanding at 42 and 41½ for a conſiderable time fell to 77, not gradually, but at once as a weight falls.

In the fifth experiment the weather was exceſſively ſevere, ſo that it ought to have frozen the metal in the open air; but this did not then happen.

At the time of making the ſixth experiment, the quickſilver in the open air ſtood at 44 below 0; and Mr Hutchins reſolved to make uſe of this opportunity to obſerve how far it was poſſible to make it deſcend by means of cold, obſerving the degrees at the ſame time with a ſpirit thermometer made by Nairne and Brount, with which he had been furniſhed by the royal ſociety in 1774. In this, however, he did not ſucceed; for the mercury never fell below 438, nor the ſtandard 48. It ſtood at 27½ at the beginning of the experiment. The reaſon of this was ſuppoſed to be, that the atmoſphere was too cold for making this kind of experiments, by reaſon of its freezing the thread of quickſilver in the ſtem of the thermometer, ſo that it became incapable of contraction along with that in the bulb. In other experiments, though the metal in the bulb became ſolid, yet that in the ſtem always remained fluid; and thus was enabled to ſubſide to a great degree by the diminution of bulk in the ſolid mercury. That this was really the caſe, appeared from the quickſilver falling at once from — 86 to — 434, when the cold of the freezing mixture diminiſhed, and the temperature of the air becoming about the ſame time ſomewhat milder, melted the congealed part in the ſtem, which thus had liberty to deſcend to that point.

In this experiment, alſo, the mixtures were made in double quantity to thoſe of the former: theſe being only in common tumblers, but the mixtures for this experiment in pint baſons. It was obſerved that they liquefied faſter than in other experiments. He had uſually made them of the conſiſtence of pap; but though he added ſnow at different times, it had very little effect in augmenting the cold, but rather decreaſed it. The congealed pieces of metal fell to the bottom as might naturally have been expected from its great contraction in becoming ſolid.

From this experiment Mr Hutchins concluded, that the nearer the temperature of the atmoſphere approached to the congealing point of mercury (ſo that a great degree of cold might be communicated to the bulb of a thermometer, and yet the quickſilver in the tube remain fluid), he might make the experiment of aſcertaining the greateſt contraction of mercury to more advantage. With this view, he made another experiment, when the temperature of ſome of his thermometers ſtood as low as—37°; and after an hour's attendance he perceived the mercury had fallen to 1367; but the thermometer unluckily was broken, and its bulb thrown away with the mixture. Profeſſor Braun had likewiſe obſerved, that his thermometers were always broken when the mercury deſcended below 600.

12
The thermometers broken by extreme cold.

The eighth experiment was made with a view to try whether quickſilver would congeal when in contact with the freezing mixture. For this purpoſe, he did not uſe the apparatus provided for other experiments, but filled a gallipot made of flint ſtone (as being thinner than the common ſort), containing about an ounce, half full of quickſilver, into which he inſerted a mercurial thermometer, employing another as an index. Thus he hoped to determine exactly when the quickſilver was congealed, as he had free acceſs to it at all times, which was not the caſe when it was incloſed in the cylindrical glaſs, the worſted wound round the tube of the thermometer to exclude the air being equally effectual in excluding any inſtrument from being introduced to touch the quickſilver. He then made a kind of ſkewer, with a flat blunt point, of dried cedar wood, on account of its lightneſs, which he found would remain in the gelatinous freezing mixture at any depth he choſe; but, when inſerted into the quickſilver, the great difference betwixt the ſpecific gravity of it and that ponderous fluid, made it always rebound upward; and by the degree of reſiſtance, he could always know whether it proceeded from fluid or ſolid metal. At this time, however, the experiment did not ſucceed; but, at another trial, having employed about ¾ths of a pound of metal, and let it remain a conſiderable time immerſed in the ſame mixture which had juſt now been ſuppoſed to fail, he found that part of it was congealed; and, on pouring off the fluid part, no leſs than two-thirds remained fixed at the bottom.

13
Mr Cavendiſh's experiments.

The laſt experiment which has been publiſhed concerning the congelation of quickſilver by means of ſnow is that of Mr Cavendiſh, and of which he gives an account in the Phil. Tranſact. Vol. lxxiii. p. 325. Here, ſpeaking of the cold of freezing mixtures, he ſays, "There is the utmoſt reaſon to think that Mr Hutchins would have obtained a greater degree of cold by uſing a weaker nitrous acid than he did. I found (ſays he) by adding ſnow gradually to ſome of this acid, that the addition of a ſmall quantity produced heat inſtead of cold; and it was not until ſo much was added as to increaſe the heat from 28 to 51°, that the addition of more ſnow began to produce cold; the quantity of ſnow required for this purpoſe being pretty exactly one quarter of the weight of the ſpirit of nitre, and the heat of the ſnow, and air of the room, as well as of the acid, being 28°, The reaſon of this is, that a great deal of heat is produced by mixing water with ſpirit of nitre; and the ſtronger the ſpirit is, the greater is the heat produced. Now it appears from this experiment, that before the acid was diluted,

14
Heat ſometimes produced by adding ſnow to ſpirit of nitre.

Congelation.

luted, the heat produced by its union with the water formed from the melting ſnow, was greater than the cold produced by the ſame; and it was not until it was diluted by the addition of one quarter of its weight of that ſubſtance, that the cold, generated by the latter cauſe, began to exceed the heat generated by the former. From what has been ſaid, it is evident, that a freezing mixture made with undiluted acid will not begin to generate cold until ſo much ſnow is diſſolved as to increaſe its heat from 28 to 51°; ſo that no greater cold will be produced than would be obtained by mixing the diluted acid heated to 51° with ſnow of the heat of 28°. This method of adding ſnow gradually is much the beſt way I know of finding what ſtrength it ought to be of, in order to produce the greateſt effect poſſible. By means of this acid diluted in the abovementioned proportion, I froze quickſilver in the thermometer called G (a) by Mr Hutchins, on the 26th of February 1782. I did not indeed break the thermometer to examine the ſtate of the quickſilver therein; for, as it ſunk to —110, it certainly muſt have been in part frozen; but immediately took it out, and put the ſpirit thermometer in its room, in order to find the cold of the mixture. It ſunk only to —30°; but by making allowance of the ſpirit in the tube being not ſo cold as that in the ball, it appears, that if it had not been for this cauſe, it would have ſunk to —35° (b); which is 6° below the point of freezing, and is within one degree of as great a cold as that produced by Mr Hutchins.

" In this experiment the thermometer G ſunk very rapidly; and, as far as I could perceive, without ſtopping at any intermediate point till it came to the abovementioned degree of —110°, where it ſtuck. The materials uſed in making the mixture were previouſly cooled, by means of ſalt and ſnow, to near nothing; the temperature of the air was between 20° and 25°; the quantity of acid uſed was 4½ oz.; and the glaſs in which the mixture was made, was ſurrounded with wool, and placed in a wooden box, to prevent its loſing its cold ſo faſt as it would otherwiſe have done. Some weeks before this I made a freezing mixture with ſome ſpirit of nitre much ſtronger than that uſed in the foregoing experiment, though not quite ſo ſtrong as the undiluted acid, in which the cold was leſs intenſe by 4½°. It is true the temper of the air was much leſs cold, namely 35°, but the ſpirit of nitre was at leaſt as cold, and the ſnow not much leſs ſo.

15 Of the cold produced by oil of vitriol and ſnow.

" The cold produced by mixing oil of vitriol, properly diluted with ſnow, is not ſo great as that produced by ſpirit of nitre, though it does not differ from it by ſo much as 8°; for a freezing mixture, prepared with diluted oil of vitriol, whoſe ſpecific gravity, at 60° of heat, was 1,5642, ſunk in the thermometer G to —37°, the experiment being tried at the ſame time, and with the ſame precautions, as the foregoing. It was previouſly found, by adding ſnow gradually to ſome of this acid, as was done by the nitrous acid, that it was a little, but not much ſtronger, than it ought to be, in order to produce the greateſt effect."

The experiment made by Mr Walker, in which he congealed quickſilver by means of ſpirit of nitre and Glauber's ſalt, without any ſnow, concludes the hiſtory of the artificial congelation of mercury. See the article Cold. It now remains that we ſay ſomething of the congelation of it by the natural cold of the atmoſphere.

16 Congelation of quickſilver by natural cold.

Dr Blagden, from whoſe paper in the Philoſophical Tranſactions, vol. lxxiii. this account is taken, obſerves, that it was not till near the year 1730 that thermometers were made with any degree of accuracy; and in four or five years after this, the firſt obſervations were made which prove the freezing of quickſilver. On the acceſſion of the Empreſs Anne Ivanouna to the throne of Ruſſia, three profeſſors of the Imperial academy were choſen to explore and deſcribe the different parts of her Aſiatic dominions, and to inquire into the communication betwixt Aſia and America. Theſe were Dr John George Gmelin, in the department of natural hiſtory and chemiſtry; M. Gerard Frederic Muller, as general hiſtoriographer; and M. Louis de l'Iſle de la Croyere, for the department of aſtronomy; draughtſmen and other proper aſſiſtants being appointed to attend them. They departed from Peterſburgh in 1733; and ſuch as ſurvived did not return till ten years after. The thermometrical obſervations were communicated by Profeſſor Gmelin, who firſt publiſhed them in his Flora Sibirica, and afterwards more fully in the Journal of his Travels. An abſtract of them was likewiſe inſerted in the Peterſburg Commentaries for the years 1756 and 1765, taken, after the profeſſor's death, from his original diſpatches in poſſeſſion of the imperial academy.

17 Exceſſive cold of Siberia.

In the winter of 1734 and 1735, Mr Gmelin being at Yeneſeiſk in 58½° N. Lat. and 92° E. Long. from Greenwich, firſt obſerved ſuch a deſcent of the mercury, as we know muſt have been attended with congelation. " Here (ſays he) we firſt experienced the truth of what various travellers have related with reſpect to the extreme cold of Siberia; for, about the middle of December, ſuch ſevere weather ſet in, as we were ſure had never been known in our time at Peterſburg. The air ſeemed as if it were frozen, with the appearance of a fog, which did not ſuffer the ſmoke to aſcend as it iſſued from the chimnies. Birds fell down out of the air as dead; and froze immediately, unleſs they were brought into a warm room. Whenever the door was opened, a fog ſuddenly formed round it. During the day, ſhort as it was, parhelia and haloes round the ſun were frequently ſeen; and in the night mock moons, and haloes about the moon. Finally, our thermometer, not ſubject to the ſame deception as the ſenſes, left us no doubt of the exceſſive cold; for the quickſilver in it was reduced, on the 5th of January O. S. to —120° of Fahrenheit's ſcale, lower than it had ever hitherto been obſerved in nature."

The next inſtance of congelation happened at Yakutſk, in N. Lat. 62. and E. Long. 130. The weather here was unuſually mild for the climate, yet the ther-

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(a) This was a ſmall mercurial thermometer, made by Nairne and Blount, on an ivory ſcale, divided at every five degrees, and reaching from 215° above to 250° below the cypher.

(b) This is to be underſtood of a ſpirit thermometer, whoſe —29° = 40° of Fahrenheit's mercurial.

thermometer fell to —72°; and one perſon informed the profeſſor by a note, that the mercury in his barometer was frozen. He haſtened immediately to his houſe to behold ſuch a ſurpriſing phenomenon; but though he was witneſs to the fact, the prejudice he entertained againſt the poſſibility of the congelation, would not allow him to believe it. "Not feeling, (ſays he), by the way, the ſame effects of cold as I had experienced at other times in leſs diſtances, I began, before my arrival, to entertain ſuſpicions about the congelation of his quickſilver. In fact, I ſaw that it did not continue in one column, but was divided in different places as into little cylinders, which appeared frozen; and, in ſome of theſe diviſions between the quickſilver, I perceived like the appearance of frozen moiſture. It immediately occurred to me, that the mercury might have been cleaned with vinegar and ſalt, and not ſufficiently dried. The perſon acknowledged it had been purified in that manner. The ſame quickſilver, taken out of the barometer, and well dried, would not freeze again, though expoſed to a much greater degree of cold, as ſhown by the thermometer."

Another ſet of obſervations, in the courſe of which the mercury frequently congealed, were made by Profeſſor Gmelin at Kirenga fort, in 57½ N. Lat. 108. E. Long.; his thermometer, at different times, ſtanding at —108°, —86°, —100°, —113°, and many other intermediate degrees. This happened in the winter of 1737 and 1738. On the 27th of November, after the thermometer had been ſtanding for two days at —46°, he found it ſunk at noon to 108°. Suſpecting ſome miſtake, after he had noted down the obſervation, he inſtantly ran back, and found it at 102°; but aſcending with ſuch rapidity, that in the ſpace of half an hour it had riſen to —19°. This phenomenon, which appeared ſo ſurpriſing, undoubtedly depended on the expanſion of the mercury frozen in the bulb of the thermometer, and which now melting, forced upwards the ſmall thread in the ſtem.

A ſimilar appearance was obſerved at the ſame fort a few days after; and on the 29th of December, O. S. he found the mercury, which had been ſtanding at —40° in the morning, ſunk to —100° at four in the afternoon. At this time, he ſays, he "ſaw ſome air in the thermometer ſeparating the quickſilver for the ſpace of about ſix degrees." He had taken notice of a ſimilar appearance the preceding evening, excepting that the *air*, as he ſuppoſed it to be, was not then collected into one place, but lay ſcattered in ſeveral.

Theſe appearances undoubtedly proceeded from a congelation of the mercury, though the prejudice entertained againſt the poſſibility of this phenomenon would not allow the profeſſor even to inquire into it at all. Several other obſervations were made; ſome of which were loſt, and the reſt contain no farther information.

The ſecond inſtance where a natural congelation of mercury has certainly been obſerved, is recorded in the tranſactions of the Royal Academy of Sciences at Stockholm. The weather, in January 1760, was remarkably cold in Lapland; ſo that, on the 5th of that month, the thermometers fell to —76°, —128°, or lower; on the 23d and following days they fell to —58°, —79°, —92°, and below —238° entirely into the ball. This was obſerved at Tornea, Sombio, Jakaſierf, and Utſioki, four places in Lapland, ſituated between the 65th and 78th degrees of N. Lat. and the 21ſt and 28th of E. Long. The perſon who obſerved them was M. Andrew Hellant, who makes the following remarks, of themſelves ſufficient to ſhow that the quickſilver was frozen. "During the cold weather at Sombio (ſays he), as it was clear ſun-ſhine, though ſcarcely the whole body of the ſun appeared above the low woods that covered our horizon, I took a thermometer which was hanging before in the ſhade, and expoſed it to the riſing ſun about eleven in the forenoon, to ſee whether, when that luminary was ſo low, it would have any effect upon the inſtrument. But to my great ſurpriſe, upon looking at it about noon, I found that the mercury had entirely ſubſided into the ball, though it was ſtanding as high as —61° at 11 o'clock, and the ſcale reached down to 238° below 0." On bringing the inſtrument near a fire, it preſently roſe to its uſual height; and the reaſon of its ſubſiding before was its being ſomewhat warmed by the rays of the ſun; which, feeble as they were, had yet ſufficient power to melt the ſmall thread of congealed mercury in the ſtem of the thermometer, and allow it to ſubſide along with the reſt. Mr Hellant, however, ſo little underſtood the reaſon of this phenomenon, that he frequently attempted to repeat it by bringing the thermometer near a fire, when the cold was only a few degrees below the freezing point of water, but could never ſucceed until it fell to —58°, or lower, that is, until the cold was ſufficiently intenſe to congeal the metal. The only ſeeming difficulty in his whole account, is, that when the mercury had ſubſided entirely into the ball of the thermometer, a vacuum or empty ſpot appeared, which run round the cavity like an air bubble, on turning the inſtrument: but this proceeded from a partial liquefaction of the mercury, which muſt neceſſarily melt firſt on the outſide, and thus exhibit the appearance juſt mentioned.

18 Remarkable experiments of Dr Pallas.

The moſt remarkable congelation of mercury, which has ever yet been obſerved, was that related by Dr Peter Simon Pallas, who had been ſent by the Empreſs of Ruſſia, with ſome other gentlemen, on an expedition ſimilar to that of Dr Gmelin. He did not, however, ſpend the winters in which he was in Siberia in the coldeſt parts of the country; that is about the middle of the northern part. Twice indeed he reſided at Kraſnoyarſk, in N. Lat. 56½°, E. Long. 93°; where, in the year 1772, he had an opportunity of obſerving the phenomenon we ſpeak of. "The winter (ſays he) ſet in early this year, and was felt with uncommon ſeverity in December. On the 6th and 7th of that month happened the greateſt cold I have ever experienced in Siberia; the air was calm at the time, and ſeemingly thickened; ſo that, though the ſky was in other reſpects clear, the ſun appeared as through a fog. I had only one ſmall thermometer left, in which the ſcale went no lower than —7°; and on the 6th in the morning, I remarked that the quickſilver in it ſunk into the ball, except ſome ſmall columns which ſtuck faſt in the tube.—When the ball of the thermometer, as it hung in the open air, was warmed by being touched with the finger, the quickſilver roſe; and it could plainly be ſeen, that the ſolid columns ſtuck and reſiſted a good while, and were at length puſhed upward with a ſort of violence. In the mean time

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time I placed upon the gallery, on the north ſide of my houſe, about a quarter of a pound of clean and dry quickſilver in an open bowl. Within an hour I found the edges and ſurface of it frozen ſolid, and ſome minutes afterwards the whole was condenſed by the natural cold into a ſoft maſs very much like tin. While the inner part was ſtill fluid, the frozen ſurface exhibited a great variety of branched wrinkles ; but in general it remained pretty ſmooth in freezing, as did alſo a larger quantity which I afterwards expoſed to the cold. The congealed mercury was more flexible than lead ; but on being bent ſhort, it was found more brittle than tin ; and when hammered out thin, it ſeemed ſomewhat granulated. If the hammer had not been perfectly cooled, the quickſilver melted away under it in drops ; and the ſame thing happened when the metal was touched with the finger, by which alſo the finger was immediately benumbed. In our warm room it thawed on its ſurface gradually, by drops, like wax on the fire, and did not melt all at once. When the frozen maſs was broken to pieces in the cold, the fragments adhered to each other and to the bowl on which they lay. Although the froſt ſeemed to abate a little towards night, yet the congealed quickſilver remained unaltered, and the experiment with the thermometer could ſtill be repeated. On the 7th of December, I had an opportunity of making the ſame obſervations all day ; but ſome hours after ſunſet, a northweſt wind ſprung up, which raiſed the thermometer to —46°, when the maſs of quickſilver began to melt.

19 Von Elterlein's experiment. In the beginning of the year 1780, M. Von Elterlein, of Vytegra, a town of Ruſſia, in Lat. 61°. E Long. 36. froze quickſilver by natural cold ; of which he gives the following account. “ On the 4th of January 1780, the cold having encreaſed to—34° that evening at Vytegra, I expoſed to the open air three ounces of very pure quickſilver in a china tea-cup, covered with paper, pierced full of holes. Next day, at eight in the morning, I found it ſolid, and looking like a piece of caſt lead, with a conſiderable depreſſion in the middle. On attempting to looſen it in the cup, my knife raiſed ſhavings from it as if it had been lead, which remained ſticking up ; and at length the metal ſeparated from the bottom of the cup in one maſs. I then took it in my hand to try if it would bend : it was ſtill like glue, and broke into two pieces ; but my fingers immediately loſt all feeling, and could ſcarcely be reſtored in an hour and an half by rubbing with ſnow. At eight o'clock a thermometer, made by Mr Lexmann of the Academy, ſtood at—57° ; by half after nine it was riſen to—40° ; and then the two pieces of mercury which lay in the cup had loſt ſo much of their hardneſs, that they could no longer be broken, or cut into ſhavings, but reſembled a thick amalgam, which though it became fluid when preſſed by the fingers, immediately afterwards reſumed the conſiſtence of pap. With the thermometer at---39°, the quickſilver became fluid. The cold was never leſs on the 5th than ---28°, and by nine in the evening in had increaſed again to ---33°.

An inſtance of the natural congelation of quickſilver alſo occured in Jemtland, one of the provinces of Sweden, on the 1ſt of January 1782; and, laſtly, on the 26th of the ſame month, Mr Hutchins obſerved the ſame effect of the cold at Hudſon's bay. “ The ſubject of this curious phenomenon (ſays he), was quickſilver put into a common two-ounce vial, and corked. The vial was about a third part full, and had conſtantly been ſtanding by the thermometer for a month paſt. At eight o'clock this morning I obſerved it was frozen rather more than a quarter of an inch thick round the ſides and bottom of the vial, the middle part continuing fluid. As this was a certain method of finding the point of congelation, I introduced a mercurial and a ſpirit thermometer into the fluid part, after breaking off the top of the vial, and they roſe directly and became ſtationary ; the former 40° or $40\frac{1}{2}$°, the latter at $29\frac{3}{4}$, both below the cypher. Having taken theſe out, I put in two others, G a mercurial one formerly deſcribed, and a ſpirit thermometer ; the former of which became ſtationary at 40° and the latter at 30°. I then decanted the fluid quickſilver, to examine the internal ſurface of the frozen metal, which proved very uneven, with many radii going acroſs ; ſome of which reſembled pin-heads, Urgent buſineſs called me away an hour. On my return I found a ſmall portion only had liquefied in my abſence. I then broke the vial entirely, and with a hammer repeatedly ſtruck the quickſilver. It beat out flat, yielded a deadiſh ſound, and became fluid in leſs than a minute afterwards.---It may be worth remarking, that the quickſilver in one of the thermometers, which had ſunk to very near 500, and was then at 444, very readily run up and down the tube by elevating either end of the inſtrument.”

Congelation.

20 Experiment of Mr Hutchins.

Theſe are all the well authenticated accounts of the congelation of mercury by the natural cold of the atmoſphere. Some others have been publiſhed ; but being either leſs important, or not ſo well authenticated, we forbear to mention them. A very conſiderable confirmation is obtained from the above hiſtory, of the theory of congelation delivered by Dr Black, and which is fully explained under the article CHEMISTRY. On Mr Hutchin's experiments, and on congelation in general, Mr Cavendiſh makes many valuable remarks ; the ſubſtance of which is as follows.

21 Mr Cavendiſh's remarks on congelation. “ If a veſſel of water, with a thermometer in it, be expoſed to the cold, the thermometer will ſink ſeveral degrees below the freezing point, eſpecially if the water be covered up ſo as to be defended from the wind, and care taken not to agitate it ; and then on dropping in a bit of ice, or on mere agitation, ſpiculæ of ice ſhoot ſuddenly through the water, and the incloſed thermometer riſes quickly to the freezing point, where it remains ſtationary.” In a note he ſays, that though in conformity to the common opinion he has allowed that “ mere agitation may ſet the water a freezing, yet ſome experiments lately made by Dr Blagden ſeem to ſhow, that it has not much, if any, effect of that kind, otherwiſe than by bringing the water in contact with ſome ſubſtance colder than itſelf. Though in general alſo the ice ſhoots rapidly, and the incloſed thermometer riſes very quick ; yet he once obſerved it to riſe very ſlowly, taking up not leſs than half a minute, before it aſcended to the freezing point ; but in this experiment the water was cooled not more than one or two degrees below freezing ; and it ſhould ſeem, that the more the water is cooled below the freezing point, the more rapidly the ice ſhoots and the encloſed thermometer riſes.”

Mr Cavendiſh then obſerves, "that from the foregoing experiments we learn that water is capable of being cooled conſiderably below the freezing point, without any congelation taking place; and that, as ſoon as by any means a ſmall part of it is made to freeze, the ice ſpreads rapidly through the whole of the water. The cauſe of this riſe of the thermometer is, that all, or almoſt all bodies, by changing from a fluid to a ſolid ſtate, or from the ſtate of an elaſtic to that of an unelaſtic fluid, generate heat; and that cold is produced by the contrary proceſs. Thus all the circumſtances of the phenomenon may be perfectly well explained: for, as ſoon as any part of the water freezes, heat will be generated thereby in conſequence of the abovementioned law, ſo that the new formed ice and remaining water will be warmed, and muſt continue to receive heat by the freezing of freſh portions of water, till it is heated exactly to the freezing point, unleſs the water could become quite ſolid before a ſufficient quantity of heat was generated to raiſe it to that point, which is not the caſe: and it is evident, that it cannot be heated above the freezing point; for as ſoon as it comes thereto, no more water will freeze, and conſequently no more heat will be generated.--- The reaſon why the ice ſpreads all over the water, inſtead of forming a ſolid lump in one part, is, that, as ſoon as any ſmall portion of ice is formed, the water in contact with it will be ſo much warmed as to be prevented from freezing, but the water at a little diſtance from it will ſtill be below the freezing point, and will conſequently begin to freeze.

"Were it not for this generation of heat, the whole of any quantity of water would freeze as ſoon as the proceſs of congelation began; and in like manner the cold is generated by the melting of ice; which is the cauſe of the long time required to thaw ice and ſnow. It was formerly found that, by adding ſnow to warm water, and ſtirring it about until all was melted, the water was as much cooled as it would have been by the addition of the ſame quantity of water rather more than 150° degrees colder than the ſnow; or, in other words, ſomewhat more than 150° of cold are generated by the thawing of the ſnow; and there is great reaſon to believe that juſt as much heat is produced by the freezing of water. The cold generated in the experiment juſt mentioned was the ſame whether ice or ſnow was uſed.

22
On metals when beginning to turn ſolid.

"A thermometer kept in melted tin or lead till they become ſolid, remains perfectly ſtationary from the time the metal begins to harden round the ſides of the pot till it is entirely ſolid; but it cannot be perceived at all to ſink below that point, and riſe up to it when the metal begins to harden. It is not unlikely, however, that the great difference of heat between the air and melted metal might prevent this effect from taking place; ſo that though it was not perceived in theſe experiments, it is not unlikely that thoſe metals, as well as water and quickſilver, may bear being cooled a little below the freezing or hardening point (for the hardening of melted metals, and freezing of water, ſeems exactly the ſame proceſs), without beginning to loſe their fluidity."

"The experiments of Mr Hutchins prove, that quickſilver contracts or diminiſhes in bulk by freezing; and that the very low degrees to which the thermometers have been made to ſink, is owing to this contraction, and not to the cold having been in any degree equal to that ſhown by the thermometer. In the fourth experiment, one of the thermometers ſunk to 450°, though it appeared, by the ſpirit thermometers that the cold of the mixture was not more than five or ſix degrees below the point of freezing quickſilver. In the firſt experiment alſo, it ſunk to 448, at a time when the cold of the mixture was only $2\frac{1}{2}$ below that point: ſo that it appears, that the contraction of quickſilver by freezing, muſt be at laſt equal to its expanſion by 404 degrees of heat. (A) This however, is not the whole contraction that it ſuffers; for it appears by an extract from a meteorological journal kept by Mr Hutchins at Albany fort, that his thermometer once ſunk to 490° below 0; though it was known by a ſpirit thermometer, that the cold ſcarcely exceeded the point of freezing quickſilver. There are two experiments alſo of Profeſſor Braun, in which the thermometer ſunk to 544 and 556° below nothing; which is the greateſt deſcent he ever obſerved without the ball being cracked. It is not indeed known how cold his mixtures were; but from Mr Hutchin's experiments, there is great reaſon to think they could not be many degrees below 40°. If ſo, the contraction which quickſilver ſuffers in freezing, is not much leſs than its expanſion by 500° or 510° of heat, that, is almoſt $\frac{1}{18}$ of its whole bulk; and in all probability is never much more than that, though it is probable that this contraction is not always determinate: for a conſiderable variation may frequently be obſerved in the ſpecific gravity of the ſame piece of metal caſt different times over; and almoſt all caſt metals become heavier by hammering.

23
Variation of the denſity of metals by frequent caſting.

Mr Cavendiſh obſerved, that on caſting the ſame piece of tin three times over, its denſity varied from 7.252 to 7.294, though there was great reaſon to think that no hollows were left in it, and that only a ſmall part of this difference could proceed from the error of the experiment. This variation of denſity is as much as is produced in quickſilver by an alteration of 66° of heat; and it is not unlikely, that the deſcent of a thermometer, on account of the contraction of the quickſilver in its ball by freezing, may vary as much in different trials, though the whole maſs of quickſilver is frozen without any vacuities.

24
Of freezing mixtures.

"The cold produced by mixing ſpirit of nitre with ſnow is entirely owing to the melting of the ſnow. Now, in all probability, there is a certain degree of cold in which the ſpirit of nitre, ſo far from diſſolving ſnow, will yield part of its own water, and ſuf-

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(A) "The numbers here given are thoſe ſhown by the thermometer without any correction; but if a proper allowance is made for the error of that inſtrument, it will appear, that the true contraction was 25° leſs than here ſet down; and from the manner in which thermometers have been uſually adjuſted, it is likely that in the 5th experiment of Mr Hutchins, as well as in thoſe of Profeſſor Braun, the true contraction might equally fall ſhort of that by obſervation."

ſuffer that to freeze, as is the caſe with ſolutions of common ſalt; ſo that if the cold of the materials before mixing is equal to this, no additional cold can be produced. If the cold of the materials is leſs, ſome increaſe of cold will be produced; but the total cold will be leſs than in the former caſe, ſince the additional cold cannot be generated without ſome of the ſnow being diſſolved, and thereby weakening the acid, and making it leſs able to diſſolve more ſnow; but yet the leſs the cold of the materials is, the greater will be the additional cold produced. This is conformable to Mr Hutchins's experiments; for, in the fifth experiment, in which the cold of the materials was —40°, the additional cold produced was only 5°. In the firſt experiment, in which the cold of the materials was only —23°, an addition of at leaſt 19° of cold was obtained; and by mixing ſome of the ſame ſpirit of nitre with ſnow in this climate, when the heat of the materials was +26°, Mr Cavendiſh was able to ſink the thermometer to —29°, ſo that an addition of 55 degrees of cold was produced.

"It is remarkable, that in none of Mr Hutchins's experiments the cold of the mixture was more than 6° of the ſpirit thermometer below the freezing point of quickſilver, which is ſo little, that it might incline one to think that the ſpirit of nitre uſed by him was weak. This, however, was not the caſe; as its ſpecific gravity at 58° of heat was 1,4923. It was able to diſſolve $\frac{1}{1.42}$ its weight of marble, and contained very little mixture of the vitriolic or marine acid: as well as could be judged from an examination of it, it was as little phlogiſticated as acid of that ſtrength uſually is."

25
Congelation of oil of vitriol.

Acids, eſpecially thoſe of the mineral kind, powerfully reſiſt congelation. There is, however, a peculiarity with regard to that of vitriol. Mr Chaptal, a foreign chemiſt, obſerved that it condenſed by the cold of the atmoſphere, and the cryſtals began to melt only at +70° of his thermometer; which, if Reaumur's, correſponds to about 47° of Fahrenheit. The cryſtals were unctuous from the melting acid, and they felt warmer than the neighbouring bodies: the form was that of a priſm of ſix ſides, flatted and terminated by a pyramid of ſix ſides, but the pyramid appeared on one end only; on the other, the cryſtal was loſt in the general maſs. The pyramid reſulted from an aſſemblage of ſix iſoſceles triangles: the oil when the cryſtal was melted was of a yellowiſh black; on rediſtilling it in a proper apparatus, no peculiar gas came over. M. Chaptal repeated his experiments with the highly concentrated acid, but found that it did not freeze; that the denſity of the acid which he thought froze moſt eaſily was to the oil, of the uſual ſtrength for ſale, as from 63 and 65 to 66; and the neceſſary degree of cold about 19 of Fahrenheit. Oil of vitriol once melted will not cryſtallize again with the ſame degree of cold.

M. Moré, a conſiderable manufacturer of oil of vitriol at Hadimont near Vervier, in the duchy of Limbourg in Germany, attributes this congelation to the addition of nitrous air. The acid of vitriol is uſually ſeparated from ſulphur by burning it in cloſe veſſels; and the air is ſupplied by adding to the ſulphur a little nitre. He found, that by mixing the acid, capable of being congealed, with water, or employing it for other purpoſes, orange-coloured fumes, and the ſmell of the true nitrous acid, were very evident. When this gas was deſtroyed, no degree of cold would congeal the acid, whatever was its degree of concentration; and the congelation was generally obſerved immediately after the proceſs by which the acid was obtained.

Mr Macquer relates, in the ſecond edition of his Chemical Dictionary, article *Vitriolic Acid*, that the Duke d'Ayen had obſerved the congelation of concentrated vitriolic acid, which had been expoſed to a cold expreſſed by 13 or 14 degrees below 0 on Reaumur's thermometer; but that mixtures, conſiſting of one part of the abovementioned concentrated acid, with two or more parts of water, could not be frozen by the cold to which he expoſed them, till he had diluted the acid ſo much that its denſity was to that of water as 104½ to 96; in which latter caſe of congelation it is probable that the water only was frozen, as is the caſe in dilute ſolutions of ſalts. Similar experiments were made by M. de Morveau, and with equal ſucceſs. Having produced an intenſe cold by pouring ſpirit of nitre on pounded ice, he congealed a part of ſome vitriolic acid which had been previouſly concentrated; but he obſerved, that though a very intenſe cold had been made uſe of to congeal the acid at firſt, it nevertheleſs remained congealed in much ſmaller degrees of cold, and that it thawed very ſlowly. This coincides with the obſervations of M. Chaptal; though the latter obſerves, that there is ſome difference between ſtrong oil of vitriol lowered with water, and that produced of a given ſtrength by rectification. The latter always has ſome colour; and it will not diſſolve indigo in ſuch a manner as to carry the colour into the ſtuff, though the ſtronger oil, diluted to the ſame degree, ſucceeds very well. Some obſervations were alſo made by Mr M'Nab at Hudſon's Bay, an account of which is given in the Phil. Tranſ. for 1786 by Mr Cavendiſh, at whoſe deſire they had been made. From them it appears, that a vitriolic acid, whoſe ſpecific gravity was to that of water as 1843 to 1000, froze when expoſed to a cold of —15° of Fahrenheit's ſcale; that another more dilute vitriolic acid, conſiſting of 629 parts of the former concentrated acid, and 351 parts of water, congealed in a temperature of —36; and that, when farther diluted, it was capable of ſuſtaining a much greater degree of cold without freezing at all. In theſe experiments, as well as in thoſe of Mr Morveau, it appeared that the whole of the acid did not congeal, but that part of it retained its fluidity; and on examining the ſtrength of that which remained fluid, Mr Cavendiſh found that there was very little difference between it and the other; whence he was led to ſuppoſe, that the reaſon of this congelation does not ariſe from any difference in ſtrength, but on ſome leſs obvious quality, and ſuch as conſtitutes the difference between common and icy oil of vitriol.

In all the experiments hitherto made, however, Mr Cavendiſh had found ſome uncertainty in determining the point of eaſieſt freezing; neither could he determine whether the cold neceſſary for congelation does not increaſe without any limitation in proportion to the ſtrength of the acid. A new ſet of experiments were

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Mr Kier's experiments.

were therefore made by Mr Kier to determine this point. He had obſerved, after a ſevere froſt at the end of the year 1784 and beginning of 1785, that ſome vitriolic acid, contained in a corked phial, had congealed, while other bottles containing the ſame, ſome ſtronger and ſome weaker, retained their fluidity. As the congelation was naturally imputed to the extremity of the cold, he was afterwards ſurpriſed to find, when the froſt ceaſed, that the acid remained congealed for many days, when the temperature of the atmoſphere was ſometimes above 40° of Fahrenheit; and when the congealed acid was brought into a warm room on purpoſe to thaw it, a thermometer placed in contact with it during its thawing continued ſtationary at 45°. Hence he concluded, that the freezing and thawing point of this acid was nearly at 45°; and accordingly, on expoſing the liquor which had been thawed to the air at the temperature of 30°, the congelation again took place in a few hours. From the circumſtance of other parcels of the ſame acid, but of different ſtrengths, remaining fluid, though they had been expoſed to a much greater degree of cold, he was led to believe that there muſt be ſome certain ſtrength at which the acid is more diſpoſed to congeal than at any other. The ſpecific gravity of the acid which had frozen was to that of water nearly as 1800 to 1000, and that of the ſtronger acid which had not frozen was as 1846 to 1000, which is the common denſity of that uſually ſold in England; and there was not the leaſt difference, excepting in point of ſtrength, between the acid which had frozen and that which had not; Mr Kier having taken the acid ſome weeks before with his own hands from the bottle which contained the latter, and diluted it with water, till it became of the ſpecific gravity of 1800.

To render the experiment complete, Mr Keir immerſed ſeveral acids of different ſtrengths in melting ſnow, inſtead of expoſing them to the air; the temperature of which was variable, whereas that of melting ſnow was certain and invariable. Thoſe which would not freeze in melting ſnow were afterwards immerſed in a mixture of common ſalt, ſnow, and water; the temperature of which, though not ſo conſtant and determinate as that of melting ſnow, generally remained for ſeveral hours at 18°, and was ſometimes ſeveral degrees lower. The intention of adding water to the ſnow and ſalt was to leſſen the intenſity of the cold of this mixture, and to render it more permanent than if the ſnow and ſalt alone were mixed. The acids which had frozen in melting ſnow were five in number; which being thawed and brought to the temperature of 60°, were found on examination to have the following ſpecific gravities, viz. 1786, 1784, 1780, 1778, 1775. Thoſe which had not congealed with the melting ſnow, but which did ſo with the mixture of ſnow, ſalt, and water, were found, when brought to the temperature of 60°, to be of the following ſpecific gravities, viz. 1814, 1810, 1804, 1794, 1790, 1770, 1759, 1750. Thoſe which remained, and would freeze neither in melting ſnow nor in the mixture of ſnow, ſalt, and water, were of the gravities 1846, 1839, 1815, 1745, 1720, 1700, 1610, 1551. From the firſt of theſe it appears, that the medium denſity of the acids which froze with the natural cold was 1780; and from the ſecond, that at the denſities of 1790 and 1770 the acid had been incapable of freezing with that degree of cold. Hence it follows, that 1780 is nearly the degree of ſtrength of eaſieſt freezing, and that an increaſe or diminution of that denſity equal to $\frac{1}{178}$th of the whole, renders the acid incapable of freezing with the cold of melting ſnow, though this cold is ſomething above the freezing point of the moſt congealable acid. From the ſecond it appears, that by applying a more intenſe cold, viz. that produced by a mixture of ſnow, ſalt, and water. the limits of the denſities of acids capable of congelation were extended to about $\frac{3}{178}$th above or below the point of eaſieſt freezing: and there ſeems little reaſon to doubt, that, by greater augmentations of cold, theſe limits may be further extended; but in what ratio theſe augmentations and extenſions proceed, cannot be determined without many obſervations made in different temperatures.

"But (ſays Mr Keir) though it is probable that the moſt concentrated acids may be frozen, provided the cold be ſufficiently intenſe, yet there ſeems reaſon to believe, that ſome of the congelations which have been obſerved in highly concentrated acids, have been effected in conſequence of the denſity of theſe acids being reduced nearly to the point of eaſy freezing by their having abſorbed moiſture from the air: for the Duke d'Ayen and M. de Morveau expoſed their acids to the air in cups or open veſſels; and the latter even acquaints us, that on examining the ſpecific gravity of the acid which had frozen, he found it to that of water as 129 to 74; which denſity being leſs than that of eaſieſt freezing, proves that the acid he employed, and which he had previouſly concentrated, had been actually weakened during the experiment. I have ſeveral times expoſed concentrated oil of vitriol in open veſſels in froſty weather; and I have ſometimes, but not always, obſerved a congelation to take place. Upon ſeparating the congealed part, and on examining the ſpecific gravity of the latter after it had thawed, I found that it had been reduced to the point of eaſieſt freezing. When the congealed acid was kept longer expoſed it gradually thawed, even when the cold of the air increaſed; the reaſon of which is not to be imputed to the heat produced by the moiſture of the air mixing with the acid, but principally to the diminution below the point of eaſieſt freezing, which was occaſioned by the continued abſorption of moiſture from the air, and which rendered the acid incapable of continuing frozen without a great increaſe of cold,

"It appears, then, that the concentration of M. de Morveau's acid, at the time of its congelation, from which circumſtance Mr Cavendiſh infers generally that the vitriolic acid freezes more eaſily as it is more denſe, is not a true premiſe; and that therefore the inference, though juſtly deduced, is invalid. On the contrary, there ſeems every reaſon to believe, that as the denſity of the acids increaſes beyond the point of eaſieſt freezing, the facility of the congelation diminiſhes; at leaſt to as great denſity as we have ever been able to obtain the vitriolic acid: for if it were poſſible to diveſt it entirely of water, it would probably aſſume a ſolid form in any temperature of the air.

“ The cryſtallization of the vitriolic acid is more or leſs diſtinct, according to the ſlowneſs of the formation of the cryſtals and other favourable circumſtances. Sometimes they are very large, diſtinctly ſhaped, and hard. Their ſhape is like thoſe of the common mineral alkali and ſelenite ſpar, but with angles different in dimenſions from either of theſe. They are ſolid, conſiſting of ten faces; of which the two largeſt are equal, parallel, and oppoſite to each other; and are oblique-angled parallelograms or rhomboids, whoſe angles are, as near as could be meaſured, of 105 and 75 degrees. Between theſe two rhomboidal faces are placed eight of the form of trapeziums; and thus each cryſtal may be ſuppoſed to be compounded of two equal and ſimilar fruſtums of pyramids joined together by their rhomboidal baſes. They always ſunk in the fluid acid to the bottom of the veſſel, which ſhowed that their denſity was increaſed by congelation. It was attempted to determine their ſpecific gravity by adding to this fluid ſome concentrated acid, which ſhould make them float in the liquor, the examination of whoſe ſpecific gravity ſhould aſcertain that of the floating cryſtals; but they were found to ſink even in the moſt concentrated acid, and were conſequently denſer. Some of the congealable acid previouſly brought to the freezing temperature was then poured into a graduated narrow cylindrical glaſs, up to a certain mark, which indicated a ſpace equal to that occupied by 200 grains of water. The glaſs was placed in a mixture of ſnow, ſalt, and water; and when the acid was frozen, a mark was made on the part of the glaſs to which it had ſunk. Having thawed the acid and emptied the glaſs, it was filled with water to the mark to which it had ſunk by freezing; and it was then found that 15 grains more of water were required to raiſe it to the mark expreſſing 200 grains; which ſhows, that the diminution of bulk ſuſtained by the acid in freezing had been equal to $\frac{1}{13\cdot 3}$ of the whole. Computing from this datum, we ſhould eſtimate the ſpecific gravity of the congealed acid to have been 1924; but as it evidently contained a great number of bubbles, its real ſpecific gravity muſt have been conſiderably greater than the above calculation, and cannot eaſily be determined on account of theſe bubbles. By way of compariſon, Mr Keir obſerved the alteration of bulk which water contained in the ſame cylindrical veſſel would ſuffer by freezing; and found that its expanſion was equal to about $\frac{1}{10}$th of its bulk. The water had been previouſly boiled, but nevertheleſs contained a great number of air bubbles; ſo that in this reſpect there is a conſiderable difference between the congelations of water and the vitriolic acid; though perhaps it may ariſe principally from the bubbles of elaſtic fluid being in greater proportion in the one than the other.

“ Greater cold is produced by mixing ſnow or pounded ice with the congealed than with the fluid vitriolic acid, though the quantity is not yet determined. The greateſt cold produced by Mr M‘Nab at Hudſon's Bay, was effected by mixing ſnow with a vitriolic acid which had been previouſly congealed; and to this circumſtance Mr Cavendiſh imputes the intenſity of the cold, as the liquefaction both of the acid and the ſnow had concurred in producing the ſame effect; while in mixing fluid acids with ſnow, the thawing of the ſnow is probably the only productive cauſe.

“ To compare the times requiſite for the liquefaction of ice and of congealed oil of vitriol, two equal and ſimilar glaſſes were filled, one with the congealable vitriolic acid, the other with water; and after having immerſed them in a freezing mixture till both were congealed and reduced to the temperature of 28°, the glaſſes were withdrawn, wiped dry, and placed in a room where the thermometer ſtood at 62°. The ice thawed in 40 minutes, and the acid in 95; at the end of which time the thermometer, which ſtood near the glaſſes, had riſen to 64°. Hence it appears that the congealed acid requires more than twice the time for its liquefaction that ice does, though it cannot thence be fairly inferred, that the cold generated by the liquefaction of the ice and of congealed acid are in the above proportions of the times, from the following conſiderations, *viz.* that as, during the liquefaction of the ice, its temperature remains ſtationary at 32°, and during the liquefaction of the acid, its temperature remains about 44 or 45°, it appears, that the ice being conſiderably colder than the acid, will take the heat from the contiguous air much faſter. By this experiment, however, we know that a conſiderable quantity of cold is generated by the liquefaction of the acid; and hence it appears probable, that in producing cold artificially, by mixing ſnow with acids in very cold temperatures, it would probably be uſeful to employ a vitriolic acid of the proper denſity for congelation, and to freeze it previouſly to its mixture with ſnow. It muſt not, however, be imagined, that the cold generated by the mixture of theſe two frozen ſubſtances is nearly equal to the ſums of the colds generated by the ſeparate liquefactions of the congealed acid and ice, when ſingly expoſed to a thawing temperature; for the mixture reſulting from the liquefaction, conſiſting of the vitriolic acid and the water of the ſnow, appears from the generation of heat which occurs from the mixture of theſe ingredients in a fluid ſtate, to be ſubject to different laws than thoſe which rule either of the ingredients ſeparately.

“ The vitriolic acid, like water and other fluids, is capable of retaining its fluidity when cooled conſiderably below its freezing point. A phial containing ſome congealable vitriolic acid being placed in a mixture of ſalt, ſnow, and water, a thermometer was ſoon afterwards immerſed in it while the acid was yet fluid, on which it quickly ſunk from 50 to 29°. On moving the thermometer in the fluid, to make it acquire the exact temperature, the mercury was obſerved ſuddenly to riſe; and on looking at the acid, numberleſs ſmall cryſtals were obſerved floating in it, which had been ſuddenly formed. The degree to which the mercury then roſe was 46½°; and at another time, while the acid was freezing, it ſtood at 45°.”

From theſe experiments our author infers, “ 1. That the vitriolic acid has a point of eaſieſt freezing, and that this is when its ſpecific gravity is to that of water as 1780 to 1000. 2. That the greater or leſs diſpoſition to congelation does not depend on any other circumſtance than the ſtrength of the acid. 3. That the freezing and thawing degree of the moſt congealable acid is about 45° of Fahrenheit's ſcale. It is, however, to be obſerved, that this degree is inferred from the temperature indicated by the thermometers immerſed in the freezing and thawing acids; but the congelation of the fluid acid could never be accompliſhed without expoſing it to a greater degree of cold, either by expoſing it to the air in froſty weather or to the cold of melting ſnow. 4. Like water, this acid poſſeſſes the property of retaining its fluidity when cooled ſeveral degrees below the freezing point; and of riſing ſuddenly to it when its congelation is promoted by agitation, or by contact even with a warmer thermometer. 5. That, like water and other congelable fluids, the vitriolic acid generates cold by its liquefaction, and heat during its congelation, though the quantity of this heat and cold remains to be determined by future experiments. 6. That the acid, by congelation, when the circumſtances for diſtinct cryſtallization are favourable, aſſumes a regular cryſtalline form, a conſiderable ſolidity and hardneſs, and a denſity much greater than it poſſeſſed in its fluid ſtate."

Beſides this ſpecies of congelation, the vitriolic acid is ſubject to another, probably the ſame deſcribed by Baſil Valentine and ſome of the older chemiſts. This is effected in the ordinary temperature of the air, even in ſummer; and, according to Mr Keir*, is peculiar to that ſpecies of oil of vitriol which is diſtilled from green vitriol, and which is poſſeſſed of a ſmoking quality in a high degree; "for not only the authors (ſays Mr Keir), by whom this congelation has been obſerved, have given this deſcription of the acid employed, but alſo the late experiments of Mr Dollfuſs, ſeem to ſhow that this ſmoking quality is eſſential to the phenomenon: for neither the acid obtained from vitriol, when deprived by rectification of its ſmoking quality, nor the Engliſh oil of vitriol, which is known to be obtained by burning ſulphur, and which does not ſmoke, were found by his trials to be ſuſceptible of this ſpecies of congelation. It may, however, be worth the attention of thoſe chemiſts who have an opportunity of ſeeing this *icy oil of vitriol*, as it is called, to obſerve more accurately than has yet been done, the freezing temperature and the denſity of the congealable acids; and to examine whether the denſity of this ſmoking acid alſo is connected with the glacial property. It ſeems alſo further deſerving of inveſtigation, whether there be not ſome analogy between the congelation of the ſmoking oil of vitriol and the very curious cryſtallization which Dr Prieſtley obſerved in a concentrated vitriolic acid ſaturated with nitrous acid vapours; and whether this ſmoking quality does not proceed from ſome marine or other volatile acid, which may be contained in the martial vitriol whence the vitriolic acid is obtained."

Mr Keir alſo obſerves, that M. Cornatter has effected the cryſtallization of vitriolic acid, by diſtilling it with nitrous acid and charcoal; and we can add from our own experience, that a cryſtallization inſtantly takes place on allowing the fumes of the nitrous and vitriolic acids to mix together; and this, whether the former be procured from martial vitriol or ſulphur, and whether it be in a phlogiſticated ſtate or not, concentration in both acids is here the only requiſite.

CONGER, in zoology. See MURÆNA.

CONGERIES, a Latin word, ſometimes uſed in our language for a collection or heap of ſeveral particles or bodies united into one maſs or aggregate.

CONGESTION, in medicine, a maſs or collection of humours, crowded together and hardened in any part of the body, and there forming a preternatural tumor.

Congeſtion is effected by little and little: in which it differs from *defluction*, which is more ſudden.

CONGIARIUM, CONGIARY, among medaliſts, a gift or donative repreſented on a medal. The word comes from the Latin *congius;* becauſe the firſt preſents made to the people of Rome conſiſted in wine and oil, which were meaſured out to them in *congii*. The congiary was properly a preſent made by the emperors to the people of Rome. Thoſe made to the ſoldiers were not called *congiaries* but *donatives*. The legend on medals repreſenting *congiaries*, is, *Congiarium* or *Liberalitas*. Tiberius gave a congiary of three hundred pieces of money to each citizen: Caligula twice gave three hundred ſeſterces a head: Nero, whoſe congiaries are the firſt that we find repreſented on medals, gave four hundred.

CONGIUS, a liquid meaſure of the ancient Romans, containing the eighth part of the amphora, or the fourth of the urna, or ſix ſextarii. The congius in Engliſh meaſure contains 2,070,676 ſolid inches; that is ſeven pints, 4,942 ſolid inches.

CONGLOBATE GLAND. See ANATOMY.

CONGLOMERATE GLAND. *Ibid.*

CONGLOMERATE Flowers, are thoſe growing on a branching foot-ſtalk, to which they are irregularly but cloſely connected. This mode of inforeſcence, as Linnæus terms it, is oppoſed to that in which the flowers are irregularly and looſely ſupported on their foot-ſtalks, hence termed a *diffuſe panicle**. The term is exemplified in ſeveral of the graſſes, particularly in ſome ſpecies of the *poa*, feſcue graſs, and agroſtis.

CONGLUTINATION, the gluing or faſtening any two bodies together by the intromiſſion of a third, whoſe parts are unctuous and tenacious, in the nature of glue. See GLUE.

1 Extent.

CONGO, a kingdom of Africa, bounded on the north by the river Zair, or Zarah, which divides it from Loanga; on the ſouth by the river Danda, which ſeparates it from Angola; on the eaſt by the kingdoms of Fungono and Metamba, and the burnt mountains of the ſun, thoſe of chryſtal or ſalt-petre and ſilver, or (according to Anthony Cavazzi, a late traveller into thoſe parts) by the moutains of Boanza, Berbela, and the great mountain of Chilandia or Aquilonda; and on the weſt by that part of the Atlantic ocean called the Ethiopic ſea, or the ſea of Congo. According to theſe limits, Congo Proper extends about three degrees from north to ſouth; lying between 6° and 9° S. Lat.; but widens in its breadth inland, by the courſe of the river Zair, which runs winding above two degrees more to the north. Its length from eaſt to weſt is very uncertain, as no obſervations have been taken of the exact ſituation of thoſe mountains which bound it.

2 Hiſtory uncertain and fabulous.

The hiſtory of this kingdom affords but few intereſting particulars. Before its diſcovery by the Portugueſe, the hiſtory is altogether uncertain and fabulous, as the inhabitants were totally unacquainted with letters and learning. So little were they acquainted with chronology, that it is ſaid they did not even diſtinguiſh between day and night; much leſs could they compute their time by moons or years; and therefore could remember paſt tranſactions only by ſaying they happened in ſuch a king's reign.

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* Phil. Tranſ. vol. lxxvii. p. 267.

* See Panicle.

3
The country diſcovered by the Portugueſe.

The country was diſcovered by the Portugueſe in 1484. The diſcoverer was named Diego Cam, an expert and bold ſailor. He was very well received by the natives, and ſent ſome of his men with preſents to the king; but they being detained by unexpected accidents beyond the promiſed time of their return, Cam was obliged to ſail away without them, and took with him four young Congoeſe, as hoſtages for the ſafety of his countrymen. Theſe he taught the Portugueſe language, in which they made ſuch progreſs that king John was highly pleaſed, and ſent them back next year to Congo with rich preſents; charging them to exhort their monarch, in his name, to become a convert to the Chriſtian religion, and to permit it to be propagated through his dominions. A firm alliance was concluded between the two monarchs, which continues to this day, though not without ſome interruptions, to which the Portugueſe themſelves have given occaſion more than the natives.

4
Cavazzi's account of Congo.

Any particular account we have of this kingdom, reſts almoſt entirely on the credit of Anthony Cavazzi, the traveller abovementioned. He was a capuchin-friar, a native of the duchy of Modena, and was ſent miſſionary into thoſe parts *de propaganda fide*, in the year 1654, and arrived at Congo the ſame year. During his ſtay there, his zeal to make converts made him travel through all theſe different kingdoms; and the credit he gained, as well as the great employments he was intruſted with, gave him an opportunity of informing himſelf of every thing relating to them with great exactneſs. The extent and ſituation, however, he could not poſſibly aſcertain, for want of inſtruments, nor hath this defect been ſince ſupplied. According to him, the dominions of Congo extended a great deal further eaſtward and ſouthward before the introduction of Chriſtianity than afterwards; a great number of the ſtates that were under the Congoeſe monarchs, either as ſubjects, or tributary, having withdrawn their allegiance out of diſlike to them on that account. Not content with oppoſing the officers and troops that came annually to raiſe the tribute impoſed by the king, they made ſuch frequent and powerful incurſions into his dominions, that they obliged him to draw his forces nearer the centre of Congo to prevent an invaſion; by which means the kingdom, from an extent of 600 leagues, was reduced to leſs than one half.

5
Extent leſſened ſince the introduction of Chriſtianity.

6
Account of the climate and ſeaſons.

Congo Proper being ſituated within the torrid zone, is liable to exceſſive heats: as it lies on the ſouthern ſide of the equinoctial, the ſeaſons are of courſe oppoſite to ours. They reckon only two principal ſeaſons, the ſummer and winter; the former begins in October, and continues till February or March; during which time the ſun's rays dart with ſuch force, that the atmoſphere appears to an European to be in a flame. The exceſſive heat, however, is mitigated by the equal length of the days and nights, as well as by the winds, breezes, rains, and dews. The winter takes up the other part of the year; and is ſaid by the natives to be proportionally cold, though to an European it would appear hot. Theſe two ſeaſons they divide into ſix leſſer ones, *viz.* Maſſanza, Neaſu, Ecundi, Quitombo, Quibiſo, and Quibangala.

Maſſanza begins with the month of October, which is the beginning of their ſpring. The rains begin to fall at that time, and continue during the next two, and ſometimes three, months. When they do ſo, the low lands are commonly overflowed by the extraordinary floods, and all their corn carried off. A diſaſter of this kind is commonly followed by a famine; for the lazy inhabitants take no care to lay up any proviſions, although ſuch misfortunes happen very frequently. This firſt ſeaſon they reckon commences at the time the plants begin to ſpring.

The ſecond ſeaſon, Neaſu, begins about the end of January, when the produce of their lands has arrived at its full height, and wants but a few days of being ripened for harveſt. This firſt crop is no ſooner gathered in, than they ſow their fields afreſh, their land commonly yielding them two harveſts.

The third and fourth ſeaſons, called *Ecundi* and *Quitombo*, are frequently blended together towards the middle of March, when the more gentle rains begin to fall, and continue to do ſo till the month of May. Theſe two ſeaſons are diſtinguiſhed by the greater or leſſer quantity of rain that falls during that interval. During the reſt of the time, the air is either very clear, hot, and dry; or the clouds being overcharged with electric matter, burſt out into the moſt terrible thunders and lightnings, without yielding the leaſt drop of rain, though they ſeem loaded with it.

The two laſt, *viz.* the Quibiſo and Quibangala, make up their ſhort winter, which conſiſts not in froſt or ſnow, but in dry, blaſting winds, which ſtrip the earth of all its verdure, till the next Maſſanza begins to reſtore them to their former bloom.

7
Natives exceſſively indolent.

They now divide their year into twelve lunar months, and begin it in September. They have alſo weeks conſiſting of four days only, the laſt of which is their ſabbath; and on it they religiouſly abſtain from every kind of work. This practice, the compilers of the Univerſal Hiſtory conjecture to have ariſen from the extreme lazineſs for which this people, and indeed all the African nations, are ſo remarkable. To this ſhameful indolence alſo is to be aſcribed the little produce they reap from their lands, while the Portugueſe ſettled among them, who are at more pains in the cultivation of theirs, enjoy all manner of plenty. The natives, however, had rather run the riſk of the moſt terrible famines, than be at the tenth part of the labour they ſee the Portugueſe take. They ſeem to think it below them to uſe any other exerciſes than thoſe of dancing, leaping, hunting, ſhooting, &c.; the reſt of their time they ſpend in ſmoking, and downright idleneſs, committing the laborious part of their houſehold affairs to their ſlaves, or, in want of them, to their wives. Nothing is more common than to ſee theſe poor creatures toiling in the fields and woods with a child tied to their backs, and fainting under their exceſſive labour and heavy burdens, or (which is ſtill worſe) hunger and thirſt. What is yet more ſurpriſingly ſhameful is, that though they have plenty of domeſtic animals which they might eaſily make uſe of for cultivating their grounds, and for other laborious ſervices, and though they ſee the Portugueſe do it every day to great advantage; yet they will rather ſee their tender females ſink under their toil and labour, than be at the trouble of breeding up any of theſe uſeful creatures to their aſſiſtance.

8 Vegetables produced in Congo.

The ground produces variety of grain, but no corn or rice except what is cultivated by the Portugueſe. Their maize, or Indian wheat, grows very ſtrong, and is well laden. This, being well ground, they make into bread, or boil with water into a kind of pap. Of this they have four kinds; one of which reſembling what we call French wheat, is produced in plenty, and makes ſome amends for the want of induſtry in the people. They cultivate alſo a variety of the peaſe and bean kind: but what they chiefly live upon, as moſt ſuitable to their lazy diſpoſition, is a kind of nut, like our filberds, which fall to the ground of themſelves, and are to be found every where; every nut that falls to the ground producing a new ſhrub next year. They have ſcarcely any fruit-trees but what have been brought thither by the Portugueſe. They have various ſorts of palm-trees, uſeful both by their fruit, leaves, and their juice, which is eaſily converted into wine; alſo by affording a kind of oil with which they dreſs their victuals, though the Europeans uſe it only to burn in their lamps. They have alſo a vaſt number of plants and ſhrubs, which it would be impoſſible to deſcribe or enumerate. Wheat is the only thing that the ground will not produce. It puſhes forth, indeed, the ſtraw and the ear; the former of which grows high enough, we are told, to hide a man on horſeback, but the latter is empty, without one grain fit for uſe. Father Labat, however, who had lived a conſiderable time in ſome of the American iſlands, where he had obſerved the ſame thing, tells us, that he had the curioſity to examine thoſe ears more carefully and had found ſome few grains; and that, having ſowed them afreſh, they produced very long ears, full of large heavy grain. Whence he conjectures, that if the Portugueſe had tried the ſame experiment in their African ſettlements, it might perhaps have been attended with the ſame ſucceſs.

9 Hazardous travelling.

In the low lands the graſs grows ſo high, rank, and thick, that it becomes one of the moſt dangerous receptacles for wild beaſts, ſerpents, and other venomous inſects: on this account travelling is exceedingly hazardous, as they have few beaten roads in the whole country, and travellers are obliged to march over it through vaſt plains, in continual danger of being devoured or ſtung to death; to ſay nothing of the manifold diſeaſes produced by the unwholeſome dews with which the graſs is covered during ſome part of the day. The only method of guarding againſt all theſe evils effectually, is by ſetting fire to the graſs in the hot weather, when it is quite parched by the heat of the ſun: but even this cannot be done without the greateſt danger; becauſe both the wild beaſts and venomous reptiles, being rouſed out of their places of retirement, will fly furiouſly at thoſe who happen to be in the way. In this caſe there is no poſſibility of eſcaping, but by climbing up the higheſt trees, or defending one's ſelf by fire-arms or other weapons. In ſuch emergencies, the natives have a much better chance than the Europeans; the former being able to climb trees with ſurpriſing ſwiftneſs; while the latter muſt be aſſiſted with rope-ladders, which they commonly cauſe their blacks to carry about with them, and to go up and faſten to one of the branches.

10 Great variety of flowers.

The flowers are here exceedingly beautiful and numerous. Almoſt every field and grove yields a much nobler proſpect than the European gardens can boaſt of, notwithſtanding the pains beſtowed on their cultivation. The flowers are remarkable, not only for the prodigious variety of their colours, but the vaſt quantity of heads which grow upon one ſtalk. In the day-time, indeed, they ſeem to have loſt their natural fragrancy; that being in ſome meaſure exhaled by the heat of the ſun: but this is amply compenſated after its ſetting, and more eſpecially a little before its riſing, when their ſweetneſs is again condenſed, and revived by the coldneſs and dews of the night, after which they exhale their various refreſhing ſcents in a much higher degree than ours. The lilies, which there grow naturally in the fields, valleys, and woods, excel thoſe of our gardens, not only in their extreme whiteneſs, but much more in a delightful fragrancy, without offending the head, as the European lilies do by their faintiſh ſweetneſs. The tulips which there grow wild, though generally called *Perſic*, have ſomething ſo ſurpriſingly charming in the variety and combination of their colours, that they dazzle the eyes of an intenſe beholder: neither do their flowers grow ſingly as with us, but ten or twelve upon one ſtalk; and with this double advantage, that they diffuſe a very reviving and agreeable ſweetneſs, and continue much longer in their full bloom. Of the ſame nature are their tuberoſes, hyacinths, and other native flowers; which ſpring up in vaſt groups of 100 and 200 from one root, though ſomewhat ſmaller than ours; ſome of them finely variegated, and all of them yielding an agreeable ſmell. The roſes, jeſſamines, and other exotics brought thither from Europe or America, come up likewiſe in great perfection; but require a conſtant ſupply of water, and diligent attendance, to prevent them from degenerating. The American jeſſamine, in particular, inſtead of ſingle flowers, will grow up by dozens in a bunch: ſome of them of an exquiſite white, and others of the colour of the moſt vivid fire.

11 Animals of different kinds.

A vaſt variety of animals of different kinds are found in the kingdom of Congo; the chief of which are the elephant. This creature is moſtly found in the province of Bamba, which abounds with woods, paſture, and plenty of water; the elephants delighting much to bathe themſelves during the heat of the day. They commonly go in troops of an hundred or more; and ſome of them are of ſuch a monſtrous ſize, that we are told the print of their hoof hath meaſured four, nay *ſeven*, ſpans in diameter. From the hair of their tails, and that of ſome other animals, the natives, eſpecially the women, weave themſelves collars, bracelets, girdles, &c. with variety of devices and figures, which denote their quality; and are in ſuch eſteem, that the hair of two elephants tails is ſufficient to buy a ſlave. The reaſon of this is, that the natives have not the art of taming them, but are obliged to ſend ſome of their braveſt and ſtouteſt men to hunt them in the woods; which is not done without great labour and danger, they being here exceedingly fierce. The moſt common way of hunting them is by digging deep holes in the ground, the top of which they cover with branches and leaves, as is practiſed in moſt parts of Aſia.

Lions, leopards, tigers, wolves, and other beaſts of prey, abound here in great plenty, and do much damage. Here are alſo a vaſt variety of monkeys of all ſizes and ſhapes. The zebra, well known for its extreme beauty and ſwiftneſs, is alſo met with in this country. They have alſo a variety of buffaloes and wild aſſes; but the *dante* ſeems to be an animal peculiar to this kingdom. It is ſhaped and coloured much like an ox, though not ſo large. Its ſkin is commonly bought by the Portugueſe, and ſent into Germany to be tanned and made into targets, which are then called *dantes*. The natives make uſe of their raw hide dried to make their ſhields; which are ſo tough that no arrow or dart can pierce them; and they are alſo large enough to cover the whole body. The creature is vaſtly ſwift; and when wounded, will follow the ſcent or ſmoke of the gunpowder with ſuch fury, that the hunter is obliged to climb up a tree with all poſſible ſpeed; and this retreat he always takes care to ſecure before he ventures to fire. The wounded beaſt finding its enemy out of its reach, ſtays for him at the foot of the tree, and will not ſtir from it; of which the hunter taking the advantage, diſpatches it with repeated ſhots. The foreſts of Congo alſo ſwarm with wild dogs, who, like the wolves, prey upon the tame cattle, and are ſo fierce that they will attack armed men. Their teeth are exceeding keen and ſharp; they never bark, but make a dreadful howling when famiſhed or in purſuit of their prey.

12 Birds.

This country alſo abounds with all the different kinds of birds that are to be found in other warm climates. One ſort, which they call *birds of muſic*, is greatly eſteemed, inſomuch that perſons of the higheſt rank have from time immemorial taken the greateſt delight in keeping them in cages and aviaries for the ſake of their ſurpriſing melody. On the other hand, as the Congoeſe are ſuperſtitious to the laſt degree, there are ſeveral kinds of birds which they look upon as ominous, and are ſo terrified at the ſight or hearing of them, that if they were going to enter upon ever ſo momentous an expedition, if they were met in council, or going to engage an enemy with ever ſo great an advantage, the flight or cry of ſuch birds would throw them into a general panic, and diſperſe them in the utmoſt haſte and confuſion. The moſt dreadful of the ominous kind are the crows, ravens, bats, and owls. The great owl is the moſt terrible of all, and to him they give the name of *kariem pemba*, by which words they likewiſe denote the devil.

Fiſh of different kinds abound on the coaſts of Congo in great numbers; but the inland parts are infeſted with ſuch numbers of ſerpents, ſcorpions, and other venomous inſects as are perhaps ſufficient to overbalance every natural advantage we have yet mentioned. 13 Ants very dangerous. The moſt pernicious and dangerous kind are the ants; of which they reckon no leſs than ſix ſeveral ſpecies of different colours and ſizes; all of them formidable on account of their prodigious numbers, and the miſchief they do not only to the fruits of the earth, but to men and beaſts; whom they will ſurround in the night time, and devour even to the very bone. It is a common practice, we are told, to condemn perſons guilty of ſome atrocious crimes to be ſtripped naked, tied hand and foot, and thrown into a hole where theſe inſects ſwarm; where they are ſure to be devoured by them in leſs than 24 hours to the very bones. But criminals are not the only perſons who are in danger from the jaws of theſe little devouring inſects. People may be attacked by them, as we have already hinted, in the night time, and while they are ſleeping in their beds. This obliges the natives to be careful where they lie down, and to kindle a ſmall fire, or at leaſt to have a circle of burning hot embers round their beds. This caution is ſtill more neceſſary in the country villages and hamlets, where perſons are otherwiſe in danger of being attacked by millions of them in the dead of the night. In ſuch a caſe, the only expedient to ſave one's ſelf is to jump up as ſoon as one feels the bite, to bruſh them off with all poſſible ſpeed, and then at once to ſet the houſe on fire. The danger is ſtill greater in travelling through the country where a perſon is often obliged to take up his lodging on the bare ground; and may be overtaken during the heat of the day with ſuch profound ſleep, as not to be wakened by theſe diminutive animals till they have made their way through the ſkin; and in ſuch a caſe nothing will prevent their devouring a man alive, though there were ever ſo many hands to aſſiſt him. In ſuch incredible quantities do theſe creatures abound, notwithſtanding the great numbers of monkeys who are continually ferreting the ants out of their retreats, and feed upon them with the utmoſt avidity. This can only be aſcribed to the natural lazineſs and indolence of the inhabitants; which is ſuch, that they not only neglect to rid their lands of them by proper cultivation, but will ſuffer their houſes, nay even their very churches, to be undermined by them. Another kind of theſe deſtructive vermin lie ſo thick upon the paths and highways, that a perſon cannot walk without treading upon, and having his legs and thighs almoſt devoured by them. A third ſort of a white and red colour, but very ſmall, will gnaw their way through the hardeſt wood, penetrate into a ſtrong cheſt, and in a little while devour all the cloths, linen, and every thing that is in it. A fourth ſort, ſmall and black, leave a moſt intolerable ſtench upon every thing they touch or crawl over, whether cloths or houſehold-ſtuff, which are not eaſily ſweetened again; or if they paſs over victuals, they are entirely ſpoiled. A fifth ſort harbour chiefly on the leaves and branches of trees; and if a man chance to climb up thither to ſave himſelf from a wild beaſt, he is ſo tormented by them, that nothing but the fear of the jaws of the one could make him endure the ſtings of the other. A ſixth ſort is of the flying kind; and is probably one of the former kinds, that live wholly under ground, till nature furniſhes them with wings. After this, they riſe in ſuch ſwarms as darken the air, and would make terrible havoc among all kinds of vegetables, did not the natives come out againſt them in whole companies, and by dint of flaps, and other flat weapons, knock them down by myriads, and then laying them in heaps, ſet fire to their wings, which half broils them for food. Amidſt all this variety of pernicious inſects, however, they have one ſpecies of a more friendly and profitable kind, *viz.* the induſtrious bee, which furniſhes the inhabitants with honey and wax in ſuch plenty, that there is ſcarce a hollow tree, clift of a rock, or chop of the earth, in which their combs are not found in great quantities.

14 Congo very populous

With reſpect to the populouſneſs of the kingdom of Congo, ſome authors, writing either from mere conjecture, or at beſt precarious inferences, have repreſented it as thinly peopled. The accounts of the miſſionaries and Portugueſe, however, are directly oppoſite to theſe. They found the country for the moſt part covered with towns and villages, and theſe ſwarming with inhabitants; the cities well filled with people, particularly the metropolis, which is ſaid to contain above 50,000 ſouls. The provinces, though not equally populous, yet in the whole make up ſuch an amount, as plainly proves, that what is wanting in the one is amply made up by the other. We are told, that the duchy of Bamba is ſtill able to raiſe 200,000 fighting men, and was formerly in a condition to raiſe double that number; and that the army of the king of Congo, in the year 1665, conſiſted of 900,000 fighting men, who were attended by an infinite number of women, children, and ſlaves. The numbers of the Congoeſe will appear the more credible, when we conſider the extreme fecundity of their women, the hardineſs with which they bring up their children, and the ſtoutneſs and healthineſs of their men. In ſome villages, if the miſſionaries are to be credited, the number of children is ſo great, that a father will part with one or two, for any commodity he wants, or even for ſome trifling bawble he fancies; ſo that the number of ſlaves they ſell abroad ſeldom amounts, *communibus annis*, to leſs than 15,000 or 16,000.

15 Congoeſe have a high opinion of themſelves.

There is ſcarce a nation on earth that have a higher opinion of themſelves or their country, than the Congoeſe, or that is more hardened againſt all conviction to the contrary, from reaſon, experience, or the moſt impartial compariſon with other countries in Europe or Aſia. Indeed, it is impoſſible they ſhould think otherwiſe, when it is one of the fundamentals of their belief, that the reſt of the world was the work of angels, but that the kingdom of Congo, in its full and ancient extent, was the handywork of the Supreme Architect; and muſt of courſe have vaſt prerogatives and advantages over all others. When told of the magnificence of the European and Aſiatic courts, their immenſe revenues, the grandeur of their palaces and edifices, the richneſs and happineſs of their ſubjects, the great progreſs they have made in the arts and ſciences, to which their country is wholly a ſtranger, they coolly anſwer, that all this comes vaſtly ſhort of the dignity and ſplendor of the kings and kingdom of Congo; and that there can be but one Congo in the world, to the happineſs of whoſe monarch and people all the reſt were created to contribute, and to whoſe treaſury the ſea and rivers pay their conſtant tribute of 'zimbis (or ſhells, which are their current coin); whilſt other princes muſt condeſcend to enrich themſelves by digging through rocks and mountains, to come at the excrements of the earth, ſo they ſtyle gold and ſilver which are in ſuch requeſt among other nations. Accordingly, they imagine, that the nations which come to traffic with them, are forced to that ſervile employment by their poverty and the badneſs of their country, rather than induced to it by luxury or avarice; whilſt they themſelves can indulge their natural indolence or ſloth, though attended with the moſt pinching poverty, rather than diſgrace the dignity of their blood by the leaſt effort of induſtry, which, how laudable and beneficial ſoever, is looked upon by them as only a leſſer degree of ſlavery. 16 Their ſloth, pride, &c. But though they generally eſteem it ſo much below their dignity to apply to any uſeful work, they think it no diſgrace to beg or ſteal. With reſpect to the firſt, they are ſaid to be the moſt ſhameleſs and importunate beggars in the world. They will take no denial, ſpare no crouching, lying, prayers, to obtain what they want, nor curſes and ill language when ſent away without it. With regard to the laſt, they deem no theft unlawful or ſcandalous, except it be committed in a private manner, without the knowledge of the perſon wronged. It is eſteemed a piece of bravery and gallantry to wrench any thing from another by violence; and this kind of theft is ſo common, not only among the vulgar, but alſo among the great ones, that they make no ſcruple, in their travels from place to place, to ſeize not only upon all the proviſions they meet with in towns and villages, but upon every thing elſe that falls in their way. Theſe violences oblige the poor people to conceal the few valuables they have, in ſome ſecret place out of the knowledge and reach of thoſe harpies; and they think themſelves well off if they can eſcape a ſevere baſtonading, or other cruel uſage frequently inflicted upon them, in order to make them diſcover the place of their concealment.

17 Complexion, character, cuſtoms, &c.

The complexion of the natives, both men and women, is black, though not in the ſame degree; ſome being of a much deeper black than others. Their hair is black and finely curled; ſome have it alſo of a dark ſandy colour: their eyes are moſtly of a fine lively black; but ſome are of a dark ſea colour. They have neither flat noſes nor thick lips like the Nubians and other negroes. Their ſtature is moſtly of the middle ſize; and, excepting their black complexion, they much reſemble the Portugueſe. In their temper they are miſtruſtful, envious, jealous, and treacherous; and where they once take a diſtaſte or affront, will ſpare no pains, nor ſtick at any means, however baſe, to be avenged of, and cruſh their enemy under their feet. There is no ſuch thing among them as natural affection. A huſband, if an heathen, may take as many wives as he pleaſes; and if a Chriſtian, may have any number of concubines, whom he may divorce at pleaſure, or even ſell them though with child. So little regard have they for their children, that there is ſcarce one among them who will not ſell a ſon or a daughter, or perhaps both, for a piece of cloth, a collar or girdle of coral or beads, and often for a bottle of wine or brandy.

18 Religion.

The religion of the Congoeſe in many parts is downright idolatry, accompanied with the moſt ridiculous ſuperſtitions, and the moſt abſurd and deteſtable rites invented by their gangas or prieſts; and even in thoſe parts where Chriſtianity is profeſſed, it is ſo darkened by ſuperſtitions of one kind or other, that we may juſtly queſtion whether the people are any gainers by the exchange.

19 Government.

The government of this kingdom is monarchical, and as deſpotic as any in Aſia or Africa. The kings are the ſole proprietors of all the lands within their dominions; and theſe they can diſpoſe of to whom they pleaſe, upon condition they pay a certain tribute out of them: upon failure of the payment of which, or any other neglect, they turn them out. Even the princes of the blood are ſubjected to the ſame law; ſo that there is no perſon of any rank or quality whatever that can bequeath a foot of land to his heirs or ſucceſſors; and when theſe owners under the crown die, the lands immediately return to it again, whether they were in their poſſeſſion, or had been left to ever ſo many tenants under them; ſo that it entirely depends on the prince whether theſe lands ſhall be continued in the ſame, or be diſpoſed into other hands. The Portugueſe, however, ſince their ſettling in theſe parts, have prevailed upon the monarchs to permit the heirs and ſucceſſors to continue in the quiet poſſeſſion of ſuch lands, in order to avoid the confuſions, or even rebellions, which the alienation and deprival of them frequently occaſioned, and to oblige the tenants of them to pay their tribute more exactly and readily than they did before.

20 Commerce. St Salvador is the chief place of traffic the Portugueſe and other Europeans have in this country. There are thought to be about 4000 of them ſettled here, who trade with moſt parts of the kingdom. The chief commodities they bring thither are either the product of Brazil or European manufactures. The former conſiſt chiefly of grains, fruits, plants, &c.; the latter of Turkey carpets, Engliſh cloth, and other ſtuffs; copper, braſs veſſels, ſome kinds of blue earthen-ware, rings, and ornaments of gold, ſilver, and other baſer metals; coral, glaſs beads, bugles, and other trinkets; light ſtuffs made of cotton, woollen, and linen for cloathing; and a great variety of tools and other utenſils. In return for theſe, they carry off a great number of ſlaves, amounting to 15,000 or 16,000 annually, as we have already obſerved. Formerly they uſed alſo to carry away elephants teeth, furs, and other commodities of the country; but theſe branches of commerce are now greatly decayed, and the ſlave-trade is what the Portugueſe merchants principally depend on.

CONGO, a term applied to tea of the ſecond quality.

CONGREGATION, an aſſembly of ſeveral eccleſiaſtics, united ſo as to conſtitute a body.

The term is principally uſed for aſſemblies of cardinals appointed by the pope, and diſtributed into ſeveral chambers, for the diſcharge of certain functions and juriſdictions, after the manner of our offices and courts. The firſt is the congregation of the holy office, or the inquiſition: the ſecond, that of juriſdiction over biſhops and regulars: the third, that of councils; this has power to interpret the council of Trent: the fourth, that of cuſtoms, ceremonies, precedencies, canonizations, called *the congregation of rites*: the fifth, that of St Peter's fabric, which takes cognizance of all cauſes relating to piety and charity, part whereof is due to the church of St Peter: the ſixth, that of waters, rivers, roads: the ſeventh, of fountains and ſtreets: the eighth, that of the index, which examines the books to be printed or corrected: the ninth, that of the council of ſtate, for the management of the territories belonging to the pope and church (ſee CAMERLINGO): the tenth, *de bono regimine*; of which two laſt the cardinal-nephew is chief; the eleventh, that of money: the twelfth, that of biſhops, wherein thoſe who are to be promoted to biſhoprics in Italy are examined; this is held before the pope: the thirteenth, that of conſiſtorial matters; the chief whereof is the cardinal-dean: the fourteenth, a congregation for propagating the faith (ſee COLLEGE): and the fifteenth, that of eccleſiaſtical immunity, for ſettling ſuits againſt churchmen. There is alſo a congregation of alms, which takes care of every thing that relates to the ſubſiſtence of Rome and the ſtate of the church.

CONGREGATION is alſo uſed for a company or ſociety of religious cantoned out of this or that order; and making, as it were, an inferior order, or a ſubdiviſion of the order itſelf. Such are the congregations of the oratory, and thoſe of Cluny, &c. among the Benedictines.

The word is alſo uſed for aſſemblies of pious perſons in manner of fraternities, frequent among the Jeſuits in honour of the Virgin, &c. It is likewiſe applied to the audience in a church, particularly as conſiſting of the inhabitants of the ſame pariſh.

CONGREGATIONALISTS, in church hiſtory, a ſect of Proteſtants who reject all church government, except that of a ſingle congregation under the direction of one paſtor.

CONGRESS, in political affairs, an aſſembly of commiſſioners, envoys, deputies, &c. from ſeveral courts meeting to concert matters for their common good.

CONGRESS, in America, is the aſſembly of delegates from the United States. See AMERICA.

CONGRESS, in a judicial ſenſe, the trial made by appointment of a judge before ſurgeons and matrons, in order to prove whether or no a man be impotent, before ſentence is paſſed for the diſſolution of a marriage ſolicited upon ſuch a complaint.

Neither the civil nor canon law makes any mention of the trial of virility by congreſs. It had its origin in France from the boldneſs of a young fellow, who, in open court, having been hard preſſed by his wife, demanded the congreſs. The judge, ſurpriſed with the novelty of the demand, found it could not be denied, as being the ſureſt evidence that the caſe could admit of. In time it becauſe a branch in the French juriſprudence, and was authoriſed by decreets and arrets. It obtained for about 120 years; and was annulled by an arret of parliament in 1677, as being found precarious; ſome having failed under the experiment out of mere modeſty and ſhame, which is found to have the ſame effect with actual impotency.

CONGREVE (William), a younger brother of an ancient family in Staffordſhire. His father was employed in the ſtewardſhip of the great eſtate of the Earl of Burlington in Ireland, where he reſided many years; and our author was born there in 1672. Mr Congreve entered into the Middle-Temple when he came to England, and began to ſtudy the law; but his bias was toward polite literature and poetry. His firſt performance was a noval, intituled, *Incognita*, or *Love and Duty reconciled*. He ſoon after began his comedy of the *Old Bachelor*; which was the amuſement of ſome leiſure hours during a ſlow recovery from a fit of illneſs ſoon after his return to England; yet was in itſelf ſo perfect, that Mr Dryden, on its being ſhown to him, declared he had never in his life ſeen ſuch a firſt play.

When brought on the ſtage in 1693, it met with ſuch univerſal approbation, that Mr Congreve, though he was but 19 years old at the time of his writing it, became now conſidered as a prop to the declining ſtage, and a riſing genius in dramatic poetry. The next year he produced the *Double Dealer*; which, for what reaſon is not obvious, did not meet with ſo much ſucceſs as the former. The merit of his firſt play, however, had obtained him the favour and patronage of Lord Halifax, and ſome peculiar mark of diſtinction from Queen Mary; on whoſe death, which happened in the cloſe of this year, he wrote a very elegant elegiac paſtoral. In 1695, when Betterton opened the new houſe in Lincoln's-Inn Fields, Mr Congreve, joining with him, gave him his comedy of *Love for Love*, with which the company opened their campaign; and which met with ſuch ſucceſs, that they immediately offered the author a ſhare in the management of the houſe, on condition of his furniſhing them with one play yearly. This offer he accepted; but whether through indolence, or that correctneſs which he looked upon as neceſſary to his works, his *Mourning Bride* did not come out till 1697, nor his *Way of the World* till two years after that. The indifferent ſucceſs this laſt mentioned play, though an exceeding good one, met with from the public, completed that diſguſt to the theatre, which a long conteſt with Jeremy Collier, who had attacked the immoralities of the Engliſh ſtage, and more eſpecially ſome of his pieces, had begun, and he determined never more to write for the ſtage. However, though he quitted dramatic writing, he did not lay down the pen entirely; but occaſionally wrote many little pieces both in proſe and verſe, all of which ſtand on the records of literary fame. It is very poſſible, however, that he might not ſo ſoon have given way to this diſguſt, had not the eaſineſs of his circumſtances rendered any ſubſervience to the opinions and caprice of the town abſolutely unneceſſary to him. For his abilities having very early in life raiſed him to the acquaintance of the Earl of Halifax, who was then the Mæcenas of the age; that nobleman, deſirous of raiſing ſo promiſing a genius above the neceſſity of too haſty productions, made him one of the commiſſioners for licenſing hackney-coaches; or, according to Coxeter, a commiſſioner of the wine-licence. He ſoon after beſtowed on him a place in the pipe-office; and not long after gave him a poſt in the cuſtoms worth 600 l. *per annum*. In the year 1718, he was appointed ſecretary of Jamaica; ſo that, with all together, his income towards the later part of his life was upwards of 1200 l. a-year.

The greateſt part of the laſt 20 years of his life was ſpent in eaſe and retirement; and he either did not, or affected not to give himſelf any trouble about reputation. Yet ſome part of that conduct might proceed from a degree of pride; to which purpoſe, T. Cibber, in his lives of the poets, Vol. IV. p. 93. relates the following anecdote of him: “When the celebrated Voltaire was in England, he waited upon Mr Congreve, and paſſed ſome compliments upon the merit and reputation of his works. Congreve thanked him; but at the ſame time told that ingenious foreigner, that he did not chooſe to be conſidered as an author, but only as a private gentleman, and in that light expected to be viſited. Voltaire anſwered, that if he had never been any thing but a private gentleman, in all probability he had never been troubled with that viſit.” He obſerves, in his own account of the tranſaction, that he was not a little diſguſted with ſo unſeaſonable a piece of vanity.

Towards the cloſe of his life he was much afflicted with the gout; and making a tower to Bath for the benefit of the waters, was unfortunately overturned in his chariot; by which, it is ſuppoſed, he got ſome inward bruiſe, as he ever after complained of a pain in his ſide; and, on his return to London, continued gradually declining in his health, till the 19th of January 1729, when he died, aged 57; and, on the 26th following, was buried in Weſtminſter Abbey, the pall being ſupported by perſons of the firſt diſtinction.

CONGRUITY, a ſuitableneſs or relation of agreement between things.

The terms *congruity* and *propriety* are not applicable to any ſingle object: they imply a plurality, and obviouſly ſignify a particular relation between different objects. Thus we currently ſay, that a decent garb is ſuitable or proper for a judge; modeſt behaviour for a young woman; and a lofty ſtyle for an epic poem: and, on the other hand, that it is unſuitable or incongruous to ſee a little woman ſunk into an overgrown farthingale, a coat richly embroidered covering coarſe and dirty linen, a mean ſubject in an elevated ſtyle, an elevated ſubject in a mean ſtyle, a firſt miniſter darning his wife's ſtocking, or a reverend prelate in lawn ſleeves dancing a hornpipe.

The perception we have of this relation, which ſeems peculiar to man, cannot proceed from any other cauſe, but from a *ſenſe* of congruity or propriety; for, ſuppoſing us deſtitute of that ſenſe, the terms would be to us unintelligible.

It is a matter of experience, that congruity or propriety, wherever perceived, is agreeable; and that incongruity or impropriety, wherever perceived, is diſagreeable. The only difficulty is, to aſcertain what are the particular objects that in conjunction ſuggeſt theſe relations; for there are many objects that do not: the ſea, for example, viewed in conjunction with a picture, or a man viewed in conjunction with a mountain, ſuggeſt not either congruity or incongruity. It ſeems natural to infer, what will be found true by induction, that we never perceive congruity nor incongruity but among things that are connected together by ſome relation; ſuch as a man and his actions, a principal and his acceſſories, a ſubject and its ornaments. We are indeed ſo framed by nature, as, among things ſo connected, to require a certain ſuitableneſs or correſpondence, termed *congruity* or *propriety*; and to be diſpleaſed when we find the oppoſite relation of *incongruity* or *impropriety*.

If things connected be the ſubject of congruity, it is reaſonable before-hand to expect, that a degree of congruity ſhould be required proportioned to the degree of the connection. And upon examination we find this to hold in fact: where the relation is intimate, as between a cauſe and its effect, a whole and its parts, we require the ſtricteſt congruity; but where the relation is ſlight, or accidental, as among things jumbled together in the ſame place, we require little or no congruity: the ſtricteſt propriety is required in behaviour and manner of living; becauſe a man is connected with theſe by the relation of cauſe and effect: the relation between an edifice and the ground it ſtands upon, is of the moſt intimate kind; and therefore the ſituation of a great houſe ought to be lofty; its relation to neighbouring hills, rivers, planes, being that of propinquity only, demands but a ſmall ſhare of congruity: among members of the ſame club, the congruity ought to be conſiderable, as well as among things placed for ſhow in the ſame niche: among paſſengers in a ſtage-coach, we require very little congruity: and leſs ſtill at a public ſpectacle.

Congruity is ſo nearly allied to beauty, as commonly to be held a ſpecies of it; and yet they differ ſo eſſentially as never to coincide: beauty, like colour, is placed upon a ſingle ſubject; congruity upon a plurality: further, a thing beautiful in itſelf, may, with relation to other things, produce the ſtrongeſt ſenſe of incongruity.

Congruity and propriety are commonly reckoned ſynonymous terms; but they are diſtinguiſhable; and the preciſe meaning of each muſt be aſcertained. Congruity is the genus of which propriety is a ſpecies; for we call nothing *propriety*, but that congruity or ſuitableneſs which ought to ſubſiſt between ſenſible beings and their thoughts, words, and actions.

In order to give a full view of theſe ſecondary relations, we ſhall trace them through ſome of the moſt conſiderable primary relations. The relation of a part to the whole, being extremely intimate, demands the utmoſt degree of congruity; even the ſlighteſt deviation is diſguſtful.

Examples of congruity and incongruity are furniſhed in plenty by the relation between a ſubject and its ornaments. A literary performance intended merely for amuſement, is ſuſceptible of much ornament, as well as a muſic-room or a play-houſe; for in gaiety, the mind hath a peculiar reliſh for ſhow and decoration. The moſt gorgeous apparel, however improper in tragedy, is not unſuitable to opera-actors: the truth is, an opera, in its preſent form, is a mighty fine thing; but as it deviates from nature in its capital circumſtances, we look not for nature nor propriety in thoſe which are acceſſory. On the other hand, a ſerious and important ſubject admits not much ornament; nor a ſubject that of itſelf is extremely beautiful: and a ſubject that fills the mind with its loftineſs and grandeur, appears beſt in a dreſs altogether plain.

To a perſon of a mean appearance, gorgeous apparel is unſuitable; which, beſides the incongruity, has a bad effect; for by contraſt it ſhows the meanneſs of appearance in the ſtrongeſt light. Sweetneſs of look and manner, requires ſimplicity of dreſs, joined with the greateſt elegance. A ſtately and majeſtic air requires ſumptuous apparel, which ought not to be gaudy, nor crowded with little ornaments. A woman of conſummate beauty can bear to be highly adorned, and yet ſhows beſt in a plain dreſs:

> ——————— For lovelineſs
> Needs not the foreign aid of ornament,
> But is when unadorn'd, adorn'd the moſt.
> *Thomſon's Autumn*, 208.

Congruity regulates not only the quantity of ornament, but alſo the kind. The ornaments that embelliſh a dancing-room ought to be all of them gay. No picture is proper for a church but what has religion for its ſubject. All the ornaments upon a ſhield ought to relate to war; and Virgil, with great judgment, confines the carvings upon the ſhield of Æneas to the military hiſtory of the Romans: but this beauty is overlooked by Homer; for the bulk of the ſculpture upon the ſhield of Achilles, is of the arts of peace in general, and of joy and feſtivity in particular: the author of Telemachus betrays the ſame inattention, in deſcribing the ſhield of that young hero.

In judging of propriety with regard to ornaments, we muſt attend, not only to the nature of the ſubject that is to be adorned, but alſo to the circumſtances in which it is placed: the ornaments that are proper for a ball, will appear not altogether ſo decent at public worſhip; and the ſame perſon ought to dreſs differently for a marriage-feaſt and for a burial.

Nothing is more intimately related to a man, than his ſentiments, words, and actions; and therefore we require here the ſtricteſt conformity. When we find what we thus require, we have a lively ſenſe of propriety: when we find the contrary, our ſenſe of impropriety is not leſs lively. Hence the univerſal diſtaſte of affectation, which conſiſts in making a ſhow of greater delicacy and refinement than is ſuited either to the character or circumſtance of the perſon.

Congruity and propriety, wherever perceived, appear agreeable; and every agreeable object produceth in the mind a pleaſant emotion: incongruity and impropriety, on the other hand, are diſagreeable; and of courſe produce painful emotions. Theſe emotions, whether pleaſant or painful, ſometimes vaniſh without any conſequence; but more frequently occaſion other emotions, which we proceed to exemplify.

When any ſlight incongruity is perceived in an accidental combination of perſons or things, as of paſſengers in a ſtage-coach, or of individuals dining at an ordinary; the painful emotion of incongruity, after a momentary exiſtence, vaniſheth without producing any effect. But this is not the caſe of propriety and impropriety: voluntary acts, whether words or deeds, are imputed to the author; when proper, we reward him with our eſteem; when improper, we puniſh him with our contempt. Let us ſuppoſe, for example, a generous action ſuited to the character of the author, which raiſes in him and in every ſpectator the pleaſant emotion of propriety: this emotion generates in the author both ſelf eſteem and joy; the former when he conſiders the relation to the action; and the latter when he conſiders the good opinion that others will entertain of him: the ſame emotion of propriety produceth in the ſpectators eſteem for the author of the action; and when they think of themſelves, it alſo produceth, by means of contraſt, an emotion of humility. To diſcover the effects of an unſuitable action, we muſt invert each of theſe circumſtances: the painful emotion of impropriety generates in the author of the action both humility and ſhame; the former when he conſiders his relation to the action, and the latter when he conſiders what others will think of him; the ſame emotion of impropriety produceth in the ſpectators contempt for the author of the action; and it alſo produceth, by means of contraſt, when they think of themſelves, an emotion of ſelf-eſteem. Here then are many different emotions, derived from the ſame action, conſidered in different views by different perſons; a machine provided with many ſprings, and not a little complicated. Propriety of action, it would ſeem, is a chief favourite of nature, when ſuch care and ſolicitude is beſtowed upon it. It is not left to our own choice; but, like juſtice, is required at our hands; and, like juſtice, is enforced by natural rewards and puniſhments: a man cannot, with impunity, do any thing unbecoming or improper; he ſuffers the chaſtiſement of contempt inflicted by others, and of ſhame inflicted by himſelf. An apparatus ſo complicated, and ſo ſingular, ought to rouſe our attention: for nature doth nothing in vain; and we may conclude with great certainty, that this curious branch of the human conſtitution is intended for ſome valuable purpoſe.

A groſs impropriety is puniſhed with contempt and indignation, which are vented againſt the offender by correſponding external expreſſions: nor is even the ſlighteſt impropriety ſuffered to paſs without ſome degree of contempt. But there are improprieties, of the ſlighter kind, that provoke laughter: of which we have examples without end, in the blunders and abſurdities of our own ſpecies: ſuch improprieties receive a different puniſhment, as will appear by what follows. The emotions of contempt and of laughter occaſioned by an impropriety of this kind, uniting intimately in the mind of the ſpectator, are expreſſed externally by a peculiar ſort of laugh, termed *a laugh of deriſion* or *ſcorn*. An impropriety that thus moves not only contempt, but laughter, is diſtinguiſhed by the epithet of *ridiculous;* and a laugh of deriſion or ſcorn is the puniſhment provided for it by nature. Nor ought it to eſcape obſervation, that we are ſo fond of inflicting this puniſhment, as ſometimes to exert it even againſt creatures of an inferior ſpecies: witneſs a turky cock ſwelling with pride, and ſtrutting with diſplayed feathers; a ridiculous object, which in a gay mood is apt to provoke a laugh of deriſion.

We muſt not expect, that theſe different improprieties are ſeparated by diſtinct boundaries: for of improprieties, from the ſlighteſt to the moſt groſs, from the moſt riſible to the moſt ſerious, there are degrees without end. Hence it is, that in viewing ſome unbecoming actions, too riſible for anger, and too ſerious for deriſion, the ſpectator feels a ſort of mixt emotion, partaking both of deriſion and of anger; which accounts for an expreſſion, common with reſpect to the impropriety of ſome actions, that we know not whether to laugh or be angry.

It cannot fail to be obſerved, that in the caſe of a riſible impropriety, which is always ſlight, the contempt we have for the offender is extremely faint, tho' deriſion, its gratification, is extremely pleaſant. This diſproportion between a paſſion and its gratification, ſeems not conformable to the analogy of nature. In looking about for a ſolution, we muſt reflect upon what is laid down above, that an improper action not only moves our contempt for the author, but alſo, by means of contraſt, ſwells the good opinion we have of ourſelves. This contributes, more than any other article, to the pleaſure we have in ridiculing follies and abſurdities; and accordingly, it is well known, that they who put the greateſt value upon themſelves are the moſt prone to laugh at others. Pride, which is a vivid paſſion, pleaſant in itſelf, and not leſs ſo in its gratification, would ſingly be ſufficient to account for the pleaſure of ridicule, without borrowing any aid from contempt. Hence appears the reaſon of a noted obſervation, That we are the moſt diſpoſed to ridicule the blunders and abſurdities of others, when we are in high ſpirits; for in high ſpirits, ſelf-conceit diſplays itſelf with more than ordinary vigour.

With regard to the final cauſes of congruity and impropriety; one, regarding congruity, is pretty obvious, that the ſenſe of congruity, as one principle of the fine arts, contributes in a remarkable degree to our entertainment. Congruity, indeed, with reſpect to quantity, coincides with proportion: when the parts of a building are nicely adjuſted to each other, it may be ſaid indifferently, that it is agreeable by the congruity of its parts, or by the proportion of its parts. But propriety, which regards voluntary agents only, can never be the ſame with proportion: a very long noſe is diſproportioned, but cannot be termed *improper*. In ſome inſtances, it is true, impropriety coincides with diſproportion in the ſame ſubject, but never in the ſame reſpect; for example, a very little man buckled to a long toledo: conſidering the man and the ſword with reſpect to ſize, we perceive a diſproportion; conſidering the ſword as the choice of the man, we perceive an impropriety.

The ſenſe of impropriety with reſpect to miſtakes, blunders, and abſurdities, is happily contrived for the good of mankind. In the ſpectators, it is productive of mirth and laughter, excellent recreation in an interval from buſineſs. But this is a trifle in reſpect of what follows. It is painful to be the ſubject of ridicule; and to puniſh with ridicule the man who is guilty of an abſurdity, tends to put him more upon his guard in time coming. Thus even the moſt innocent blunder is not committed with impunity; becauſe, were errors licenſed where they do no hurt, inattention would grow into a habit, and be the occaſion of much hurt.

The final cauſe of propriety as to moral duties, is of all the moſt illuſtrious. To have a juſt notion of it, the moral duties that reſpect others muſt be diſtinguiſhed from thoſe that reſpect ourſelves. Fidelity, gratitude, and the forbearing injury, are examples of the firſt ſort; temperance, modeſty, firmneſs of mind, are examples of the other: the former are made duties by the ſenſe of juſtice; the latter by the ſenſe of propriety. Here is a final cauſe of the ſenſe of propriety, that muſt rouſe our attention. It is undoubtedly the intereſt of every man, to ſuit his behaviour to the dignity of his nature, and to the ſtation allotted him by Providence; for ſuch rational conduct contributes in every reſpect to happineſs, by preſerving health, by procuring plenty, by gaining the eſteem of others, and, which of all is the greateſt bleſſing, by gaining a juſtly-founded ſelf-eſteem. But in a matter ſo eſſential to our well-being, even ſelf-intereſt is not relied on: the powerful authority of duty is ſuperadded to the motive of intereſt. The God of nature, in all things eſſential to our happineſs, hath obſerved one uniform method: to keep us ſteady in our conduct, he hath fortified us with natural laws and principles, which prevent many aberrations, that would daily happen were we totally ſurrendered to ſo fallible a guide as human reaſon. Propriety cannot rightly be conſidered in another light, than as the natural law that regulates our conduct with reſpect to ourſelves ; as juſtice is the natural law that regulates our conduct with reſpect to others. We call propriety a law, not leſs than juſtice ; becauſe both are equally rules of conduct that ought to be obeyed : propriety includes this obligation ; for to ſay an action is proper, is, in other words, to ſay, that it *ought* to be performed ; and to ſay it is improper, is, in other words, to ſay that it *ought* to be forborne. It is this very character of *ought* and *ſhould* that makes juſtice a law to us ; and the ſame character is applicable to propriety, though perhaps more faintly than to juſtice : but the difference is in degree only, not in kind ; and we ought, without heſitation or reluctance, to ſubmit equally to the government of both.

But it muſt, in the next place, be obſerved, that to the ſenſe of propriety, as well as of juſtice, are annexed the ſanctions of rewards and puniſhments ; which evidently prove the one to be a law as well as the other. The ſatiſfaction a man hath in doing his duty, joined with the eſteem and good-will of others, is the reward that belongs to both equally. The puniſhments alſo, though not the ſame, are nearly allied ; and differ in degree more than in quality. Diſobedience to the law of juſtice, is puniſhed with remorſe ; diſobedience to the law of propriety, with ſhame, which is remorſe in a lower degree. Every tranſgreſſion of the law of juſtice raiſes indignation in the beholder ; and ſo doth every flagrant tranſgreſſion of the law of propriety. Slighter improprieties receive a milder puniſhment : they are always rebuked with ſome degree of contempt, and frequently with deriſion. In general, it is true, that the rewards and puniſhments annexed to the ſenſe of propriety, are ſlighter in degree than thoſe annexed to the ſenſe of juſtice : which is wiſely ordered, becauſe duty to others is ſtill more eſſential to ſociety than duty to ourſelves ; for ſociety could not ſubſiſt a moment were individuals not protected from the headſtrong and turbulent paſſion of their neighbours.

CONI, a ſtrong town of Italy in Piedmont, and capital of a territory of that name, with a good citadel. The town being divided into two factions, it ſurrendered to the French in 1641 ; but was reſtored to the Duke of Savoy ſoon after. It is ſeated at the confluence of the rivers Greſſe and Sture. E. Long. 7. 29. N. Lat. 44. 23.

CONIC SECTIONS

ARE curve lines formed by the interſections of a cone and plane.

If a cone be cut by a plane through the vertex, the ſection will be a triangle ABC, Plate CXLVI. fig. 1.

If a cone be cut by a plane parallel to its baſe, the ſection will be a circle. If it be cut by a plane DEF, fig. 1. in ſuch a direction, that the ſide AC of a triangle paſſing through the vertex, and having its baſe BC perpendicular to EF, may be parallel to DP, the ſection is a parabola ; if it be cut by a plane DR, fig. 2. meeting AC, the ſection is an ellipſe ; and if it be cut by a plane DMO, fig. 3. which ſhould meet AC extended beyond A, it is an hyperbola.

If any line HG, fig. 1. be drawn in a parabola perpendicular to DP, the ſquare of HG will be to the ſquare of EP, as DG to DP ; for let LHK be a ſection parallel to the baſe, and therefore a circle, the rectangle LGK will be equal to the ſquare of HG, and the rectangle BPC equal to the ſquare of EP ; therefore theſe ſquares will be to each other as their rectangles ; that is, as BP to LG, that is DP to DG.

Sect. 1. *Deſcription of Conic Sections on a Plane.*

1. PARABOLA.

“ Let AB, fig. 4. be any right line, and C any point without it, and DKF a ruler, which let be placed in the ſame plane in which the right line and point are, in ſuch a manner that one ſide of it, as DK, be applied to the right line AB, and the other ſide KF coincide with the point C ; and at F, the extremity of the ſide KF, let be fixed one end of the thread FNC, whoſe length is equal to KF, and the other extremity of it at the point C, and let part of the thread, as FG, be brought cloſe to the ſide KF by a ſmall pin G ; then let the ſquare DKF be moved from B towards A, ſo that all the while its ſide DK be applied cloſe to the line BA, and in the mean time the thread being extended will always be applied to the ſide KF, being ſtopt from going from it by means of the ſmall pin ; and by the motion of the ſmall pin N there will be deſcribed a certain curve, which is called a *ſemi-parabola*.

“ And if the ſquare be brought to its firſt given poſition, and in the ſame manner be moved along the line AB, from B towards H, the other ſemi-parabola will be deſcribed.”

The line AB is called the *directrix* ; C, the focus ; any line perpendicular to AB, a diameter ; the point where it meets the curve, its vertex ; and four times the diſtance of the vertex from the directrix, its latus rectum or parameter.

2. ELLIPSE.

“ If any two points, as A and B, fig. 5. be taken in any plane, and in them are fixed the extremities of a thread, whoſe length is greater than the diſtance between the points, and the thread extended by means of a ſmall pin C, and if the pin be moved round from any point until it return to the place from whence it began to move, the thread being extended during the whole time of the revolution, the figure which the ſmall pin by this revolution deſcribes is called an *ellipſe*.”

The points AB are called the *foci* ; D, the *centre* ; EF, the *tranſverſe axis* ; GH, the *leſſer axis* ; and any other line paſſing through D, a *diameter*.

3. HYPERBOLA.

“ If to the point A, fig. 6. in any plane, one end of the rule AB be placed, in ſuch a manner, that about that point, as a centre, it may freely move ;

“ and if to the other end B, of the rule AB, be fixed the extremity of the thread BDC, whoſe length is ſmaller than the rule AB, and the other end of the thread, being fixed in the point C, coinciding with the ſide of the rule AB, which is in the ſame plane with the given point A; and let part of the thread, as BD, be brought cloſe to the ſide of the rule AB, by means of a ſmall pin D; then let the rule be moved about the point A, from C towards T, the thread all the while being extended, and the remaining part coinciding with the ſide of the rule being ſtopt from going from it by means of the ſmall pin, and by the motion of the ſmall pin D, a certain figure is deſcribed which is called the *ſemi-hyperbola.*”

The other ſemi-hyperbola is deſcribed in the ſame way, and the oppoſite HKF, by fixing the ruler to C, and the thread to A, and deſcribing it in the ſame manner. A and C are called *foci*; the point G, which biſects AC, the centre; KE, the tranſverſe axis; a line drawn through the centre meeting the hyperbolas, a tranſverſe diameter; a line drawn through the centre, perpendicular to the tranſverſe axis, and cut off by the circle MN, whoſe centre is E, and radius equal to CG, is called the *ſecond axis*.

If a line be drawn through the vertex E, equal and parallel to the ſecond axis GP and GO be joined, they are called *aſſymptotes*. Any line drawn through the centre, not meeting the hyperbolas, and equal in length to the part of a tangent parallel to it, and intercepted betwixt the aſſymptotes, is called a *ſecond diameter*.

An ordinate to any ſection is a line biſected by a diameter and the abſciſſa, the part of the diameter cut off by the ordinate.

Conjugate diameters in the ellipſe and hyperbola are ſuch as mutually biſect lines parallel to the other; and a third proportional to two conjugate diameters is called the *latus rectum* of that diameter, which is the firſt in the proportion.

In the parabola, the lines drawn from any point to the focus are equal to perpendiculars to the directrix; being both equal to the part of the thread ſeparated from the ruler.

In the ellipſe, the two lines drawn from any point in the curve to the foci are equal to each other, being equal to the length of the thread; they are alſo equal to the tranſverſe axis. In the hyperbola the difference of the lines drawn from any point to the foci is equal, being equal to the difference of the lengths of the ruler and thread, and is equal to the tranſverſe axis.

From theſe fundamental properties all the others are derived.

The ellipſe returns into itſelf. The parabola and hyperbola may be extended without limit.

Every line perpendicular to the directrix of a parabola meets it in one point, and falls afterwards within it; and every line drawn from the focus meets it in one point, and falls afterwards without it. And every line that paſſes through a parabola, not perpendicular to the directrix, will meet it again, but only once.

Every line paſſing through the centre of an ellipſe is biſected by it; the tranſverſe axis is the greateſt of all theſe lines; the leſſer axis the leaſt; and theſe nearer the tranſverſe axis greater than thoſe more remote.

In the hyperbola, every line paſſing through the centre, is biſected by the oppoſite hyperbola, and the tranſverſe axis is the leaſt of all theſe lines; alſo the ſecond axis is the leaſt of all the ſecond diameters. Every line drawn from the centre within the angle contained by the aſſymptotes, meets at once, and falls afterwards within it; and every line drawn through the centre without that angle, never meets it; and a line which cuts one of the aſſymptotes, and cuts the other extended beyond the centre, will meet both the oppoſite hyperbolas in one point.

If a line GM, fig. 4. be drawn from a point in a parabola perpendicular to the axis, it will be an ordinate to the axis, and its ſquare will be equal to the rectangle under the abſciſſa MI and latus rectum; for, becauſe GMC is a right angle, GM^q is equal to the difference of GC^q and CM^q; but GC is equal to GE, which is equal to MB; therefore GM^q is equal to $BM^q—CM^q$; which, becauſe CI and IB are equal, is (8 *Euc.* 2.) equal to four times the rectangle under MI and IB, or equal to the rectangle under MI and the latus rectum.

Hence it follows, that if different ordinates be drawn to the axis, their ſquares being each equal to the rectangle under the abſciſſa and latus rectum, will be to each other in the proportion of the abſciſſas, which is the ſame property as was ſhown before to take place in the parabola cut from the cone, and proves thoſe curves to be the ſame.

This property is extended alſo to the ordinates of other diameters, whoſe ſquares are equal to the rectangle under the abſciſſas and parameters of their reſpective diameters.

In the ellipſe, the ſquare of the ordinate is to the rectangle under the ſegments of the diameter, as the ſquare of the diameter parallel to the ordinate to the ſquare of the diameter to which it is drawn, or as the firſt diameter to its latus rectum; that is, LK^q fig. 5. is to EKF as EF^q to GH^q.

In the hyperbola, the ſquare of the ordinate is to the rectangle contained under the ſegments of the diameters betwixt its vertices, as the ſquare of the diameter parallel to the ordinate to the ſquare of the diameter to which it is drawn, or as the firſt diameter to its latus rectum; that is, SX^q is to EXK as MN^q to KE^q.

Or if an ordinate be drawn to a ſecond diameter, its ſquare will be to the ſum of the ſquares of the ſecond diameter, and of the line intercepted betwixt the ordinate and centre, in the ſame proportion: that is, RZ^q fig. 6. is to ZG^q added to GM^q, as KE^q to MN^q. Theſe are the moſt important properties of the conic ſections; and, by means of theſe, it is demonſtrated, that the figures are the ſame deſcribed on a plane as cut from the cone; which we have demonſtrated in the caſe of the parabola.

SECT. II. *Equations of the Conic Sections*

ARE derived from the above properties. The equation of any curve, is an algebraic expreſſion, which denotes the relation betwixt the ordinate and abſciſſa; the abſciſſa being equal to *x*, and the ordinate equal to *y*.

If p be the parameter of a parabola, then $y^2 = px$; which is an equation for all parabolas.

If a be the diameter of an ellipſe, p its parameter; then $y^2 : ax - xx :: p : a$; and $y^2 = \frac{p}{a} \times \overline{ax - xx}$; an equation for all ellipſes.

If a be a tranſverſe diameter of a hyperbola, p its parameter; then $y^2 : ax + xx :: p : a$, and $y^2 = \frac{p}{a} \times \overline{ax + xx}$.

If a be a ſecond diameter of an hyperbola, then $y^2 = aa + xx :: p : a$; and $y^2 = \frac{p}{a} \times \overline{aa + xx}$; which are equations for all hyperbolas.

As all theſe equations are expreſſed by the ſecond powers of x and y, all conic ſections are curves of the ſecond order; and converſely, the locus of every quadratic equation is a conic ſection, and is a parabola, ellipſe, or hyperbola, according as the form of the equation correſponds with the above ones, or with ſome other deduced from lines drawn in a different manner with reſpect to the ſection.

Sect. III. *General Properties of Conic Sections.*

A tangent to a parabola biſects the angle contained by the lines drawn to the focus and directrix; in an ellipſe and hyperbola, it biſects the angle contained by the lines drawn to the foci.

In all the ſections, lines parallel to the tangent are ordinates to the diameter paſſing through the point of contact; and in the ellipſe and hyperbola, the diameters parallel to the tangent, and thoſe paſſing through the points of contact, are mutually conjugate to each other. If an ordinate be drawn from a point to a diameter, and a tangent from the ſame point which meets the diameter produced; in the parabola, the part of the diameter betwixt the ordinate and tangent will be biſected in the vertex; and in the ellipſe and hyperbola, the ſemi-diameter will be a mean proportion betwixt the ſegments of the diameter betwixt the centre and ordinate, and betwixt the centre and tangent.

The parallelogram formed by tangents drawn thro' the vertices of any conjugate diameters, in the ſame ellipſe or hyperbola, will be equal to each other.

Sect. IV. *Properties peculiar to the Hyperbola.*

As the hyperbola has ſome curious properties ariſing from its aſſymptotes, which appear at firſt view almoſt incredible, we ſhall briefly demonſtrate them:

1. The hyperbola and its aſſymptotes never meet; if not, let them meet in S, fig. 6.; then by the property of the curve the rectangle KXE is to SX^q as GE^q to GM^q or EP^q; that is, as GX^q to SX^q; wherefore, KXE will be equal to the ſquare of GX; but the rectangle KXE, together with the ſquare of GE, is alſo equal to the ſquare of GX; which is abſurd.

2. If a line be drawn through a hyperbola parallel to its ſecond axis, the rectangle, by the ſegments of that line, betwixt the point in the hyperbola and the aſſymptotes, will be equal to the ſquare of the ſecond axis.

For if SZ, fig. 6. be drawn perpendicular to the ſecond axis, by the property of the curve, the ſquare of MG, that is, the ſquare of PE is to the ſquare of GE, as the ſquares ZG and the ſquare of MG together, to the ſquare of SZ or GX: and the ſquares of RX and GX are in the ſame proportion, becauſe the triangles RXG, PEG are equiangular; therefore the ſquares ZG and MG are equal to the ſquare of RX; from which, taking the equal ſquares of SX and ZG, there remains the rectangle RSV, equal to the ſquare of MG.

3. Hence, if right lines be drawn parallel to the ſecond axis, cutting an hyperbola and its aſſymptotes, the rectangles contained betwixt the hyberbola and points where the lines cut the aſſymptotes will be equal to each other; for they are ſeverally equal to the ſquare of the ſecond axis.

4. If from any points, *d* and S, in a hyperbola, there be drawn lines parallel to the aſſymptotes *da* SQ and S*b* *dc*, the rectangle under *d a* and *d c* will be equal to the rectangle under QS and S *b*; alſo the parallelograms *d a*, G *c*, and SQG *b*, which are equiangular, and conſequently proportional to the rectangles, are equal.

For draw YW RV parallel to the ſecond axis, the rectangle Y *d* W is equal to the rectangle RSV; wherefore, WD is to SV as RS is to *d* Y. But becauſe the triangles RQS, AYD, and GSV *c d* W, are equiangular, W *d* is to SV as *c d* to S *b*, and R S is to DY as SQ to *d a*; wherefore, *d c* is to S *b* as SQ to *d a*: and the rectangle *d c*, *d a*, is equal to the rectangle QS, S *b*.

5. The aſſymptotes always approach nearer the hyperbola.

For, becauſe the rectangle under SQ and S *b* or QG, is equal to the rectangle under *d a* and *d c*, or AG, and QG is greater than *a* G; therefore *a d* is greater than QS.

9. The aſſymptotes come nearer the hyperbola than any aſſignable diſtance.

Let X be any ſmall line. Take any point, as *d*, in the hyperbola, and draw *d a*, *d c*, parallel to the aſſymptotes; and as X is to *d a*, ſo let *a* G be to GQ. Draw QS parallel to *a d*, meeting the hyperbola in S, then QS will be equal to X. For the rectangle SQG will be equal to the rectangle *d a* G; and conſequently SQ is to *d a* as AG to GQ.

If any point be taken in the aſſymptote below Q, it can eaſily be ſhown that its diſtance is leſs than the line X.

Sect. V. *Areas contained by Conic Sections.*

The area of a parabola is equal to $\frac{2}{3}$ the area of a circumſcribed parallelogram.

The area of an ellipſe is equal to the area of a circle whoſe diameter is a mean proportional betwixt its greater and leſſer axes.

If two lines *a d* and QS, be drawn parallel to one of the aſſymptotes of an hyperbola, the ſpace *a* QS *d*, bounded by theſe parallel lines, the aſſymptotes and the hyperbola will be equal to the logarithm of *a* Q, whoſe module is *a d*, ſuppoſing *a* G equal to unity.

Sect. VI. *Curvature of Conic Sections.*

The curvature of any conic ſection, at the vertices of its axis is equal to the curvature of a circle whoſe diameter is equal to the parameter of its axis.

If a tangent be drawn from any other point of a conic ſection, the curvature of the ſection in that point will be equal to the curvature of a circle to which the ſame line is a tangent, and which cuts off from the diameter of the ſection, drawn through the point, a part equal to its parameter.

Sect. VII. *Uſes of Conic Sections.*

Any body, projected from the ſurface of the earth, deſcribes a parabola, to which the direction wherein it is projected is a tangent: and the diſtance of the directrix is equal to the height from which a body muſt fall to acquire the velocity wherewith it is projected: hence the properties of the parabola are the foundation of gunnery.

All bodies acted on by a central force, which decreaſes as the ſquare of the diſtances increaſes, and impreſſed with any projectile motion, making any angle with the direction of the central force, muſt deſcribe conic ſections, having the central force in one of the foci, and will deſcribe parabolas, ellipſes, and hyperbolas, according to the proportion betwixt the central and projectile force. This is proved by direct demonſtration.

The great principle of gravitation acts in this manner; and all the heavenly bodies deſcribe conic ſections having the ſun in one of the foci; the orbits of the planets are ellipſes, whoſe tranſverſe and leſſer diameters are nearly equal: it is uncertain whether the comets deſcribe ellipſes with very unequal axes, and ſo return after a great number of years; or whether they deſcribe parabolas and hyperbolas, in which caſe they will never return.

Sect. VIII. *Uſes of Conic Sections in the Solution of Geometrical Problems.*

Many problems can be ſolved by conic ſections that cannot be ſolved by right lines and circles. The following theorems, which follow from the ſimpler properties of the ſections, will give a ſpecimen of this.

A point equally diſtant from a given point and a given line, is ſituated in a given parabola.

A point, the ſum of whoſe diſtances from two given points is given, is ſituated in a given ellipſe.

A point, the difference of whoſe diſtances from two given points is given, is ſituated in a given hyperbola.

CONICHTHYODONTES, or Plectronitæ, in natural hiſtory, one of the three names the foſſile teeth of fiſhes are known by.

CONIFERÆ, in botany, an order of plants in the *Fragmenta methodi naturalis* of Linnæus, containing the following genera, viz. cupreſſus, ephedra, equiſetum, juniperus, pinus, taxus, thuja.

CONIFEROUS trees, ſuch as bear hard dry ſeed-veſſels of a conical figure; conſiſting of ſeveral woody parts, being moſtly ſcaly, adhering cloſely together, and ſeparating when ripe.

CONIMBRICA (anc. geog.), a town of Luſitania, on the ſouth ſide of the river Monda; from the ruins of which aroſe *Coimbra*, in its neigbourhood, a city of Portugal. W. Long. 9. 5. Lat. 40. 16.

CONINGSECK, a town of Suabia in Germany, and capital of a county of the ſame name. E. Long. 9. 23. N. Lat. 47. 50.

CONJOINT, in a general ſenſe, ſignifies united or connected.

Conjoint Degrees, in muſic, two notes which follow each other immediately in the order of the ſcale, as *ut* and *re*.

Conjoint Tetrachords, two tetrachords, or fourths, where the ſame chord is the higheſt of one and the loweſt of the other.

CONISSALÆ, in natural hiſtory, a claſs of foſſils naturally and eſſentially compounded, not inflammable, nor ſoluble in water, found in detached maſſes, and formed of cryſtalline matter debaſed by earth.

Of this claſs there are two orders, and of each of theſe only one genus. Coniſſalæ of the firſt order are found in form of a naturally regular and uniform powder; all the genuine particles of which are nearly of one determinate ſhape, appearing regularly concreted, and not fragments of others once larger. Coniſſalæ of the ſecond order are found in form of a rude, irregular, and ſhapeleſs powder, the particles of which are never of any determinate figure, but ſeem broken fragments of once larger maſſes.

To the former genus belong the different kinds of ſand; and to the latter the ſaburræ, or gritts.

CONJUGATE diameter, or *Axis, of an Ellipſis*, the ſhorteſt of the two diameters, or that biſecting the axis.

CONJUGATION, in grammar, a regular diſtribution of the ſeveral inflexions of verbs in their different voices, moods, tenſes, numbers, and perſons, ſo as to diſtinguiſh them from one another. See Grammar and Language.

CONIUM, hemlock: A genus of the digynia order, belonging to the pentandria claſs of plants; and in the natural method ranking under the 45th order, *Umbellatæ*. The partial involucra are halved, and moſtly triphyllous; the fruit ſubgloboſe and quinque-ſtriated, the ſtriæ crenated on each ſide. The ſpecies are three; 1. The *maculatum*, or *greater hemlock*, grows naturally on the ſides of banks and roads in many parts of Britain. It is a biennial plant which periſhes after it has ripened its ſeeds. It hath a long taper root like a parſnip, but ſmaller. The ſtalk is ſmooth, ſpotted with purple, and riſes from four to upwards of ſix feet high; branching out toward the top into ſeveral ſmaller ſtalks, garniſhed with decompounded leaves, whoſe lobes are cut at the top into three parts; theſe are of a lucid green, and have a diſagreeable ſmell. The ſtalks are terminated by umbels of white flowers, each being compoſed of about ten rays or ſmall umbels, and have a great number of flowers, which ſpread open, each ſitting upon a diſtinct footſtalk; the ſeeds are ſmall and channelled, and like thoſe of anniſeed. It flowers in June, and the ſeeds ripen in autumn.

2. The *tenuifolium*, with ſtriated ſeeds, differs from the firſt in having taller ſtalks, which are not ſo much ſpotted. The leaves are much narrower, and of a paler green; and this difference is conſtant. It is a biennial plant, and grows naturally in Germany. 3. The *africanum*, with prickly ſeeds, it a native of the Cape of Good Hope. The plant rarely grows above nine inches high: the lower leaves are divided like thoſe of the ſmall wild rue, and are of a greyiſh colour, thoſe upon the ſtock are narrower, but of the ſame colour; theſe are terminated by umbels of white flowers, each of the larger umbels being compoſed of three ſmall ones; the involucrum hath three narrow leaves ſituated under the umbel. This flowers in July and ripens ſeed in autumn, ſoon after which the plants decay.

Medicinal Uſes. The firſt ſpecies is ſometimes applied externally, in a form of decoction, infuſion, or poultice, as a diſcutient. Theſe are apt to excoriate, and their vapour is to ſome particularly diſagreeable and hurtful. The ſtalks are inſignificant, and the roots very virulent. With regard to its virtue when taken internally, it has been generally accounted poiſonous; which it doubtleſs is, in a high degree, when uſed in any conſiderable quantity. But Dr Stoerk has lately found, that in certain ſmall doſes it may be taken with great ſafety; and that, without at all diſordering the conſtitution, or even producing any ſenſible operation, it ſometimes proves a powerful reſolvent in many obſtinate diſorders. In ſcirrhus, the internal and external uſe of hemlock has been found uſeful, but then mercury has been generally uſed at the ſame time. In open cancer, it often abates the pains, and is free from the conſtipating effects of opium. It is likewiſe uſed in ſcrophulous tumours and ulcers, and in other ulcers that are only defined by the term ill-conditioned. It is alſo recommended by ſome in chin-cough, and various other diſeaſes. Its common, and perhaps beſt form, is that of the powdered leaves, in the doſe at firſt of two or three grains a-day, which in ſome caſes has been gradually increaſed to upwards of two ounces a-day, without producing giddineſs. An extract from the ſeeds is ſaid to produce giddineſs ſooner than that from the leaves. Hence, while both the London and Edinburgh colleges have given a place to the ſuccus ſpiſſatus cicutæ, into the pharmacopœia of the latter an extractum ſeminum cicutæ is alſo introduced.

CONJUNCT, in a general ſenſe, ſignifies conjoined, concurrent, or united.

Conjunct Rights, in Scots law. See Law, Part III. n° clxxx. 15, &c.

Conjunct, or *Confident Perſons*, in Scots law. Ibid. n° clxxxiii. 8.

CONJUNCTION, in aſtronomy, the meeting of two or more ſtars or planets in the ſame degree of the zodiac.

Conjunction, in grammar, an indeclinable word or particle, which ſerves to join words and ſentences together, and thereby ſhows their relation or dependence upon one another. See Grammar.

CONJURATION, magic words, characters, or ceremonies, whereby evil ſpirits, tempeſts, &c. are ſuppoſed to be raiſed, or driven away. The Romiſh prieſts pretend to expel devils, by preparing holy water in a particular manner, and ſprinkling it over the poſſeſſed, with a number of conjurations and exorciſms.

Some authors make the difference between conjuration and witchcraft to conſiſt in this; that the former effects its end by prayers and invocation of God's name, &c. to compel the devil to do what is deſired, ſo that the conjurer is ſuppoſed to be at war with the devil, and that evil ſpirit to act merely out of conſtraint: whereas the latter attains its end by an immediate application to the devil himſelf; and the devil's complaiſance is ſuppoſed to be the conſequence of ſome compact between them, ſo that the devil and the witch have a good underſtanding together. Both theſe, again, differ from enchanting and ſorcery; in that theſe latter operate ſecretly and ſlowly by ſpells, charms, &c. without ever calling on the devil, or having any conference with him.

Conn See Cond.

CONNAUGHT, one of the four provinces of Ireland, bounded on the eaſt by that of Leinſter, on the weſt by the ocean, on the north and north-weſt by part of the ocean and province of Ulſter, and on the ſouth and eaſt by Munſter. It is about 130 miles in length, and 84 in breadth. It has no rivers of any great note beſides the Shannon. It has ſeveral convenient bays and creeks, and is fertile in many places. It had ſeveral dangerous bogs, over-run with woods, which are now in ſome meaſure cleared away. This province produces abundance of cattle, ſheep, deer, hawks, and honey; but the inhabitants being lazy, it is the leaſt cultivated of all the four provinces. It contains 1 arbiſhopric, 5 biſhoprics, 6 counties, 7 market towns, 8 places of trade, 10 boroughs that ſend members to parliament, 47,256 houſes, 24 old caſtles, beſides fortreſſes that have been erected of late, and 330 pariſhes. The principal town is Galway.

CONNADUS, Ceylon sumach: A genus of the decandria order, belonging to the monodelphia claſs of plants; and in the natural method ranking with thoſe of which the order is doubtful. The ſtigma is ſimple, the capſule bivalved, unilocular, and monoſpermous. There is but one ſpecies, viz. The monocarpus. This is a native of India, and riſes with a ligneous ſtalk eight or ten feet high, which is hard, rigid, and covered with a black bark, and divides upward into two or three branches garniſhed with trifoliate leaves, having long footſtalks placed alternate. It is propagated by cutting, and is to be treated in the ſame manner with other tender exotics.

CONNECTICUT, a large river which gives name to one of the five ſtates of New England, (ſee the next article). It riſes in a ſwamp on the height of land, in Lat. 45. 10. Long. 4. E. After a ſleepy courſe of eight or ten miles, it tumbles over four ſeparate falls, and turning weſt keeps cloſe under the hills which form the northern boundary of the vale through which it runs. The Amonooſuck and Iſrael rivers, two principal branches of Connecticut river, fall into it from the eaſt, between the latitudes 44° and 45°. Between the towns of Walpole on the eaſt, and Weſtminiſter on the weſt, ſide of the river, are the great Falls. The whole river, compreſſed between two rocks ſcarcely 30 feet aſunder, ſhoots with amazing rapidity into a broad baſon below. Over theſe

Morſe's Geography.

Connecticut.

theſe falls, a bridge 160 feet in length, was built in 1784, under which the higheſt floods may paſs without detriment. This is the firſt bridge that was ever erected over this noble river. Above Deerfield in Maſſachuſets it receives Deerfield river from the weſt, and Miller's river from the eaſt, after which it turns weſterly in a ſinuous courſe to Fighting falls, and a little after tumbles over Deerfield falls, which are impaſſible by boats. At Windſor in Connecticut it receives Farmington river from the weſt; and at Hartford meets the tide. From Hartford it paſſes on in a crooked courſe, until it falls into Long Iſland ſound, between Saybrook and Lyme.

The length of this river, in a ſtraight line, is nearly 300 miles. Its general courſe is ſeveral degrees weſt of ſouth. It is from 80 to 100 roods wide, 130 miles from its mouth. At its mouth is a bar of ſand which conſiderably obſtructs the navigation. Ten feet water at full tides is found on this bar, and the ſame depth to Middleton. The diſtance of the bar from this place, as the river runs, is 36 miles. Above Middleton are ſeveral ſhoals which ſtretch quite acroſs the river. Only ſix feet water is found on the ſhoal at high tide, and here the tide ebbs and flows but about eight inches. About three miles below Middleton the river is contracted to about 40 roods in breadth by two high mountains. Almoſt every where elſe the banks are low, and ſpread into fine extenſive meadows. In the ſpring floods, which generally happen in May, theſe meadows are covered with water. At Hartford the water ſometimes riſes 20 feet above the common ſurface of the river, and having all to paſs through the abovementioned ſtrait, it is ſometimes two or three weeks before it returns to its uſual bed. Theſe floods add nothing to the depth of water on the bar at the mouth of the river; this bar lying too far off in the ſound to be affected by them.

On this beautiful river, whoſe banks are ſettled almoſt to its ſource, are many pleaſant, neat, well-built towns. On its weſtern bank, from its mouth northward, are the towns of Saybrook, Haddam, Middleton, Weathersfield, Hartford, Windſor, and Suffield, in Connecticut; Weſt Springfield, Northampton, Hatfield, and Deerfield, in Maſſachuſets; Guilford, Brattleborough, in which is Fort Dummer, Weſtminſter, Windſor, Hartford, Fairlee, Newbury, Brunſwick. and many others in Vermont. Croſſing the river into New Hampſhire, and travelling on the eaſtern bank, you paſs through Woodbury nearly oppoſite to Brunſwick, Northumberland, the Coos country, Lyman, Orford, Lyme, Hanover, in which is Dartmouth College, Lebanon, Corniſh, Clermont, Charleſton, or N° 4, Cheſterfield, and many others in New Hampſhire, Sunderland, Hadley, Springfield, Long Meadow, in Maſſachuſets; and in Connecticut, Enfield, Eaſt Windſor, Eaſt Hartford, Glaſtenbury, Eaſt Haddam, and Lyme.

This river is navigable to Hartford, upwards of 50 miles from its mouth, and the produce of the country for 200 miles above is brought thither in boats. The boats which are uſed in this buſineſs are flat-bottomed, long, and narrow, for the convenience of going up ſtream, and of ſo light a make as to be portable in carts. They are taken out of the river at three different carrying places, all of which make 15 miles.

Connecticut.

Sturgeon, ſalmon, and ſhad, are caught in plenty in their ſeaſon, from the mouth of the river upwards, excepting ſturgeon, which do not aſcend the upper falls; beſides a variety of ſmall fiſh, ſuch as pike, carp, pearch, &c.

From this river are employed three brigs of 180 tons each, in the European trade; and about 60 ſail from 60 to 150 tons, in the Weſt India trade; beſides a few fiſhermen, and 40 or 50 coaſting veſſels.

CONNECTICUT, one of the five ſtates of New England in America, bounded on the north by Maſſachuſets; on the eaſt by Rhode Iſland; on the ſouth, by the ſound, which divides it from Long Iſland; and on the weſt, by the ſtate of New York.

The diviſional line between Connecticut and Maſſachuſets, as ſettled in 1713, was found to be about 72 miles in length. The line dividing Connecticut from Rhode Iſland was ſettled in 1728, and found to be about 45 miles. The ſea coaſt, from the mouth of Paukatuk river, which forms a part of the eaſtern boundary of Connecticut, in a direct ſouthweſtwardly line to the mouth of Byram river, is reckoned at about 90 miles. The line between Connecticut and New-York runs from latitude 41. 0. to latitude 42. 2.; 72 miles. Connecticut contains about 4674 ſquare miles; equal to about 2,960,000 acres.

1 Rivers.

This ſtate is watered by ſeveral fine rivers, the principal of which are, *Connecticut*, deſcribed in the preceding article, Houſatonik, and the Thames. One branch of the Houſatonik riſes in Laneſborough, the other in Windſor, both in Berkſhire county in Maſſachuſets. It paſſes through a number of pleaſant towns, and empties into the ſound between Stratford and Milford. It is navigable 12 miles, to Derby. A bar of ſhells, at its mouth, obſtructs its navigation for large veſſels. In this river, between Saliſbury and Canaan, is a cataract, where the water of the whole river, which is 150 yards wide, falls about ſixty feet perpendicularly, in a perfectly white ſheet. A copious miſt ariſes, in which floating rainbows are ſeen in various places at the ſame time, exhibiting a ſcene exceedingly grand and beautiful.

The Thames empties in Long Iſland ſound at New London. It is navigable 14 miles, to Norwich Landing. Here it loſes its name, an branches into Shetucket on the eaſt, and Norwich or Little river on the weſt. The city of Norwich ſtands on the tongue of land between theſe rivers. Little river, about a mile from its mouth, has a remarkable and very romantic cataract. A rock 10 or 12 feet in perpendicular height, extends quite acroſs the channel of the river. Over this the whole river pitches, in one entire ſheet, upon a bed of rocks below. Here the river is compreſſed into a very narrow channel between two craggy cliffs, one of which towers to a conſiderable height. The channel deſcends gradually, is very crooked, and covered with pointed rocks. Upon theſe the water ſwiftly tumbles, foaming with the moſt violent agitation, 15 or 20 rods, into a broad baſon which ſpreads before it. At the bottom of the perpendicular falls, the rocks are curiouſly excavated by the conſtant pouring of the water. Some of the cavities, which are all of a circular form, are five or ſix feet deep. The ſmoothneſs of the water above its deſcent—the regularity and beauty of the perpendicular fall—the tremendous roughneſs of the other, and the craggy, towering cliff which impends the whole, preſent to the view of the ſpectator a ſcene indeſcribably delightful and majeſtic. On this river are ſome of the fineſt mill ſeats in New England, and thoſe immediately below the falls, occupied by Lathrop's mills, are perhaps not exceeded by any in the world. Acroſs the mouth of this river is a broad, commodious bridge, in the form of a wharf, built at a great expence.

Shetucket river, the other branch of the Thames, four miles from its mouth, receives Quinnabog, which has its ſource in Brimfield in Maſſachuſets; thence paſſing through Sturbridge and Dudly in Maſſachuſets, it croſſes into Connecticut, and divides Pomfret from Killingly, Canterbury from Plainfield, and Liſbon from Preſton, and then mingles with Shetucket. In paſſing through this hilly country, it tumbles over many falls, and affords a vaſt number of mill ſeats. The ſource of the Shetucket is not far from that of Quinnabog. It has the name of Willamantik while paſſing through Stafford, and between Tolland and Willington, Coventry and Mansfield. Below Windham it takes the name of Shetucket, and empties as above. Theſe rivers are fed by numberleſs brooks from every part of the adjacent country. At the mouth of Shetucket is a bridge of timber 124 feet in length, ſupported at each end by pillars, and held up in the middle by braces on the top, in the nature of an arch.

2 Harbours.

The two principal harbours are at New London and New Haven. The former opens to the ſouth. From the light-houſe, which ſtands at the mouth of the harbour, to the town, is about three miles; the breadth is three quarters of a mile, and in ſome places more. The harbour has from five to ſix fathoms water—a clear bottom—tough ooze, and as far as one mile above the town is entirely ſecure and commodious for large ſhips. New Haven harbour is greatly inferior to that of New London. It is a bay which ſets up northerly from the ſound about four miles. Its entrance is about half a mile wide. It has very good anchorage, and two and an half fathoms at low water, and three fathoms and four feet at common tides. The whole of the ſea coaſt is indented with harbours, many of which are ſafe and commodious, but are not ſufficiently uſed to merit a deſcription.

3 Climate, ſoil, and productions.

Connecticut, though ſubject to the extremes of heat and cold in their ſeaſons, and to frequent ſudden changes, is very healthful. As many as one in 46 of the inhabitants of Connecticut, who were living in 1774, were upwards of 70 years old. From accurate calculation it is found, that about one in eight live to the age of 70 years and upwards; one in 13 to the age of 80 years, and one in about 30 to the age of 90.

In the maritime towns the weather is variable, according as the wind blows from the ſea or land. As you advance into the country, the ſea breezes have leſs effect upon the air, and conſequently the weather is leſs variable. The ſhorteſt day is 8 hours and 58 minutes, and the longeſt 15 hours. The northweſt winds, in the winter-ſeaſon, are often extremely ſevere and piercing, occaſioned by the great body of ſnow which lies concealed from the diſſolving influence of the ſun in the immenſe foreſts north and northweſt. The clear and ſerene temperature of the ſky, however, makes amends for the ſeverity of the weather, and is favourable to health and longevity. Connecticut is generally broken land, made up of mountains, hills, and valleys; and is exceedingly well watered. Some ſmall parts of it are thin and barren. It lies in the fifth and ſixth northern climates, and has a ſtrong fertile ſoil. Its principal productions are Indian corn, rye, wheat in many parts of the ſtate, oats and barley, which are heavy and good, and of late buck-wheat--flax in large quantities---ſome hemp, potatoes of ſeveral kinds, pumpkins, turnips, peas, beans, &c. &c. fruits of all kinds, which are common to the climate. The ſoil is very well calculated for paſture and mowing, which enables the farmers to feed large numbers of neat cattle and horſes. Actual calculation has evinced, that any given quantity of the beſt mowing land in Connecticut, produces about twice as much clear profit as the ſame quantity of the beſt wheat land in the ſtate of New York. Many farmers, in the eaſtern part of the ſtate, have lately found their advantage in raiſing mules, which are carried from the ports of Norwich and New London to the Weſt India iſlands, and yield a handſome profit. The beef, pork, butter, and cheeſe of Connecticut, are equal to any in the word.

4 Trade.

The trade of Connecticut is principally with the Weſt India iſlands, and is carried on in veſſels from 60 to 140 tons. The exports conſiſt of horſes, mules, oxen, oak ſtaves, hoops, pine boards, oak planks, beans, Indian corn, fiſh, beef, pork, &c. Horſes, live cattle, and lumber, are permitted in the Dutch, Daniſh, and French ports. Beef and fiſh are liable to ſuch heavy duties in the French iſlands, as that little profit ariſes to the merchant who ſends them to their ports. Pork and flour are prohibited. As the ordinance making free ports in the French Weſt India iſlands extends to all foreigners, the price of molaſſes and other articles, has been greatly enhanced by the Engliſh purchaſes for Canada and Nova Scotia; ſo that the trade of Connecticut with the French Weſt India iſlands is not profitable. Cotton, cocoa, indigo and ſugars, are not permitted to be brought away by Americans. The ſeverity with which theſe prohibitory laws are adminiſtered is ſuch, as that theſe articles cannot be ſmuggled.

Connecticut has a large number of coaſting veſſels employed in carrying the produce of the ſtate to other ſtates--- To Rhode Iſland, Maſſachuſets, and New Hampſhire, they carry pork, wheat, corn, and rye. To North and South Carolinas and Georgia, butter, cheeſe, ſalted beef, cyder, apples, potatoes, hay, &c. and receive in return rice, indigo, and money. But as New York is nearer, and the ſtate of the markets always well known, much of the produce of Connecticut, eſpecially of the weſtern parts, is carried there; particularly pot and pearl-aſhes, flax-ſeed, beef, pork, cheeſe, and butter, in large quantities. Moſt of the produce of Connecticut river, from the parts of Maſſachuſets, New Hampſhire, and Vermont, as well as of Connecticut, which are adjacent, goes to the ſame market. Conſiderable quantities of the produce of the eaſtern parts of the ſtate are marketed at Boſton and Providence.

The value of the whole exported produce and commodities from this ſtate, before the year 1774, was then eſtimated at about L.200,000 lawful money annually,

nually. Since this time no accurate eſtimate has been made, ſo that it is impoſſible to tell whether the amount has ſince been increaſed or diminiſhed.

In 1774, the number of ſhipping in Connecticut was 180; their tonage 10,317; ſeafaring men 1162; beſides upwards of 20 ſail of coaſting veſſels, which employed about 90 ſeamen. This ſtate has not yet fully recovered the confuſion in which it was involved by the late war; ſo that the number of ſhipping, &c. has not, at any period ſince 1774, been aſcertained with accuracy. It is probable, however, conſidering the loſſes ſuſtained by the war, the decay of the ſhip-building buſineſs, and the number of unfortunate ſhipwrecks, and loſſes by hurricanes in the Weſt Indies, that the ſhipping and ſeamen are not now ſo numerous as in 1774.

5
Manufactures.

The number of ſhipping from the port of New London employed in 1788 in the European and Weſt India trade, was four ſhips, one ſnow, 54 brigantines, 32 ſchooners, and 45 ſloops. The number of horſes and cattle exported from the diſtrict round New London, from the 10th of January 1787 to the 10th of January 1788, was 6917; beſides jack-aſſes imported and exported, not included. From 1786 to 1787, the number was 6671; ſo that the laſt year exceeded the other 246. From March 1787 to January 1788, 1454 horſes, 700 oxen, and 23 cows, were exported from the port of Middleton.

The farmers in Connecticut and their families are moſtly clothed in plain, decent, homeſpun cloth. Their linens and woollens are manufactured in the family way; and although they are generally of a coarſer kind, they are of a ſtronger texture, and much more durable than thoſe imported from France and Great Britain. Many of their cloths are fine and handſome.

In New Haven is a linen manufactory which flouriſhes, and one for cotton is about to be eſtabliſhed. In Eaſt Hartford is a glaſs-work, a ſnuff and powder mill, and an iron-work and ſlitting-mill. Iron works are eſtabliſhed alſo at Saliſbury, Norwich, and other parts of the ſtate. At Stafford is a furnace at which is made large quantities of hollow ware and other ironmongery, ſufficient to ſupply the whole ſtate. Paper is manufactured at Norwich, Hartford, New Haven, and in Litchfield county. Nails of every ſize are made in almoſt every town and village in Connecticut; ſo that conſiderable quantities can be exported to the neighbouring ſtates, and at a better rate than they can be had from Europe. Ironmongery, hats of the beſt kinds, candles, leather, ſhoes, and boots, are manufactured in this ſtate. We muſt not omit to mention wooden diſhes and other wooden ware, which are made in vaſt quantities in Suffield and ſome few other places, and ſold in almoſt every part of the eaſtern ſtates. Oil-mills, of a new and very ingenious conſtruction, have been erected in ſeveral parts of the ſtate.

It appears from experiments made formerly in this ſtate, that a buſhel of ſun-flower ſeed yields a gallon of oil; and that an acre of ground planted with the ſeed at three feet a part, will yield between forty and fifty buſhels of the ſeed. This oil is as mild as ſweet oil, and is equally agreeable with ſallads, and as a medicine. It may, moreover, be uſed with advantage in paints, varniſhes, and ointments. From its being manufactured in our own country, it may always be procured and uſed in a freſh ſtate. The oil is preſſed from the ſeed in the ſame manner that cold drawn linſeed oil is obtained from flax-ſeed, and with as little trouble. Sweet olive oil ſells for ſix ſhillings a quart. Should the oil of the ſun-flower ſell for only two-thirds of that price, the produce of an acre of ground, ſuppoſing it to yield only 40 buſhels of the ſeed, will be L. 32, a ſum far beyond the product of an acre of ground in any kind of grain. The ſeed is raiſed with very little trouble, and grows in land of moderate fertility. It may be gathered and ſhelled, fit for the extraction of the oil, by women and children.

6
Civil diviſions and population.

Connecticut is divided into eight counties, *viz.* Hartford, New Haven, New London, Fairfield, Windham, Litchfield, Middleſex, and Tolland. The counties are ſubdivided into upwards of 80 townſhips; each of which is a corporation, inveſted with power to hold lands, chooſe their own town-officers, to make prudential laws, the penalty of tranſgreſſion not to exceed 20s. and to chooſe their own repreſentatives to the general aſſembly. The townſhips are generally divided into two or more pariſhes, in each of which is one or more places for public worſhip.

Connecticut is the moſt populous, in proportion to its extent, of any of the thirteen ſtates. It is laid out in ſmall farms from 50 to 300 or 400 acres each, which are held by the farmers in fee ſimple; and are generally cultivated as well as the nature of the ſoil will admit. The ſtate is chequered with innumerable roads or highways, croſſing each other in every direction. A traveller in any of theſe roads, even in the moſt unſettled parts of the ſtate, will ſeldom paſs more than two or three miles without finding a houſe or cottage, and a farm under ſuch improvements as to afford the neceſſaries for the ſupport of a family. The whole ſtate reſembles a well-cultivated garden; which, with that degree of induſtry that is neceſſary to happineſs, produces the neceſſaries and conveniences of life in great plenty.

In 1756, the number of inhabitants in Connecticut was 130,611; in 1774, there were 167,856 ſouls. In 18 years, the increaſe was 67,245; from 1774 to 1782, the increaſe was but 11,294 perſons. This comparatively ſmall increaſe of inhabitants may be ſatisfactorily accounted for from the deſtruction of the war, and the numerous emigrations to Vermont, the weſtern parts of New Hampſhire, and other ſtates.

The inhabitants are almoſt entirely of Engliſh deſcent. There are no Dutch, French, or Germans, and very few Scotch or Iriſh people, in any part of New England.

7
Character, manners, &c.

In addition to what has been already ſaid on theſe particulars under New England, it may be obſerved, that the people of Connecticut are remarkably fond of having all their diſputes, even thoſe of the moſt trivial kind, ſettled according to law. The prevalence of this litigious ſpirit affords employment and ſupport for a numerous body of lawyers. The number of actions entered annually upon the ſeveral dockets in the ſtate, juſtifies the above obſervations. That party ſpirit, however, which is the bane of political happineſs, has not raged with ſuch violence in this ſtate as in Maſſachuſets and Rhode-Iſland. Public proceedings have been conducted, generally, and eſpecially of late, with much calmneſs and candour. The people are well informed in regard to their rights, and judicious in the methods they adopt to ſecure them.

The clergy, who are numerous, and, as a body, very reſpectable, have hitherto preſerved a kind of ariſtocratical balance in the very democratical government of the ſtate; which has happily operated as a check upon the overbearing ſpirit of republicaniſm. It has been lamented that the unhappy religious diſputes which have too much prevailed among ſome of the clergy, and the too great attention that others have paid to their temporal concerns, to the neglect of their flocks, and an inattention to the qualifications of thoſe who have been admitted to the ſacred office, have, heretofore, conſiderably diminiſhed their influence. It is a pleaſing circumſtance that the rage for theological diſputation is abating; and greater ſtrictneſs is obſerved in the admiſſion of candidates to the miniſtry. Their influence is on the increaſe; and it is no doubt to be attributed, in part, to their increaſing influence, that an evident reformation in the manners of the people of this ſtate has taken place ſince the peace. In regard to learning and abilities, the clergy, at the preſent day, are equal to their predeceſſors at any former period.

8 Religion.

As to eccleſiaſtical government and diſcipline, each church is a ſeparate juriſdiction, and claims authority to chooſe their own miniſter, to exerciſe government, and to enjoy goſpel ordinances within itſelf. The churches, however, are not independent of each other; they are aſſociated for mutual benefit and convenience. The aſſociations have power to licence candidates for the miniſtry, to conſult for the general welfare, and to recommend meaſures to be adopted by the churches, but have no authority to enforce them. When diſputes ariſe in churches, councils are called, by the parties, to ſettle them; but their power is only adviſory. There are as many aſſociations in the ſtate as there are counties; and they meet twice in a year. Theſe are all combined in one general aſſociation, who meet annually.

All religions that are conſiſtent with the peace of ſociety are tolerated in Connecticut; and a ſpirit of liberality and catholiciſm is increaſing. There are very few religious ſects in this ſtate; the bulk of the people are congregationaliſts. Beſides theſe there are epiſcopalians and baptiſts; and formerly there was a ſociety of Sandimanians at New-Haven; but they are now reduced to a very ſmall number. The epiſcopalian churches are reſpectable, and are under the ſuperintendance of a biſhop. There were 29 congregations of the baptiſts in 1784. Theſe congregations, with thoſe in the neighbouring ſtates, meet in aſſociations, by delegation, annually.

9 Chief towns.

There are a great number of very pleaſant towns, both maritime and inland, in Connecticut. It contains five incorporated towns or cities. Two of theſe, Hartford and New Haven, are the capitals of the ſtate. The general aſſembly is holden at the former in May, and at the latter in October, annually. See Hartford and *New*-Haven.

10 Colleges, academies, and ſchools.

In no part of the world is the education of all ranks of people more attended to than in Connecticut. Almoſt every town in the ſtate is divided into diſtricts, and each diſtrict has a public ſchool kept in it a greater or leſs part of every year. Somewhat more than one third of the monies ariſing from a tax on the polls and rateable eſtate of the inhabitants, is appropriated to the ſupport of ſchools, in the ſeveral towns, for the education of children and youth. The law directs that a grammar ſchool ſhall be kept in every county town throughout the ſtate.

There is a grammar ſchool at Hartford, and another at New Haven, ſupported by a donation of governor Hopkins. This venerable and benevolent gentleman, in his laſt will, dated 1657, left in the hands of Theophilus Eaton, Eſq; and three others, a legacy of L. 1324, "as an encouragement, in theſe foreign plantations, of breeding up hopeful youths both at the grammar ſchool and college." In 1664, this legacy was equally divided between New Haven and Hartford; and grammar ſchools were erected, which have been ſupported ever ſince.

At Greenfield there is a reſpectable academy, under the care and inſtruction of the Rev. Dr Dwight. At Plainfield is another, under the care of the Rev. Mr Benedict. This academy has flouriſhed for ſeveral years, and furniſhed a number of ſtudents for Yale and Dartmouth colleges. At Norwich and Windham, likewiſe, are academies furniſhed with able inſtructors; each of theſe academies have 60 or 70 ſcholars.

Yale College was founded in 1700, and remained at Killingworth until 1707—then at Saybrook until 1716, when it was removed and fixed at New Haven. See New Haven.

11 Mines, minerals, and foſſils.

On the bank of Connecticut river, two miles from Middleton, is a lead mine, which was wrought during the war, at the expence of the ſtate, and was productive. It is too expenſive to work in time of peace. Copper mines have been diſcovered and opened in ſeveral parts of the ſtate, but have proved unprofitable, and are much neglected. Iron mines are numerous and productive. Steel ore has been found in the mountains between Woodbury and New Milford. Talcs of various kinds, white, brown, and chocolate coloured cryſtals, zink or ſpelter, a ſemimetal, and ſeveral other foſſils and metals, have been found in Connecticut.

12 Mode of levying taxes.

All freeholders in the ſtate are required by law to give in liſts of their polls and rateable eſtate, to perſons appointed in the reſpective towns to receive them, on or before the 20th of Auguſt annually. Theſe are valued according to law, arranged in proper order, and ſent to the general aſſembly annually in May.

The ſum total of the liſt of the polls and rateable eſtate of the inhabitants of Connecticut, as brought into the general aſſembly in May 1787, were as follows:

Sum total of the ſingle liſt	L.	1,484,901	6	4¾
Aſſeſſments, - - -		47,790	2	9
One quarter of the fourfolds, -		1,176	9	4
Total, -	L.	1,533,867	18	5¾

On this ſum taxes are levied, ſo much on the pound, according to the ſum propoſed to be raiſed. A tax of two-pence on the pound would raiſe L. 12,782, 4s.

The ordinary annual expences of government before the war amounted to near L. 4000 Sterling, excluſive of that which was appropriated to the ſupport of ſchools. The expences have ſince increaſed.

13 Mineral ſprings.

At Stafford is a medicinal ſpring, which is ſaid to be a ſovereign remedy for ſcorbutic, cutaneous, and other diſorders. At Guilford is a ſpring, whoſe water, it is ſaid, when ſeparated from the fountain, will evaporate even when put into a bottle and tightly corked.

14 Conſtitution and courts of juſtice.

It is difficult to ſay what is the conſtitution of this ſtate. Contented with the form of government which originated from the charter of Charles II. granted in 1662, the people have not been diſpoſed to run the hazard of framing a new conſtitution ſince the declaration of independence. They have tacitly adopted their old charter as the ground of civil government, ſo far as it is applicable to an independent people.

Agreeable to this charter, the ſupreme legiſlative authority of the ſtate is veſted in a governor, deputy-governor, twelve aſſiſtants or counſellors, and the repreſentatives of the people, ſtyled the *General Aſſembly*. The governor, deputy governor, and aſſiſtants, are annually choſen by the freemen in the month of May. The repreſentatives (their number not to exceed two from each town) are choſen by the freemen twice a-year, to attend the two annual ſeſſions, on the ſecond Thurſdays of May and October. This aſſembly has power to erect judicatories, for the trial of cauſes civil and criminal, and to ordain and eſtabliſh laws for ſettling the forms and ceremonies of government. By theſe laws the general aſſembly is divided into two branches, called the upper and lower houſes. The upper houſe is compoſed of the governor, deputy-governor, and aſſiſtants; the lower houſe, of the repreſentatives of the people. No law can paſs without the concurrence of both houſes. The judges of the ſuperior court hold their offices during the pleaſure of the general aſſembly. The judges of the county courts, and juſtices, are annually appointed. Sheriffs are appointed by the governor and council, without limitation of time. The governor is captain-general of the militia, the deputy-governor lieutenant-general. All other military offices are appointed by the aſſembly, and commiſſioned by the governor.

The mode of electing the governor, deputy governor, aſſiſtants, treaſurer, and ſecretary, is as follows: The freemen in the ſeveral towns meet on the Monday next after the firſt Tueſday in April, annually, and give in their votes for the perſons they chooſe for the ſaid offices reſpectively, with their names written on a piece of paper, which are received and ſealed up by a conſtable in open meeting, the votes for each office by themſelves, with the name of the town and office written on the outſide. Theſe votes, thus ſealed, are ſent to the general aſſembly in May, and there counted by a committee from both houſes. All freemen are eligible to any office in government. In chooſing aſſiſtants, twenty perſons are nominated, by the vote of each freeman, at the freemen's meeting for chooſing repreſentatives in September annually. Theſe votes are ſealed up, and ſent to the general aſſembly in October, and are there counted by a committee of both houſes, and the twenty perſons who have the moſt votes ſtand in nomination; out of which number the twelve who have the greateſt number of votes, given by the freemen at their meeting in April, are in May declared aſſiſtants in the manner abovementioned. The qualifications of freemen are, maturity in years, quiet and peaceable behaviour, a civil converſation, and freehold eſtate to the value of forty ſhillings *per annum*, or forty pounds perſonal eſtate in the liſt, certified by the ſelect men of the town; it is neceſſary alſo that they take the oath of fidelity to the ſtate. Their names are enrolled in the town clerk's office, and they continue freemen for life, unleſs disfranchiſed by ſentence of the ſuperior court, on conviction of miſdemeanor.

The courts are as follows: The juſtices of the peace, of whom a number are annually appointed in each town by the general aſſembly, have authority to hear and determine civil actions, where the demand does not exceed four pounds. If the demand exceeds forty ſhillings, an appeal to the county is allowed. They have cognizance of ſmall offences, and may puniſh by fine not exceeding forty ſhillings, or whipping not exceeding ten ſtripes, or ſitting in the ſtocks. There are eight county courts in the ſtate, held in the ſeveral counties by one judge and four juſtices of the quorum, who have juriſdiction of all criminal caſes, ariſing within their reſpective counties, where the puniſhment does not extend to life, limb, or baniſhment. They have original juriſdiction of all civil actions which exceed the juriſdiction of a juſtice. Either party may appeal to the ſuperior court, if the demand exceeds twenty pounds, except on bonds or notes vouched by two witneſſes.

There are ſeveral courts of probate in each county, conſiſting of one judge. The peculiar province of this court is, the probate of wills, granting adminiſtration of inteſtate eſtates, ordering diſtribution of them, and appointing guardians for minors, &c. An appeal lies from any decree of this court to the ſuperior court.

The ſuperior court conſiſts of five judges. It has authority in all criminal caſes extending to life, limb, or baniſhment, and other high crimes and miſdemeanors, to grant divorces, and to hear and determine all civil actions brought by appeal from the county courts, or the court of probate, and to correct the errors of all inferior courts. This is a circuit court, and has two ſtated ſeſſions in each county annually. The ſuperior and county courts try matters of fact by a jury, or without if the parties will agree.

There is a ſupreme court of errors, conſiſting of the deputy governor and the twelve aſſiſtants. Their ſole buſineſs is to determine writs of error brought on judgments of the ſuperior court, where the error complained of appears on the record. They have two ſtated ſeſſions annually, *viz.* on the Tueſdays of the weeks preceding the ſtated ſeſſions of the general aſſembly.

The county court is a court of chancery, empowered to hear and determine caſes in equity, where the matter in demand does not exceed one hundred pounds. The ſuperior court has cognizance of all caſes where the demand exceeds that ſum. Error may be brought from the county to the ſuperior court, and from the ſuperior court to the ſupreme court of errors, on judgment in caſes of equity as well as of law.

The general aſſembly only have power to grant pardons and reprieves, to grant commiſſions of bankrupcy, or protect the perſons and eſtates of unfortunate debtors.

The common law of England, ſo far as it is applicable to this country, is conſidered as the common law of this ſtate. The reports of adjudication in the courts of king's bench, common pleas, and chancery, are read in the courts of this ſtate as authorities; yet the judges do not conſider them as concluſively binding, unleſs founded on ſolid reaſons which will apply in this ſtate, or ſanctioned by concurrent adjudications of their own courts.

The feudal ſyſtem of deſcents was never adopted in this ſtate. All the real eſtate of inteſtates is divided equally among the children, males and females, except that the eldeſt ſon has a double portion. And all eſtates given in tail, muſt be given to ſome perſon then in being, or to their immediate iſſue, and ſhall become fee-ſimple eſtates to the iſſue of the firſt donee in tail. The widow of an inteſtate is intitled to a third part of the perſonal eſtate for ever, and to her dower, or third part of the houſes and lands belonging to the inteſtate at the time of his death, during her life.

15 **Practice of law.** The practice of law in this ſtate has more ſimplicity, but leſs preciſion, than in England. Aſſiſtants and judges are impowered to iſſue writs through the ſtate, and juſtices through their reſpective counties. In theſe writs, the ſubſtance of the complaints or the declarations muſt be contained; and if neither of the parties ſhow good reaſon for delay, the cauſes are heard and determined the ſame term to which the writs are returnable. Few of the fictions of law, ſo common in the Engliſh practice, are known in this ſtate. The plaintiff always has his election to attach or ſummon the defendant. Attornies are admitted and qualified by the county courts. Previous to their admiſſion to the bar, they muſt ſtudy two years with a practiſing attorney in the ſtate, if they have had a college education, and three years if they have not; their morals muſt be good, and their characters unblemiſhed; and they muſt ſuſtain an examination by the attorneys of the court of the county where they are admitted, and be by them recommended to the court. When admitted to the county court, they can practice, without other qualifications, in any court in the ſtate. There are upon an average about thirteen attornies to each county, one hundred and four in the ſtate; a very great proportion for the real exigencies of the people. Yet from the litigious ſpirit of the citizens, the moſt of them find employment and ſupport. There is no attorney general, but there is one attorney to the ſtate in each county.

16 **Hiſtory.** The preſent territory of Connecticut, at the time of the firſt arrival of the Engliſh, was poſſeſſed by the Pequot, the Mohegan, Podunk, and many other ſmaller tribes of Indians.

The Pequots were numerous and warlike. Their country extended along the ſea coaſt from Paukatuk to Connecticut river. About the year 1630, this powerful tribe extended their conqueſts over a conſiderable part of Connecticut, over all Long Iſland, and part of Narraganſet. Saſſacus, who was the grand monarch of the whole country, was king of this nation. The ſeat of his dominion was at New London; the ancient Indian name of which was Pequot.

The Mohegans were a numerous tribe, and their terrritory extenſive. Their ancient claim, which was ſurveyed and ſettled by commiſſioners from queen Anne in 1705, comprehended all New London county, except a narrow ſtrip of about eight miles wide, on the ſea coaſt, almoſt the whole of the county of Windham, and a part of the counties of Tolland and Hartford. Uncas, diſtinguiſhed for his friendſhip to the Engliſh, was the Sachem of this tribe.

The Podunks inhabited Eaſt Hartford, and the circumjacent country. The firſt Sachem of this tribe, of whom the Engliſh had any knowledge, was Tatanimoo. He was able to bring into the field more than 200 fighting men.

The firſt grant of Connecticut was made by the Plymouth council to the earl of Warwick, in 1630, and confirmed by his majeſty in council the ſame year. This grant comprehended all that part of New England which lies weſt from Narraganſett river, 120 miles on the ſea coaſt, from thence, in latitude and breath aforſaid, to the ſouth ſea. The year following, the earl aſſigned this grant to lord Say and Seal, lord Brook, and nine others.

No Engliſh ſettlements were attempted in Connecticut until the year 1633, when a number of Indian traders, having purchaſed of Zequaſſon and Natawanute, two principal Sachems, a tract of land at the mouth of Little river in Windſor, built a houſe and fortified it, and ever after maintained their right of ſoil upon the river.

The ſame year, a little before the arrival of the Engliſh, a company of Dutch traders came to Hartford, and built a houſe which they called the *Hirſe of Good Hope*, and erected a ſmall fort, in which they planted two cannon. The remains of this ſettlement are ſtill viſible on the bank of Connecticut river. This was the only ſettlement of the Dutch in Connecticut in theſe ancient times. The Dutch, and after them the province of New York, for a long time claimed as far eaſt as the weſtern bank of Connecticut river. It belongs to the profeſſed hiſtorian to prove or diſprove the juſtice of this claim. Douglas ſays, "The partition line between New York and Connecticut, as eſtabliſhed December 1, 1664, run from the mouth of Memoroncok river, a little weſt from Byram river, N. N. W. and was the *ancient eaſterly limits of New York*, until November 23, 1683, when the line was run nearly the ſame as it is now ſettled." If Douglas is right, the New York claim could not have been well founded.

In 1634, Lord Say and Seal, &c. ſent over a ſmall number of men, who built a fort at Saybrook, and held a treaty with the Pequot Indians, who in a formal manner gave to the Engliſh their right to Connecticut river and the adjacent country.

In 1635, the Plymouth council granted to the Duke of Hamilton, all lands between Narraganſett and Connecticut rivers, and back into the country as far as Maſſachuſets ſouth line. This covered a part of the Earl of Warwick's patent, and occaſioned ſome diſputes in the colony. There were ſeveral attempts to revive the Hamilton claim, but were never proſecuted.

In October of this year, about ſixty perſons from Newtown, Dorcheſter, and Watertown, in Maſſachuſets, came and ſettled at Hartford, Wethersfield, and Windſor, in Connecticut; and the June following the fa-

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famous Mr Hooker and his company came and ſettled at Hartford, and was a friend and father to the colony to the day of his death.

The firſt court held in Connecticut was at Hartford, April 26, 1636.

The year 1637 was diſtinguiſhed by the war with the Pequots. This warlike nation had, for ſome time, been troubleſome neighbours. They ſolicited the Narraganſetts to join them in extirpating the Engliſh. They had ſurpriſed and killed ſeveral of the Engliſh upon Connecticut river. Theſe threatening appearances and actual hoſtilities induced the three colonies of Maſſachuſets, Plymouth, and Connecticut, to combine their forces, to carry the war into their country, and to attempt the entire deſtruction of the whole tribe. Myantonomo, the Narraganſett Sachem, and Uncas, Sachem of the Mohegans, ſent to the Engliſh and offered their ſervice to join with them againſt the Pequots. Forces were accordingly raiſed in all the colonies; but thoſe of Connecticut, on account of their vicinity to the enemy, were firſt in action. Captain Maſon, with 80 Engliſh and 100 Indians from Connecticut river, proceeded by water to the Narraganſett's country, where 200 of that tribe joined him. On the 24th of May, they began their march for Saſſacus fort on Pequot, now Thames river. They afterwards determined firſt to aſſault Myſtic fort, which was ſituated between them and Pequot river. On the morning of the 26th of May the attack was made. The Indians, after a midnight revel, were buried in a deep ſleep. At the moment of their approach the centinel happened to be gone into a wigwam to light his pipe. The barking of a dog gave the alarm. The Indians awoke, ſeized their arrows, and began their hideous yell. They were joined in their tremendous noiſe by the Indians in the Engliſh army, who were in the rear and afraid to approach. The battle was warm and bloody, and the victory complete. The fort was taken---about 70 wigwams burnt--- 50 or 60 of the Indians were killed---many were wounded and taken, and the reſt eſcaped. Saſſacus and his warriors at Pequot, ſtruck with terror at the news of this defeat, demoliſhed their principal fort, burnt their wigwams, and fled to the weſtward. Capt. Stoughton, with 160 men from Maſſachuſets, had by this time arrived at Saybrook. He with his forces joined Captain Maſon and purſued the Indians, and overtook and ſurrounded them in a great ſwamp near Fairfield. A Sachem and ninety-nine women and children came out and delivered themſelves up to their purſuers. Terms of peace were offered to the reſt: but after a ſhort parley they determined, that as they had lived they would die together. There were about 80 who made this reſolution. Part of theſe eſcaped by means of the darkneſs of the night. The reſt were either killed or taken. In this action the Indians had guns, which is the firſt account of their having uſed them. Saſſacus fled to the Mohawks, by whom it is reported he was murdered; but it is more probable that he and his company incorporated with them. Many of the Indian captives were unjuſtifiably ſent to Bermudas and ſold for ſlaves. The Pequot tribe was wholly extinguiſhed. This ſucceſsful expedition ſtruck the Indians that remained with ſuch terror, as reſtrained them from open hoſtilities for near forty years after.

Connecticut.

The Engliſh thus obtained the country eaſt of the Dutch ſettlements, by right of conqueſt. The purſuit of the Indians led to an acquaintance with the lands on the ſea coaſt from Saybrook to Fairfield. It was reported to be a very fine country. This favourable report, induced Meſſrs Eaton and Hopkins, two very reſpectable London merchants, and Mr Davenport, a man of diſtinguiſhed piety and abilities, with their company, who arrived this year (1637) from London, to think of this part of the country as the place of their ſettlement. Their friends in Maſſachuſets, ſorry to part with ſo valuable a company, diſſuaded them from their purpoſe. Influenced, however, by the promiſing proſpects which the country afforded, and flattering themſelves that they ſhould be out of the juriſdiction of a general governor, with which the country was from time to time threatened, they determined to proceed. Accordingly, in March 1638, with the conſent of their friends on Connecticut river, they ſettled at New Haven, and laid the foundation of a flouriſhing colony, of which Quinnipiak, now New Haven, was the chief town. The firſt public worſhip, in this new plantation, was attended on Lord's day, April 18, 1638, under a large ſpreading oak. The Rev. Mr Davenport preached from Matt. iii. 1. on the temptations of the wilderneſs. Both colonies, by voluntary compact, formed themſelves into diſtinct commonwealths, and remained ſo until their union in 1665.

In 1639, the three towns on Connecticut river, already mentioned, finding themſelves without the limits of any juriſdiction, formed themſelves into a body politic, and agreed upon articles of civil government. Theſe articles were the foundation of the Connecticut charter, which was granted in 1662. The ſubſtance of the articles, ſo far as they reſpect the holding of aſſemblies, the time and manner of electing magiſtrates and other civil officers (except that in the old confederation no perſon was to be choſen governor more than once in two years), and the extent of legiſlative powers, was transferred into, and eſtabliſhed in ſaid charter.

The firſt church was gathered in New Haven this year, and conſiſted of ſeven members. Theſe were choſen by the ſettlers after Mr Davenport had preached from the words of Solomon, 'Wiſdom had builded her houſe, ſhe hath hewed out her ſeven pillars.' Theſe men were indeed the pillars of the church, to whom the reſt were added as they became qualified. They were alſo the court to try all civil actions.

The firſt ſetlers in New Haven had all things common; all purchaſes were made in the name and for the uſe of the whole plantation; and the lands were apportioned out to each family according to their number and original ſtock.

At their firſt election, in October 1639, Mr Theophilus Eaton was choſen governor for the firſt year. Their elections, by agreement, were to be annual; and the word of God their only rule in conducting the affairs of government in the plantation.

In 1643, the articles of confederation between the four New England colonies, mentioned under the article New England, were unanimouſly adopted by the colonies of New Haven and Connecticut.

The Engliſh ſettlement on Delaware, which was under the juriſdiction of New Haven, was ſurprized by the Swedes, and the people put in irons, under a falſe pretence that they were entering into a conſpiracy with the Indians to extirpate the Swedes.

The general court of New Haven, this year, eſtabliſhed it as a fundamental article not to be diſputed, That none be admitted as free burgeſſes but church members, and that none but ſuch ſhould vote at elections. They alſo ordained, That each town chooſe from among themſelves judges (church members) to be a court, to have cognizance of all civil actions not exceeding twenty pounds; and of criminal cauſes, where the puniſhment was, ſitting in the ſtocks, whipping, and fining not exceeding five pounds. There was liberty of appeal from this to the court of magiſtrates. The court of magiſtrates conſiſted of all the magiſtrates throughout the colony, who were to meet twice a-year at New-Haven, for the trial of all capital cauſes. Six made a quorum. The general court was to conſiſt of the governor, deputy-governor, magiſtrates, and two repreſentatives from each town. The annual election of officers of government was at this time eſtabliſhed, and has ever ſince continued.

The unſettled ſtate of the colony had hitherto prevented their eſtabliſhing a code of laws. To ſupply this defect, the general court ordered, 'That the judicial laws of God, as they were delivered to Moſes, and as they are a fence to the moral, being neither typical nor ceremonial, nor having any reference to Canaan, ſhall be accounted of moral equity and generally bind all offenders, and be rule to all the courts in this juriſdiction in their proceedings againſt offenders, until they be branched out into particulars hereafter.'

About this time a war broke out between the Mohegan and Narraganſett Indians. A perſonal quarrel between Myantonomo, ſachem of the Narraganſetts, and Uncas ſachem of the Mohegans, was the foundation of the war. Myantonomo raiſed an army of 900 warriors, and marched towards the Mohegan country. Uncas by his ſpies received timely notice of their approach. His ſeat of reſidence was in ſome part of Norwich. He quickly collected 600 of his braveſt warriors, and told them, 'The Narraganſetts muſt not come into our town; we muſt meet them.' They accordingly marched about three miles to a large plain, where the two armies met, and halted within bow-ſhot of each other. A parley was propoſed by Uncas, and agreed to by Myantonomo. The ſachems met, and Uncas addreſſed his enemy as follows. 'You have a great many brave men: ſo have I. You and I have quarrelled; but theſe warriors, what have they done? Shall they die to avenge a private quarrel between us? No. Come like a brave man, as you pretend to be, and let us fight. If you kill me, my men ſhall be yours; if I kill you, your men ſhall be mine.' Myantonomo replied: 'My men came to fight, and they ſhall fight.' Uncas, like an experienced warrior, aware of the reſult of the conference from the ſuperior force of his enemy, had previouſly ſignified to his men, that if Myantonomo refuſed to fight him in ſingle combat, he would immediately fall, which was to be the ſignal for them to begin the attack. As ſoon therefore as Myantonomo had finiſhed his laconic ſpeech, Uncas dropped: his men inſtantly obeyed the ſignal, and poured in a ſhower of arrows upon the unſuſpecting Narraganſetts, and ruſhing on with their horrid yells and ſavage fierceneſs, put them to flight. Many were killed on the ſpot, the reſt were cloſely purſued, and ſome were precipitately driven down craggy precipices, and daſhed in pieces. At a place called, from this event, *Sachem's plain*, Uncas overtook and ſeized Myantonomo by the ſhoulder. They ſat down together; and Uncas with a hoop called in his men, and the battle ceaſed. Doubtful what to do with the royal priſoner, Uncas and his warriors, in council, determined to carry him to the governor and council at Hartford, and be adviſed by them. Thither he was accordingly conducted. The governor having adviſed with his council, told Uncas, that the Engliſh were not then at war with the Narraganſetts, and of courſe that it was not proper for them to intermeddle in the matter. Uncas was left to do with him as he pleaſed. Myantonomo was conducted back to the plain where he was taken, and put to death by Uncas himſelf. The tragic ſcene did not end with his death. Uncas, after the manner of the Indians, with his tomahawk cut off a large piece of fleſh from the ſhoulder of his ſlaughtered enemy, broiled and eat it, ſaying, with an air of ſavage triumph, 'It is the ſweeteſt meat I ever eat. It makes me have a ſtout heart.' His body was afterwards buried, and a pillar erected over it, the remains of which are viſible to this day.

The Narraganſetts were greatly enraged at the death of their prince, and reſolved to take vengeance on the Mohegans. The united colonies interpoſed to prevent a war between them, but in vain. The Narraganſetts reſolutely declared, they would continue the war until they had Unca's head. But as Uncas had ever been a friend to the Engliſh, they joined him againſt his enemies, and were victorious. Such, however, was the enmity of the Narraganſetts to the Engliſh, that they afterwards ſent ſome of their men to Uncas, with large preſents, to induce him to join with them in a war with the colonies. Uncas replied, "Go tell your king that I will go to Norwich, and adviſe with Major John Maſon and Mr Fitch; if they tell me to join him and fight againſt the Engliſh, I will join him." In the war that happened ſoon after, Uncas aſſiſted the Engliſh, and the Narraganſetts were ſubdued, and never after were formidable.

In conſideration of the ſucceſs and increaſe of the New England colonies, and that they had been of no charge to the nation, and in proſpect of their being in future very ſerviceable to it, the Engliſh parliament, March 10, 1643, granted them an exemption from all cuſtoms, ſubſidies, and other duties, until further order.

In 1644, the Connecticut adventurers purchaſed of Mr Fenwick, agent for Lord Say and Seal, and Lord Brook, their right to the colony of Connecticut, for L. 1600.

The hiſtory of Connecticut is marked with traces of the ſame ſpirit which appears to be characteriſtic of the Maſſachuſets, in different ſtages of their hiſtory. Indeed, as Maſſachuſets was the ſtock whence Connecticut proceeded, this is to be expected.

The colonies of Connecticut and New Haven, from their firſt ſettlement, increaſed rapidly; tracts of land were purchaſed of the Indians, and new towns ſettled from Stamford to Stonington, and far back into the country, when, in 1661, Major John Maſon, as agent for the colony, bought of the natives all lands which had not before been purchaſed by particular towns, and made a public ſurrender of them to the colony, in the preſence of the general aſſembly. Having done theſe things, the colonies petitioned King Charles II. for a charter, and their petition was granted. His Majeſty, on the 23d of April 1662, iſſued his letters patent under the great ſeal, ordaining that the colony of Connecticut ſhould for ever hereafter be one body corporate and politic, in fact and in name, confirming to them their ancient grant and purchaſe, and fixing their boundaries as follows, viz. "All that part of his Majeſty's dominions in New England, in America, bounded eaſt by Narraganſett river, commonly called *Narraganſett bay*, where the river falleth into the ſea; and on the north by the line of Maſſachuſets plantation, and on the ſouth by the ſea, and in longitude as the line of the Maſſachuſets colony, running from eaſt to weſt, that is to ſay, from the ſaid Narraganſett bay on the eaſt, to the ſouth ſea on the weſt part, with the iſlands thereunto belonging." This charter has ever ſince remained the baſis of the government of Connecticut.

Such was the ignorance of the Europeans reſpecting the geography of America, when they firſt aſſumed the right of giving away lands which the God of nature had long before given to the Indians, that their patents extended they knew not where, many of them were of doubtful conſtruction, and very often covered each other in part, and have produced innumerable diſputes and miſchiefs in the colonies, ſome of which are not ſettled to this day. Connecticut conſtrued her charter literally, and paſſing over New York, which was then in poſſeſſion of the ſubjects of a Chriſtian prince, claimed, in latitude and breadth mentioned therein, to the South Sea. Accordingly purchaſes were made of the Indians, on the Delaware river, weſt of the weſtern bounds of New York, and within the ſuppoſed limits of Connecticut charter, and ſettlements were made thereon by people from, and under the juriſdiction of, Connecticut. The charter of Pennſylvania, granted to William Penn, in 1681, covered theſe ſettlements. This laid the foundation for a diſpute, which for a long time was maintained with warmth on both ſides. The matter was at laſt ſubmitted to gentlemen choſen for the purpoſe, who decided the diſpute in favour of Pennſylvania. Many, however, ſtill aſſert the juſtice of the Connecticut claim. The ſtate of Connecticut has lately ceded to Congreſs all their lands weſt of Pennſylvania, except a reſerve of 20 miles ſquare. This ceſſion Congreſs have accepted, and thereby indubitably eſtabliſhed the right of Connecticut to the reſerve.

The colony of New Haven, though unconnected with the colony of Connecticut, was comprehended within the limits of their charter, and, as they concluded, within their juriſdiction. But New Haven remonſtrated againſt their claim, and refuſed to unite with them until they ſhould hear from England. It was not until the year 1665, when it was believed that the king's commiſſioners had a deſign upon the New England Charters, that theſe two colonies formed a union, which has ever ſince amicably ſubſiſted between them.

In 1672, the laws of the colony were reviſed, and the general court ordered them to be printed; and alſo, that "every family ſhould buy one of the law books; ſuch as pay in ſilver, to have a book for 12d. ſuch as pay in wheat, to pay a peck and half a book; and ſuch as pay in peaſe, to pay 2 s. a book, the peaſe at 3 s. the buſhel." Perhaps it is owing to this early and univerſal ſpread of law books, that the people of Connecticut are to this day ſo fond of the law. In 1750, the laws of Connecticut were again reviſed, and publiſhed in a ſmall folio volume of 258 pages. Dr Douglas obſerves, that they were the moſt natural, equitable, plain, and conciſe code of laws for plantations hitherto extant." There has been a reviſion of them ſince the peace, in which they were greatly and very judiciouſly ſimplified.

The years 1675 and 1676 were diſtinguiſhed by the wars with Philip and his Indians, and with the Narraganſetts, by which the colony was thrown into great diſtreſs and confuſion. The inroads of the enraged ſavages were marked with cruel murders, and with fire and devaſtation.

In 1684, the charter of Maſſachuſets bay and Plymouth were taken away, in conſequence of Quo warrantos which had been iſſued againſt them. The charter of Connecticut would have ſhared the ſame fate, had it not been for ——— Wadſworth, Eſq; who, having very artfully procured it when it was on the point of being delivered up, buried it under an oak tree in Hartford, where it remained until all danger was over, and then was dug up and reaſſumed.

Connecticut has ever made rapid advances in population. There have been more emigrations from this than from any of the other ſtates, and yet it is at preſent full of inhabitants. This increaſe, under the divine benediction, may be aſcribed to ſeveral cauſes. The bulk of the inhabitants are induſtrious, ſagacious huſbandmen. The farms furniſh them with all the neceſſaries, moſt of the conveniences, and but few of the luxuries of life. They of courſe are generally temperate, and, if they chooſe, can ſubſiſt with as much independance as is conſiſtent with happineſs. The ſubſiſtence of the farmer is ſubſtantial, and does not depend on incidental circumſtances, like that of moſt other profeſſions. There is no neceſſity of ſerving an apprenticeſhip to the buſineſs, nor of a large ſtock of money to commence it to advantage. Farmers, who deal much in barter, have leſs need of money than any other claſs of people. The eaſe with which a comfortable ſubſiſtence is obtained, induces the huſbandman to marry young. The cultivation of his farm makes him ſtrong and healthful. He toils cheerfully through the day---eats the fruit of his own labour with a gladſome heart--- at night devoutly thanks his bounteous God for his daily bleſſings--- retires to reſt, and his ſleep is ſweet. Such circumſtances as theſe have greatly contributed to the amazing increaſe of inhabitants in this ſtate.

Beſides, the people live under a free government, and have no fear of a tyrant. There are no overgrown eſtates, with rich and ambitious landlords, to have an undue and pernicious influence in the election of civil officers. Property is equally enough divided, and muſt continue to be ſo as long as eſtates deſcend as they now do. No perſon is prohibited from voting, or from being elected into office, on account of his poverty. He who has the moſt merit, not he who has the moſt money, is generally choſen into public office. As in inſtances of this, it is to be obſerved, that many of the citizens of Connecticut, from the humble walks of life have ariſen to the firſt offices in the ſtate, and filled them with dignity and reputation. That baſe buſineſs of electioneering, which is ſo directly calculated to introduce wicked and deſigning men into office, is yet but little known in Connecticut. A man who wiſhes to be choſen into office, acts wiſely for that end, when he keeps his deſires to himſelf.

A thirſt for learning prevails among all ranks of people in the ſtate. More of the young men in Connecticut, in proportion to their numbers, receive a public education, than in any of the ſtates. Dr Franklin and other literary characters have honoured this ſtate by ſaying, that it is the *Athens of America*.

The revolution, which ſo eſſentially affected the governments of moſt of the colonies, produced no very perceptible alteration in the government of Connecticut. While under the juriſdiction of Great Britain, they elected their own governors, and all ſubordinate civil officers, and made their own laws in the ſame manner and with as little controul as they now do. Connecticut has ever been a republic, and perhaps as perfect and as happy a republic, as has ever exiſted. While other ſtates, more monarchical in their government and manners, have been under a neceſſity of undertaking the difficult taſk of altering their old, or forming new conſtitutions, and of changing their monarchical for republican manners. Connecticut has uninterruptedly proceeded in her old track, both as to government and manners; and by theſe means has avoided thoſe convulſions which have rent other ſtates into violent parties.

CONNECTION, or CONNEXION, the relation or dependence of one thing upon another.

CONNECTION, or *Continuity*, in the drama, conſiſts in the joining of the ſeveral ſcenes together.

The connection is ſaid to be obſerved, when the ſcenes of an act ſucceed one another immediately, and are ſo joined as that the ſtage is never left empty.

CONNECTIVES, in grammar, one of the four ſpecies under which, according to Mr Harris, all words may be included. They are of two kinds; and as they connect ſentences or words, are called by the different names of *conjunctions* and *prepoſitions*. See GRAMMAR.

CONNIVENT VALVES, in anatomy, thoſe wrinkles, cellules, and vaſcules, which are found in the inſide of the two inteſtines ilium and jejunum. See ANATOMY, n° 93. *et ſeq.*

CONNOISSEUR, a French term, of late uſed in Engliſh; it literally denotes a perſon well verſed in any thing; being formed of the verb *connoitre*, to know, underſtand." Hence it comes to be uſed in our language for a critic, or a perſon who is a thorough judge or maſter in any way, particularly in matters of painting and ſculpture.

CONNOR (Bernard), a learned phyſician, was born in the county of Kerry, in Ireland, about the year 1666. Having determined to apply himſelf to the ſtudy of phyſic, he went to France, and reſided ſometime in the univerſity of Montpelier. Afterward he went to Paris; where he obtained great ſkill in medicine, anatomy, and chemiſtry. From thence he travelled to Venice, with the two ſons of the high-chancellor of Poland; and then taking a tour through great part of Germany, went to Warſaw, where he was made phyſician to king John Sobieſki. In 1695, he came to England, read a courſe of lectures in London and Oxford, and became member of the Royal Society and College of Phyſicians; afterwards, being invited to Cambridge, he read public lectures there, and made various experiments in chemiſtry. He has rendered himſelf memorable for a philoſophical and medical treatiſe in Latin, entitled, *Evangelium Medici*, i. e. "the Phyſician's Goſpel;" tending to explain the miracles performed by Chriſt as natural events, upon the principles of natural philoſophy. He wrote alſo a hiſtory of Poland; and died in 1698, aged 32.

CONNOR, a city of Ireland, in the county of Antrim, and province of Ulſter. W. Long. 6. 30. N. Lat. 54. 50.

CONOCARPUS, BUTTON-WOOD: A genus of the monogynia order, belonging to the pentandria claſs of plants; and in the natural method ranking under the 48th order, *Aggregatæ*. The corolla is pentapetalous; the ſeeds naked, ſolitary, inferior; the flowers aggregate. There are two ſpecies, the erecta and procumbens, both natives of the Weſt Indies. They riſe to the height of about 16 feet, but are trees of no beauty, nor is the wood of them uſed for any mechanic purpoſe in the countries where they grow naturally. They are, however, preſerved in ſome botanic gardens in Britain for the ſake of variety.

CONOID, in geometry, a ſolid body, generated by the revolution of a conic ſection about its axis. See CONIC *Sections*.

CONOIDES, in anatomy, a gland found in the third ventricle of the brain, called *pinealis*, from its reſemblance to a pine-apple. See ANATOMY, n° 132.

CONON, the renowned Athenian general and admiral, flouriſhed 394 years before Chriſt. See ATTICA, n° 162, 163. After his defeat by Lyſander, he fled to Evagoras king of Cyprus: after which he put himſelf under the protection of Artaxerxes king of Perſia; with whoſe army he delivered Athens from the oppreſſion of ſtrangers, and rebuilt its walls. In the 360th year of Rome, he beat the Lacedemonians in a ſea-fight near Cnidus upon the coaſt of Aſia, deprived them of the ſovereign rule they had on ſea ever ſince the taking of Athens, and had ſome other conſiderable advantages over them: but falling into the hands of Teribazus a Perſian, who envied his glory, he was put to death.

CONOPS, in zoology; a genus of inſects belonging to the order diptera, the characters of which are: The roſtrum is porrected, and jointed like a knee. The antennæ terminate by a flat and ſolid articulation, reſembling the bowl of a ſpoon, with a lateral briſtle, which when cloſely examined appears to be very hairy. Of this genus there are ſeveral ſpecies. 1. The calcitrans is to be found every where, eſpecially in autumn, when it haraſſes the horſes, and draws blood from them with its ſting. 2. The macrocephala might at firſt ſight be miſtaken for a ſpecies of waſp. It is ſmooth; the forepart of the head is lemon-colour, as are the poiſers; the feet are dun-coloured. The thorax is variegated with black and reddiſh dun. The ſame takes place with reſpect to the ſegments of the abdomen, ſome of which are edged with lemon-colour, chiefly the ſecond, and part of the third, towards the ſides. The wings are brown, watered, and clouded. This beautiful conops is found in meadows. There are eleven or twelve other ſpecies.

CONOVIUM, (anc. geog.) a town of the Ordovices, in Britain. From its ruins aroſe, at the diſtance of four miles, *Aberconwey*, the mouth of the Conwey, in Caernarvonſhire; and on the ſpot where *Conovium* ſtood is a hamlet, called *Cærhean*, the old town, (Camden.)

CONQUEST, in civil juriſprudence, is the acquiſition of property in common by a number of perſons.

In ſome countries they confound acquiſition with conqueſt; but according to the moſt general acceptation, acquiſition is the gaining of unappropriated goods before the eſtabliſhment of a community: whereas by the term *conqueſt*, is ordinarily intended whatever is acquired by a number of perſons in community; or by ſome one for all the others.—As it is more eſpecially in the union of perſons by marriage, that a community of property takes place; ſo it is in reference to them that we frequently uſe the word *conqueſt*. There are nevertheleſs conqueſts alſo among other perſons who are in a tacit community or ſociety; ſuch as obtain by particular local cuſtoms. According to this ſenſe of the word, it has been contended by ſeveral, that William I. claimed Britain; that is, not by right of arms, but by right of conqueſt or acqueſt; under promiſe of ſucceſſion made by Edward the Confeſſor, and a contract entered into by Harold to ſupport his pretenſions to that ſucceſſion: and by old writers, *conqueſtus*, *acquiſitio*, and *perquiſitio*, are frequently uſed as ſynonymous terms.

CONQUEST, in the law of nations, as the acquiſition of ſovereignty by force of arms, by ſome foreign prince: who reduces the vanquiſhed under his empire. The right of conqueſt is derived from the laws of war; and when a people is ſubjected, the conduct of the conqueror is regulated by four kinds of law. Firſt, the law of nature, which dictates whatever tends to ſelf-preſervation; ſecondly, our reaſon, which teaches us to uſe others, as we would be treated ourſelves; thirdly, the laws of political ſociety, to which nature has not aſſigned any preciſe boundary; laſtly, the law which is derived from the particular circumſtances attending the conqueſt. Thus, a ſtate conquered by another will be treated in one of the four methods following: Either the conqueror will continue it under its own laws, and will only claim the exerciſe of civil and eccleſiaſtical ſovereignty: or he will impoſe a new form of government; or he will deſtroy the frame of their ſociety, and incorporate the inhabitants with others: or he will exterminate them.

CONRAD II. elected emperor of Germany in 1004. He was obliged to take the field againſt moſt of the German dukes who had revolted from him; and he put Erneſt duke of Suabia under the ban of the empire. This being one of the earlieſt inſtances of ſuch a proſcription, the formula is inſerted here for its ſingularity. "We declare thy wife a widow, thy children orphans; and we ſend thee, in the name of the devil, to the four corners of the world." It was in the reign of this prince that the German fiefs became hereditary. He died in 1039.

CONRAD III, emperor of Germany in 1138. The duke of Bavaria oppoſed his election, and being put under the ban of the empire, and deprived of his duchy, he could not ſurvive his diſgrace. The margrave of Auſtria was ordered by the Emperor to take poſſeſſion of Bavaria; but Welſti, uncle to the deceaſed duke, attacked him, and was defeated near the caſtle of Winſburg: the battle fought upon this occaſion is famous in hiſtory, as having given riſe to the party names of *Guelphs* and *Gibbelines*, afterwards aſſumed in Italy. The parole of the day with the Bavarians was *Welſti*, from the name of their general; that of the Imperialiſts *Werbiingen*, from a ſmall village where Frederic Duke of Suabia, their commander, had been nurſed: by degrees theſe names ſerved to diſtinguiſhed the two parties: and the Italians, who could not accuſtom themſelves to ſuch rough words, formed from them their Guelphs and Gibbelines. He died in 1152.

CONRAD of Lichtenau, or Abbas Uſpergenſis, wa author of an Univerſal Chronology from the creation to 1229, continued by an anonymous writer to Cha. V. He collected a fine library, and died about the year 1240.

CONRADIN, or CONRAD, junior, ſon of Conrad IV. was acknowledged Emperor by the Gibbelines, who received him in triumph at Rome: but Pope Alexander IV. had publiſhed a cruſade againſt this orphan; and Urban VII. his ſucceſſor, gave the empire to Charles of Anjou, brother to Louis IX. king of France; and the unfortunate youth, though powerfully ſupported even by the Turks, loſt a battle, in which he was taken priſoner, and was beheaded by order of his baſe opponent, publicly at Naples in 1229, in the 18th year of his age. In him ended the race of the Dukes of Suabia, which had produced ſeveral kings and emperors.

CONSANGUINITY, or KINDRED, is defined by the writers on theſe ſubjects to be, *vinculum perſonarum ab eodem ſtipite deſcendentium;* the connection or relation of perſons deſcended from the ſame ſtock or common anceſtor." This conſanguinity is either lineal or collateral.

Lineal conſanguinity is that which ſubſiſts between perſons of whom one is deſcended in a direct line from the other, as between John Stiles (the *propoſitus* in the table of conſanguinity) and his father, grandfather, great-grandfather, and ſo upwards in the direct aſcending line; or between John Stiles and his ſon, grand-ſon, great grand-ſon, and ſo downwards in the direct deſcending line. Every generation, in this direct lineal conſanguinity, conſtitutes a different degree, reckoning either upwards or downwards: the father of John Stiles is related to him in the firſt degree, and ſo likewiſe is his ſon; his grandſire and grandſon, in the ſecond; his great-grandſire and great-grandſon in the third. This is the only natural way of

Fig. 3

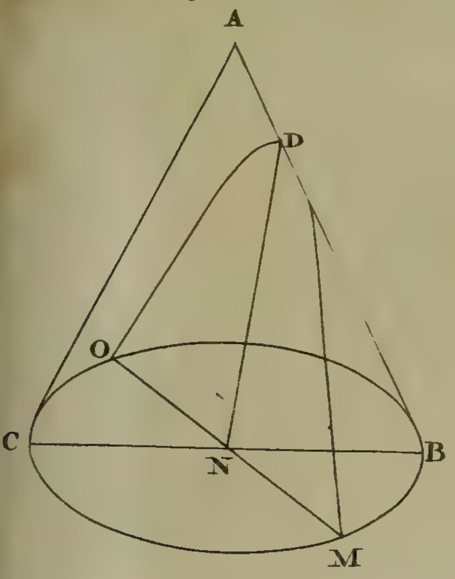


Fig. 1

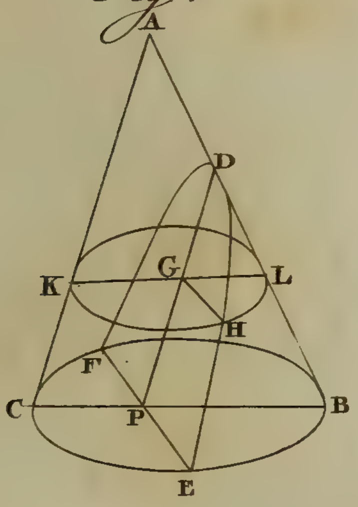


Fig. 2

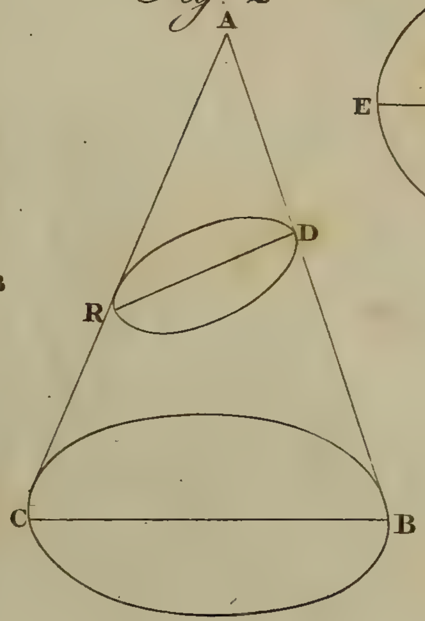


Fig. 5

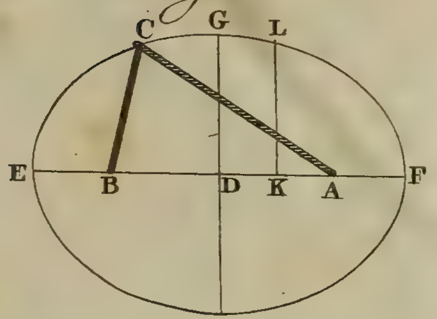


Fig. 6

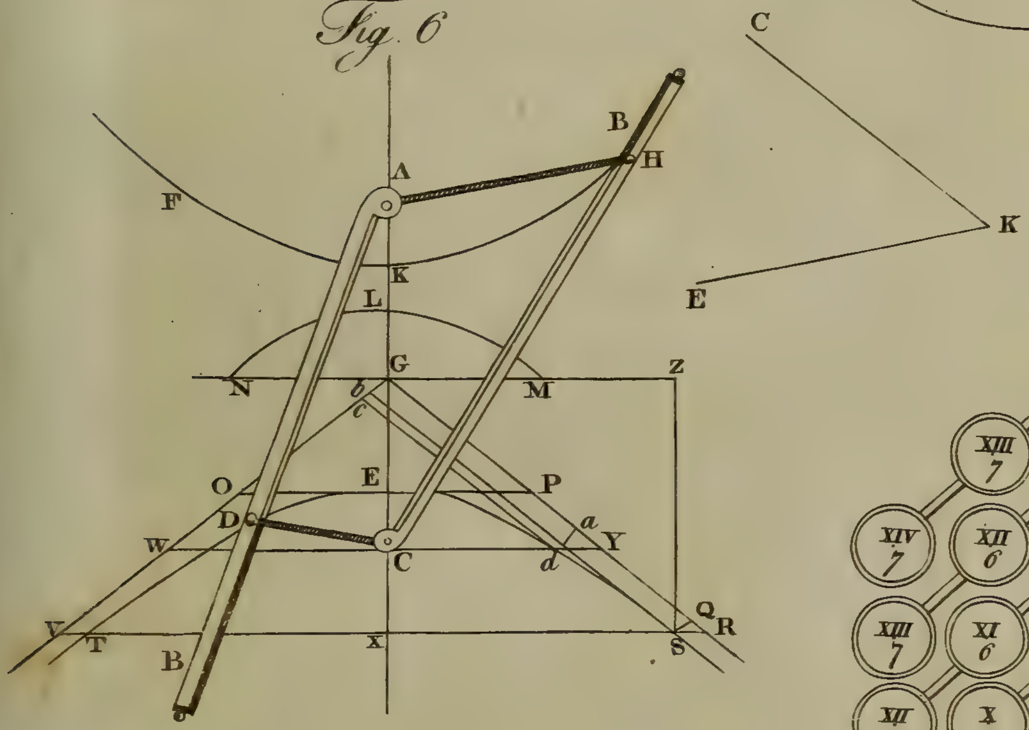
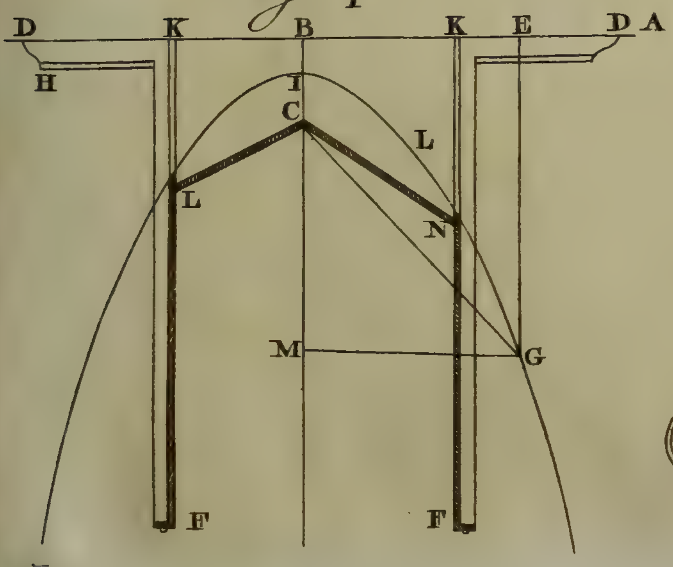
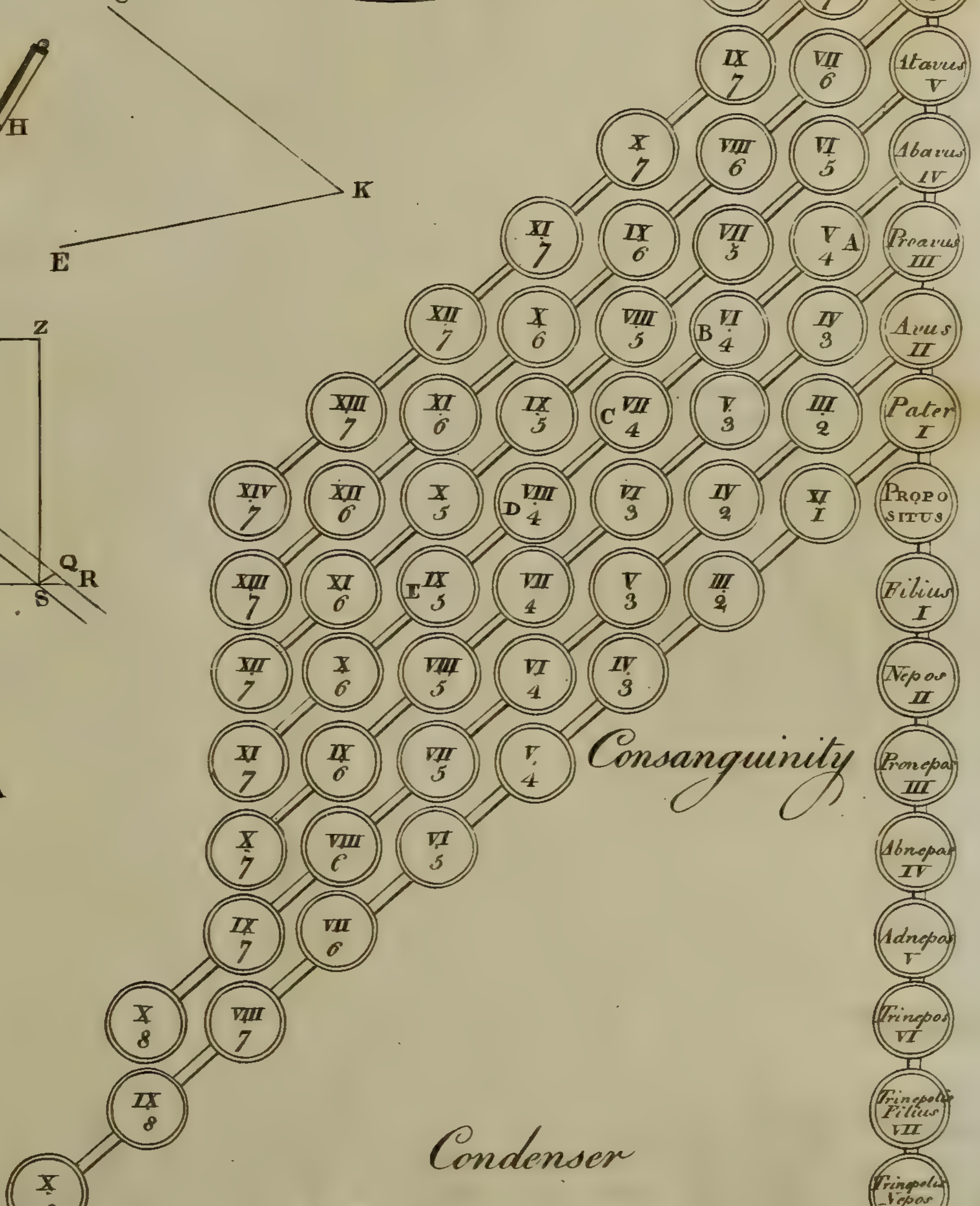


Fig. 4





Consanguinity

Condenser

Scot Philada

Conſanguinity.

reckoning the degrees in the direct line; and therefore univerſally obtains, as well in the civil and canon, as in the common law.

The doctrine of lineal conſanguinity is ſufficiently plain and obvious; but it is, at the firſt view, aſtoniſhing to conſider the number of lineal anceſtors which every man has, within no very great number of degrees: and ſo many different bloods is a man ſaid to contain in his veins, as he hath lineal anceſtors. Of theſe he hath two in the firſt deſcending degree; his own parents: he hath four in the ſecond; the parents of his father, and the parents of his mother: he hath eight in the third, the parents of his two grandfathers, and of his two grandmothers: and, by the ſame rule of progreſſion, he hath 128 in the ſeventh; 1024 in the tenth; and at the 20th degree, or the diſtance of 20 generations, every man hath above a million of anceſtors, as common arithmetic will demonſtrate (A). This lineal conſanguinity, we may obſerve, falls ſtrictly within the definition of *vinculum perſonarum ab eodem ſtipite deſcendentium;* ſince lineal relations are ſuch as deſcend one from the other, and both of courſe from the ſame common anceſtor.

Collateral kindred anſwers to the ſame deſcription: collateral relations agreeing with the lineal in this, that they deſcend from the ſame ſtock or anceſtor; but differing in this, that they do not deſcend the one from the other. Collateral kinſmen, then, are ſuch as lineally ſpring from one and the ſame anceſtor, who is the *ſtirps*, or "root," the *ſtipes*, "trunk," or common ſtock, from whence theſe relations are branched out. As if John Stiles hath two ſons, who have each a numerous iſſue: both theſe iſſues are lineally deſcended from John Stiles as their common anceſtor; and they are collateral kinſmen to each other, becauſe they are all deſcended from this common anceſtor, and all have a portion of his blood in their veins, which denominates them *conſanguineous*.

We muſt be careful to remember, that the very being of collateral conſanguinity conſiſts in this deſcent from one and the ſame common anceſtor. Thus Titius and his brother are related; why? becauſe both are derived from one father: Titius and his firſt couſin are related; why? becauſe both deſcend from the ſame grandfather; and his ſecond couſin's claim to conſanguinity is this, that they are both derived from one and the ſame great-grandfather. In ſhort, as many anceſtors as a man has, ſo many common ſtocks he has from which collateral kinſmen may be derived. And as we are taught by holy writ, that there is one couple of common anceſtors belonging to us all, from whom the whole race of mankind is deſcended, the obvious and undeniable conſequence is, that all men are in ſome degree related to one another. For, indeed, if we only ſuppoſe each couple of our anceſtors to have left, one with another, two children; and each of thoſe children to have left, on an average, two more (and without ſuch a ſuppoſition the human ſpecies muſt be daily diminiſhing); we ſhall find that all of us have now ſubſiſting near 270 millions of kindred in the 15th degree, at the ſame diſtance from the ſeveral common anceſtors as we ourſelves are; beſides thoſe that are one or two degrees nearer to or farther from the common ſtock, who may amount to as many

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(A) This will ſeem ſurpriſing to thoſe who are unacquainted with the increaſing power of progreſſive numbers; but it is palpably evident from the following table of a geometrical progreſſion, in which the firſt term is 2, and the denominator alſo 2: or, to ſpeak more intelligibly, it is evident, for that each of us has two anceſtors in the firſt degree, the number of whom is doubled at every remove; becauſe each of our anceſtors has alſo two immediate anceſtors of his own.

1	2
2	4
3	8
4	16
5	32
6	64
7	128
8	256
9	512
10	1024
11	2048
12	4096
13	8192
14	16384
15	32768
16	65536
17	131072
18	262144
19	524288
20	1048576

A ſhorter way of finding the number of anceſtors at any even degree, is by ſquaring the number of anceſtors at half that number of degrees. Thus, 16, the number anceſtors at 4 degrees, is the ſquare of 4, the number of anceſtors at two; 256 is the ſquare of 16, 65536 of 256; and the number of anceſtors at 40 degrees would be the ſquare of 1,048,576, or upwards of a million of millions.

more (B). And if this calculation would appear incompatible with the number of inhabitants on the earth, it is becauſe, by intermarriages among the ſeveral deſcendents from the ſame anceſtor, a hundred or a thouſand modes of conſanguinity may be conſolidated in one perſon; or he may be related to us a hundred or a thouſand different ways.

The method of computing theſe degrees in the canon law, which we have adopted, is as follows. We begin at the common anceſtor, and reckon downwards; and in whatſoever degree the two perſons, or the moſt remote of them, is diſtant from the common anceſtor, that is the degree in which they are related to each other. Thus, Titius and his brother are related in the firſt degree; for from the father to each of them is counted only one; Titius and his nephew are related in the ſecond degree; for the nephew is two degrees removed from the common anceſtor, *viz.* his own grandfather, the father of Titius: or (to give a more illuſtrious inſtance from the Engliſh annals) King Henry VII. who ſlew Richard III. in the battle of Boſworth, was related to that prince in the fifth degree. Let the *propoſitus*, therefore, in the table of conſanguinity, repreſent King Richard III. and the claſs marked E, King Henry VII. Now their common ſtock or anceſtor was King Edward III. the *abavus* in the ſame table: from him to Edmund Duke of York, the *proavus* is one degree; to Richard Earl of Cambridge, the *avus*, two; to Richard Duke of York, the *pater*, three; to King Richard III. the *propoſitus*, four; and from King Edward III. to John of Gant (A) is one degree: to John Earl of Somerſet (B) two; to John Duke of Somerſet (C) three; to Margaret Counteſs of Richmond (D) four; to King Henery VII. (E) five. Which laſt-mentioned prince, being the fartheſt removed from the common ſtock, gives the denomination to the degree of kindred in the canon and municipal law. Though according to the computation of the civilians (who count upwards from either of the perſons related, to the common ſtock, and then downwards again to the other; reckoning a degree for each perſon both aſcending and deſcending) theſe two princes were related in the ninth degree: for from King Richard III. to Richard Duke of York is one degree; to Richard Earl of Cambridge two; to Edmund Duke of York three; to King Edward III. the common anceſtor, four; to John of Gant five; to John Earl of Somerſet ſix; to John Duke of Somerſet ſeven; to Margaret Counteſs of Richmond eight; to King Henry VII. nine. See the Table of Conſanguinity

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(B) This will ſwell more conſiderably than the former calculation: for here, though the firſt term is but 1, the denominator is 4; that is, there is *one* kinſman (a brother) in the firſt degree, who makes, together with the *propoſitus*, the two deſcendents from the firſt couple of anceſtors; and in every other degree, the number of kindred muſt be the *quadruple* of thoſe in the degree which immediately precedes it. For ſince each couple of anceſtors has two deſcendents who increaſe in a duplicate ratio, it will follow, that the ratio in which all the deſcendents increaſe downwards, muſt be double to that in which the anceſtors increaſe upwards: but we have ſeen that the anceſtors increaſe in a duplicate ratio: therefore the deſcendents muſt increaſe in a double duplicate; that is, in a quadruple ratio.

Collateral Degrees.	*Number of Kindred.*
1	1
2	4
3	16
4	64
5	256
6	1024
7	4096
8	16384
9	65536
10	262144
11	1048576
12	4194304
13	16777216
14	67108864
15	268435456
16	1073741824
17	4294967296
18	17179869184
19	68719476736
20	274877906944

This calculation may alſo be formed by a more compendious proceſs, *viz.* by ſquaring the couples, or half the number of anceſtors, at any given degree; which will furniſh us with the number of kindred we have in the ſame degree, at equal diſtance with ourſelves from the common ſtock, beſides thoſe at unequal diſtances. Thus, in the tenth lineal degree, the number of anceſtors is 1024; its half, or the couples, amount to 512; the number of kindred in the tenth collateral degree amounts therefore to 262144, or the ſquare of 512. And if we will be at the trouble to recollect the ſtate of the ſeveral families within our own knowledge, and obſerve how far they agree with this account; that is, whether, on an average, every man has not one brother or ſiſter, four firſt-couſins, ſixteen ſecond-couſins, and ſo on; we ſhall find, that the preſent calculation is very far from being overcharged.

Conſanguinity (Plate CXLVI), wherein all the degrees of collateral kindred to the *propoſitus* are computed, as far as the tenth of the civilians and the ſeventh of the canoniſts incluſive; the former being diſtinguiſhed by the numeral letters, the latter by the common ciphers.

Consanguinity and *Affinity* (degrees of), forbidden in marriage. See Marriage; and Law, Part III. Nº clx. 4.

Consanguinity and *Affinity*, an objection againſt a judge. See Law, Part III. Nº clvi. 12. Againſt a witneſs, *ibid.* clxxxiv. 12.

CONSCIENCE, a ſecret teſtimony of the ſoul, whereby it gives its approbation to things that are naturally good, and condemns thoſe that are evil. See *Moral Philoſophy*.

A man of integrity will never liſten to any reaſon, or give way to any meaſure, or be miſled by any inducement, againſt conſcience.---The inhabitants of a great town offered Marſhal de Turenne 100,000 crowns, upon condition he would take another road, and not march his troops their way. He anſwered them, "As your town is not on the road I intend to march, I cannot accept the money you offer me."---The Earl of Derby, in the reign of Edward III. making a deſcent in Guienne, carried by ſtorm the town of Bergerac, and gave it up to be plundered. A Welch knight happened by chance to light upon the receiver's office. He found there ſuch a quantity of money that he thought himſelf obliged to acquaint his general with it, imagining that ſo great a booty naturally belonged to him. But he was agreeably ſurpriſed when the earl told him, with a pleaſant countenance, that he wiſhed him joy of his good fortune; and that he did not make the keeping of his word to depend upon the great or little value of the thing he had promiſed. -- In the ſiege of Faliſci by Camillus general of the Romans, the ſchoolmaſter of the town, who had the children of the ſenators under his care, led them abroad under the pretext of recreation, and carried them to the Roman camp, ſaying to Camillus, that by this artifice he had delivered Faliſci into his hands. Camillus abhorring this treachery, obſerved, "That there were laws for war as well as for peace; and that the Romans were taught to make war with integrity not leſs than with courage." He ordered the ſchoolmaſter to be ſtripped, his hands to be bound behind his back, and to be delivered to the boys to be laſhed back into the town. The Falerians, formerly obſtinate in reſiſtance, ſtruck with an act of juſtice ſo illuſtrious, delivered themſelves up to the Romans; convinced that they would be far better to have the Romans for their allies than their enemies.

It is a ſaying, That no man ever offended his own conſcience, but firſt or laſt it was revenged upon him. The power of conſcience indeed has been remarked in all ages, and the examples of it upon record are innumerable. The following is related by Mr Fordyce, in his *Dialogues on Education* †, as a real occurrence which happened in a neighbouring ſtate not many years ago. A jeweller, a man of good character and conſiderable wealth, having occaſion in the way of his buſineſs to travel at ſome diſtance from the place of his abode, took along with him a ſervant, in order to take care of his portmanteau. He had with ſome of his beſt jewels, and a large ſum of money, to which his ſervant was likewiſe privy. The maſter having occaſion to diſmount on the road, the ſervant watching his opportunity, took a piſtol from his maſter's ſaddle and ſhot him dead on the ſpot; then rifled him of his jewels and money, and hanging a large ſtone to his neck, he threw him into the neareſt canal. With this booty he made off to a diſtant part of the country, where he had reaſon to believe that neither he nor his maſter where known. There he began to trade in a very low way at firſt, that his obſcurity might ſcreen him from obſervation, and in the courſe of a good many years ſeemed to riſe, by the natural progreſs of buſineſs into wealth and conſideration; ſo that his good fortune appeared at once the effect and reward of induſtry and virtue. Of theſe he counterfeited the appearance ſo well, that he grew into great credit, married into a good family, and by laying out his ſudden ſtores diſcreetly, as he ſaw occaſion, and joining to all an univerſal affability, he was admitted to a ſhare of the government of the town, and roſe from one poſt to another, till at length he was choſen chief magiſtrate. In this office he maintained a fair character, and continued to fill it with no ſmall applauſe both as a governor and a judge; till one day as he ſat on the bench with ſome of his brethren, a criminal was brought before him who was accuſed of murdering his maſter. The evidence came out full, the jury brought in their verdict that the priſoner was guilty, and the whole aſſembly waited the ſentence of the preſident of the court (which he happened to be that day) with great ſuſpence. Mean while he appeared to be in unuſual diſorder and agitation of mind, and his colour changed often; at length he aroſe from his ſeat, and coming down from the bench, placed himſelf juſt by the unfortunate man at the bar. "You ſee before you (ſaid he, addreſſing himſelf to thoſe who had ſat on the bench with him), a ſtriking inſtance of the juſt awards of heaven, which this day, after 30 years concealment, preſents to you a greater criminal than the man juſt now found guilty." Then he made an ample confeſſion of his guilt, and of all its aggravations. "Nor can I feel (continued he) any relief from the agonies of an awakened conſcience, but by requiring that juſtice be forthwith done againſt me in the moſt public and ſolemn manner." We may eaſily ſuppoſe the amazement of all the aſſembly, and eſpecially of his fellow-judges. However, they proceeded, upon this confeſſion, to paſs ſentence upon him, and he died, with all the ſymptoms of a penitent mind.

Courts of Conscience, are courts for recovery of ſmall debts, conſtituted by act of parliament in London, Weſtminiſter, &c. and other populous and trading diſtricts.

CONSCIOUSNESS. Metaphyſicians, in lieu of the word *conſcience*: which ſeems appropriated to theological or moral matters, ordinarily uſe that of *conſciouſneſs*; whereby they mean an inner ſentiment of a thing, whereof one may have a clear and diſtinct notion. In this ſenſe they ſay that we do not know our own ſoul, nor are aſſured of the exiſtence of our own thoughts, otherwiſe than by ſelf-conſciouſneſs. See Metaphysics.

CONSCRIPT, in Roman antiquity, an appellation given to the ſenators of Rome, who were called *con-*

† Vol. p. 401

ſcript fathers, on account of their names being all entered in one regiſter.

CONSECRATION, the act of devoting any thing to the ſervice and worſhip of God. The Moſaical law ordained, that all the firſt born, both of man and beaſt, ſhould be ſanctified or conſecrated to God. We find alſo, that Joſhua conſecrated the Gibconites, as Solomon and David did the Nethinims, to the ſervice of the temple; and that the Hebrews ſometimes conſecrated their fields and cattle to the Lord, after which they were no longer in their power.

Among the ancient Chriſtians, the conſecration of churches was performed with a great deal of pious ſolemnity. In what manner it was done for the three firſt ages, is uncertain; the authentic accounts reaching no higher than the fourth, when, in the peaceable reign of Conſtantine, churches were every where built, and dedicated with great ſolemnity. Some think the conſecration conſiſted in ſetting up the ſign of the croſs, or in placing a communion-table in the church; and others, that no more was done than preaching a panegyrical ſermon in commemoration of the founder, and that then they proceeded to prayers, one of which was compoſed on purpoſe for the church to be conſecrated. The Romaniſts have a great deal of pious foppery in the ceremonies of conſecration; which they beſtow on almoſt every thing, as bells, candles, books, water, oil, aſhes, palms, ſwords, banners, pictures, croſſes, agnus-dei's roſes, childrens clouts, &c.

In England, churches have been always conſecrated with particular ceremonies, the form of which was left to the diſcretion of the biſhop. That obſerved by biſhop Laud, in conſecrating St Catherine Creed church, in London, gave great offence.

Consecration is particularly uſed for the benediction of the elements in the euchariſt.

Consecration, among medaliſts, is the ceremony of the apotheoſis of an emperor, or his tranſlation into heaven and reception among the gods. On medals the conſecration is thus repreſented: on one ſide is the emperor's head, crowned with laurel, ſometimes veiled; and the inſcription gives him the title of *divus*: on the reverſe is a temple, a buſtum, an altar, or an eagle taking its flight towards heaven, either from off the altar, or from a cippus: at other times the emperor is ſeen in the air, borne up by the eagle; the inſcription always, *conſecratio*. Theſe are the uſual ſymbols: yet on the reverſe of that of Antoninus is the Antonine column. In the apotheoſis of empreſſes, inſtead of an eagle there is a peacock. As to the honours rendered theſe princes after death, they were explained by the words *conſecratio*, *pater*, *divus*, and *deus*. Sometimes around the temple or altar are put, *memoria felix*, or *memoræ æternæ*: for princeſſes, *æternitas*, and *ſideribus recepta*; on the ſide of the head, *dea*, or Θεα.

CONSENT, in a general ſenſe, denotes much the ſame with Assent.

Consent of Parts, in the animal economy, an agreement or ſymphathy, whereby when one part is immediately affected, another at a diſtance becomes affected in the ſame manner.

This mutual accord or conſent is ſuppoſed to be effected by the commerce of nerves, and their artful diſtribution and ramification throughout the body. The effect is ſo ſenſible as even to come under the phyſician's cognizance: thus, the ſtone in the bladder, by vellicating the fibres there, will pain and draw them ſo much into ſpaſms, as to affect the coats of the bowels, in the ſame manner, by the intermediation of nervous threads, and make a colic there; and alſo extend their twitches ſometimes as far as the ſtomach, and occaſion grievous vomitings: the remedy, therefore, in ſuch caſes, is to regard the part originally affected, how remote and grievous ſoever may be the conſequences and ſymptoms in other places.

The fifth conjugation of nerves branched to the parts of the eye, the ear, thoſe of the mouth, cheeks, præcordia, and parts adjacent, &c. is ſuppoſed by naturaliſts to be the inſtrument of that particular and extraordinary conſent between thoſe parts. Hence it is, that a ſavoury thing ſeen or ſmelled excites the appetite, and affects the glands and parts of the mouth; and a ſhameful thing ſeen or heard affects the cheeks with bluſhes; on the contrary, if it pleaſe, it affects the præcordia, and excites the muſcles of the mouth and face to laughter; if it grieve, it affects the glands of the eyes, ſo as to occaſion tears, and the muſcles of the face, putting them into an aſpect of crying. Dr Willis, quoted by Mr Derham, imputes the pleaſure of kiſſing, and its effects, to this pair of nerves; which being branched both to the lips and the genital parts, when the former are affected an irritation is occaſioned in the latter. See Sympathy.

CONSENTES, the name which the Romans gave to the 12 ſuperior gods, the *Dii majorum gentium*. The word ſignifies as much as *conſentientes*; that is, who conſented to the deliberations of Jupiter's council. They were twelve in number, whoſe name Ennius has briefly expreſſed in theſe lines,

Juno, Veſta, Minerva, Ceres, Diana, Venus, Mars,
Mercurius, Jovi, Neptunus, Vulcanus, Apollo.

CONSEQUENCE, in logic, the concluſion, or what reſults from reaſon or argument. See Conclusion.

The conſequence is that other propoſition in which the extremes or premiſes of a ſyllogiſm are joined, or ſeparated; and is gained from what was aſſerted in the premiſes.

This word, in a more reſtrained ſenſe, is uſed for the relation or connection between two propoſitions, whereof one is inferred from the other.

CONSEQUENT, ſomething deduced or gathered from a former argumentation. But, in a more preciſe ſenſe, it is uſed for the propoſition which contains the concluſion, conſidered in itſelf, without any regard to the antecedent: in which ſenſe the conſequent may be true, though the conſequence be falſe. See the preceding article.

CONSERVATOR, an officer ordained for the ſecurity and preſervation of the privileges of ſome cities and communities, having a commiſſion to judge of and determine the differences among them.

In moſt catholic univerſities there are two conſervators; the conſervator of royal privileges, or thoſe granted by kings; and the conſervator of apoſtolical privileges, or thoſe granted by the pope. The firſt takes cognizance of perſonal and mixed cauſes between the regents, ſtudents, &c. and the latter of ſpiritual matters between eccleſiaſtics.

Anciently there were appointed conſervators of treaties of peace between princes; which conſervators became judges of the infractions made on a treaty, and were charged with procuring ſatisfaction to be made. Theſe were uſually the feudatories of the ſeveral powers. In lieu of conſervators princes now have recourſe to other indifferent princes to guarantee their treaties.

Conservator of Scots Privileges, at Campvere, is an officer belonging to the royal boroughs of Scotland, who takes care of the mercantile affairs of Scotland, agreeable to the ſtaple contract between them and the States-General.

Conservator of the Peace, in the ancient Engliſh cuſtoms, was a perſon who had an eſpecial charge, by virtue of his office, to ſee the king's peace kept. Till the erection of juſtices of the peace by king Edward III. there were ſeveral perſons who by common law were intereſted in keeping the ſame: ſome having that charge as incident to other offices; and others ſimply, or of itſelf, called *cuſtodes*, or *conſervators of the peace*. The chamberlain of Cheſter is ſtill a conſervator in that county; and petty conſtables are, by the common law, conſervators, &c. in the firſt ſenſe, within their own juriſdiction: ſo are alſo the coroner and the ſheriff within their own county. The king is the principal conſervator of the peace within all his dominions: the lord chancellor, lord treaſurer, lord high ſteward, lord marſhal, lord high conſtable, all the juſtices of the court of king's bench, by their office, and the maſter of the rolls, by preſcription, are general conſervators of the peace through the whole kingdom, and may commit breakers of the peace, and bind them in recogniſances to keep it.

Conservator of the Truce, and Safe Conducts, was an officer appointed in every ſea-port, under the king's letters patent. His charge was to inquire of all offences committed againſt the king's truce, and ſafe conducts upon the main ſea, out of the franchiſes of the cinque-ports, as the admirals were wont to do, and ſuch other things as are declared *anno* 3 Hen. V. cap. 6.

CONSERVATORIOS, are muſical ſchools eſtabliſhed for the inſtruction of children in the profeſſion of muſic. There are four of theſe at Venice, deſigned for the education of girls, and three at Naples, for the education of boys. It has been ſuggeſted that the operation of caſtration was performed in the conſervatorios; but the practice is abſolutely prohibited; and the young caſtrati are brought from Lucia in Puglia: but before the operation is performed, their voices are tried in a conſervatorio. The ſcholars of the Venetian conſervatorios have been chiefly celebrated for taſte and neatneſs of execution; and thoſe of Naples have had the reputation of being the firſt *contrapuntiſts*, or compoſers, in Europe.

CONSERVATORY, a term ſometimes uſed for a green-houſe or ice-houſe.

CONSERVE, in pharmacy, a form of medicine contrived to preſerve the flowers, herbs, roots, or fruits of ſeveral ſimples, as near as poſſible to what they are when freſh gathered. See PHARMACY.

CONSIGNMENT, in law, the depoſiting any ſum of money, bills, papers, or commodities, in good hands; either by appointment of a court of juſtice, in order to be delivered to the perſons to whom they are adjudged; or voluntarily, in order to their being remitted to the perſons they belong to, or ſent to the places they are deſigned for.

CONSIGNMENT *of Goods*, in commerce, is the delivering or making them over to another: thus, goods are ſaid to be conſigned to a factor, when they are ſent to him to be ſold, &c.; or when a factor ſends back goods to his principal, they are ſaid to be conſigned to him.

CONSISTENCE, in phyſics, that ſtate of a body wherein its component particles are ſo connected or entangled among themſelves, as not to ſeparate or recede from each other. It differs from continuity in this, that it implies a regard to motion or reſt, which continuity does not, it being ſufficient to denominate a thing continuous that its parts are contiguous to each other.

CONSISTENTES, in church-hiſtory, a kind of penitents who were allowed to aſſiſt at prayers, but who could not be admitted to receive the ſacrament.

CONSISTORY (*conſiſtorium*), ſignifies as much as *prætorium*, a tribunal: it is commonly uſed for a council-houſe of eccleſiaſtical perſons, or place of juſtice in the ſpiritual court; a ſeſſion or aſſembly of prelates. And every archbiſhop and biſhop of every dioceſe hath a conſiſtory court held before his chancellor or commiſſary in his cathedral church, or other convenient place of his dioceſe, for eccleſiaſtical cauſes. The biſhop's chancellor is the judge of this court, ſuppoſed to be ſkilled in the civil and canon law; and in places of the dioceſe far remote from the biſhop's conſiſtory, the biſhop appoints a commiſſary to judge in all cauſes within a certain diſtrict, and a regiſter to enter his decrees, &c.

CONSISTORY, at Rome, denotes the college of cardinals, or the pope's ſenate and council, before whom judiciary cauſes are pleaded. Du Cange derives the word from *conſiſtorium*; i. e. *locus ubi conſiſtitur*; uſed chiefly for a veſtibule, gallery, or anti-chamber, where the courtiers wait for admiſſion; and called *a conſiſtente multitudine*.

The conſiſtory is the firſt court, or tribunal of Rome: it never meets but when the pope pleaſes to convoke it: the pope preſides in it in perſon, mounted on a magnificent throne, and habited in his *pontificalia*; on the right are the cardinal-biſhops and prieſts, and on the left the cardinal deacons. The place where it is held, is a large hall in the apoſtolical palace, where princes and ambaſſadors of kings are received. The other prelates, prothonotaries, auditors of the rota and other officers, are ſeated on the ſteps of the throne: the courtiers ſit on the ground; ambaſſadors on the right, and conſiſtorial and fiſcal advocates behind the cardinals.

Beſides the public conſiſtory, there is alſo a private one, held in a retired chamber, called the *chamber of papegay*; the pope's throne here being only raiſed two ſteps high. No body is here admitted but the cardinals whoſe opinions are collected, and called *ſentences*. Here are firſt propoſed and paſſed all bulls for biſhoprics, abbeys, &c. Hence biſhoprics and abbeys are ſaid to be conſiſtorial benefices; in regard, they muſt be propoſed in the conſiſtory, the anates be paid to the pope, and his bulls taken. Anciently they were elective; but by the concordat, which aboliſhes elections, they are appointed to be collated by the pope alone, on the nomination of the prince.

Consistory was alſo the name of a court under Conſtantine, where he ſat in perſon, and heard cauſes: the members of this court were called *comites*.

Consistory is alſo uſed among the reformed, for a council or aſſembly of miniſters and elders, to regulate their affairs, diſcipline, &c.

Consistory, or court Chriſtian in the Engliſh laws, is a council of eccleſiaſtical perſons, or the place of juſtice in an eccleſiaſtical or ſpiritual court. Every archbiſhop and biſhop has a conſiſtory-court, held before his chancellor or commiſſary, either in his cathedral, in ſome chapel, aiſle, or portico, belonging thereto; or in ſome other convenient place of his dioceſe, for eccleſiaſtical cauſes. The ſpiritual court was anciently, in the time of the Saxons, joined with the county or hundred court; and the original of the conſiſtory court, as divided from thoſe courts, is found in a law of the conqueror, quoted by lord Coke. From this court there lies an appeal to the archbiſhop of each province reſpectively.

CONSOLATION, one of the places in rhetoric wherein the orator endeavours to abate and moderate the grief or concern of another.

CONSOLE, in architecture, an ornament cut upon the key of an arch, which has a projecture, and on occaſion ſerves to ſupport little corniches, figures, buſts, and vaſes.

CONSOLIDATION, in law, the combining and uniting two benefices into one. The term is borrowed from the civil law; where it properly ſignifies an union of the poſſeſſion, or occupation, with the property. Thus, if a man have by legacy *uſum fructum fundi*, and afterwards buy the property, or fee-ſimple, of the heir; this is called a *conſolidation*.

Consolidation, in medicine, the action of uniting broken bones, or the lips of wounds, by means of *conſolidating remedies*, as they are called; which cleanſing with a moderate heat and force, taking corruption out of the wounds, and preſerving the temperature of the parts, cauſe the nouriſhment to be fitly applied to the part affected.

Among the many inſtances of the conſolidating power of blood and raw fleſh, we have a very remarkable one in Bartholine's Medical Obſervations. A man being condemned to have his noſe cut off by the hand of the common executioner, the friends, who were to be preſent, provided a new loaf of warm bread, which was cut in the middle, and the noſe received in it as it fell from the face: the noſe was after this nicely placed on the face again; and, being ſewed on, the whole in time conſolidated, and left no other marks of the ignominy than the ſcar round the whole noſe, and the traces of the ſtitches.

CONSONANCE, in muſic. See Interval.

CONSONANT, a letter that cannot be ſounded without ſome ſingle or double vowel before or after it; as *b*, *c*, *d*, &c.

CONSORT, *Queen Consort*. See Queen.

CONSPIRACY, in law, ſignifies an agreement between two or more, falſely to indict, or procure to be indicted, an innocent perſon, of felony.

CONSPIRATORS are, by ſtatute, defined to be ſuch as bind themſelves by oath, covenant, or other alliance, to aſſiſt one another falſely and maliciouſly to indict perſons, or falſely to maintain pleas.

Conſpirators in treaſon, are thoſe that plot againſt the king and the government.

CONSTABLE, according to ſome, is a Saxon word, compounded of *coning*, "king," and *ſtaple*, which ſignifies the "ſtay or ſupport of the king." But as we borrowed the name as well as the office of *Conſtable* from the French, Sir William Blackſtone is rather inclined to deduce it, with Sir Henry Spelman and Dr Cowel, from that language; wherein it is plainly derived from the Latin *comes ſtabuli*, an officer well known in the empire; ſo called, becauſe, like the great conſtable of France, as well as the lord high conſtable of England, he was to regulate all matters of chivalry, tilts, tournaments, and feats of arms, which were performed on horſeback.—The

Lord High Constable of England is the ſeventh great officer of the crown; and he, with the earl marſhal of England, were formerly judges of the court of chivalry, called in king Henry IV.'s time *Curia Militaris*, and now the court of honour. It is the fountain of the martial law, and anciently was held in the king's hall. The power of the lord high conſtable was formerly ſo great, and of which ſo improper a uſe was made, that ſo early as the 13th of king Richard II. a ſtatute paſſed for regulating and abridging the ſame, together with the power of the earl marſhal of England; and by this ſtatute, no plea could be tried by them or their courts, that could be tried by the common law of the realm. The office of conſtable exiſted before the conqueſt. After the conqueſt, the office went with inheritance, and by the tenure of the manors of Harlefield, Newman, and Whitenhurſt, in Glouceſterſhire, by grand ſerjeanty in the family of the Bohuns Earl of Hereford and Eſſex, and afterwards in line of Sefford as heirs-general to them; but in 1521, this great office became forfeited to the king in the perſon of Edward Stafford duke of Buckingham, who was that year attainted for high treaſon; and in conſideration of its extenſive power, dignity, and large authority, both in time of war and peace, it has never been granted to any perſon, otherwiſe than *hac vice*, and that to attend at a coronation, or trial by combat. In France, the ſame office was alſo ſuppreſſed about a century after by an edict of Louis XIII; though it has been exerciſed, in the command of the Marshals, by the firſt officer in the army.

Lord high conſtable of Scotland was an office of great antiquity and dignity. The firſt upon record is Hugo de Morvelle in the reign of David I. He had two grand prerogatives, viz. Firſt, the keeping of the king's ſword, which the king, at his promotion, when he ſwears fealty, delivers to him naked. Hence the badge of the conſtable is a naked ſword.—Second, The abſolute and unlimited command of the king's armies while in the field, in the abſence of the king; but this command does not extend to caſtles and garriſons. He was likewiſe judge of all crimes committed within two leagues of the king's houſe, which precinct was called the *Chalmer of Peace*. Though his juriſdiction came at laſt to be exerciſed only as to crimes during the time of parliament, which ſome extended likewiſe to all general conventions. This office was conferred heritably upon the noble family of Errol, by king Robert Bruce; and with them it ſtill remains, being expreſsly reſerved by the treaty of union.

Inferior CONSTABLES. From the great office of high conſtable is derived that inferior order, ſince called the *conſtables of hundreds and franchiſes;* theſe were firſt ordained in the 13th year of Edward I. by the ſtatute of Wincheſter; which for the conſervation of the peace, and view of armour, appointed that two conſtables ſhould be choſen in every hundred and franchiſe. Theſe are what are now called *conſtabularii capitales* or *high conſtables;* becauſe continuance of time, and increaſe of people, &c. have occaſioned others of like nature, but inferior authority, in every town, called *petty conſtables,* or *ſub-conſtabularii,* firſt inſtituted about the reign of Edward III.

The former, or modern *high conſtables,* are appointed at the court-leets of the franchiſe or hundred over which they preſide; or, in default of that, by the juſtices at their quarter-ſeſſions; and are removeable by the ſame authority that appoints them. The *petty conſtables* have two offices united in them, the one ancient, and the other modern. Their ancient office is that of head-borough, tithing-man, or borſholder; who are as ancient as the time of king Alfred: their more modern office is that of conſtable merely; which was appointed ſo lately as the reign of Edward III. in order to aſſiſt the high-conſtable. And in general the ancient head-boroughs, tithing-men, and borſholders, were made uſe of to ſerve as petty conſtables; though not ſo generally, but that in many places they ſtill continue diſtinct officers from the conſtables. They are all choſen by the jury at the court-leet; or if no court-leet be held, are appointed by two juſtices of the peace.

The general duty of all conſtables, both high and petty, as well as of the other officers, is to keep the king's peace in their ſeveral diſtricts; and to that purpoſe they are armed with very large powers of arreſting and impriſoning, of breaking open houſes, and the like: of the extent of which powers, conſidering what manner of men are for the moſt part put upon theſe offices, it is perhaps very well that they are generally kept in ignorance. One of their principal duties ariſing from the ſtatute of Wincheſter, which appoints them, is to keep watch and ward in their reſpective juriſdictions. Ward, guard, or *cuſtodia,* is chiefly intended of the day-time, in order to apprehend rioters, and robbers on the highways; the manner of doing which is left to the diſcretion of the juſtices of the peace and the conſtable; the hundred being, however, liable for all the robberies committed therein by day-light, for having kept negligent guard. Watch is properly applicable to the night only, (being called among the Saxons *wach't* or *wactu*); and it begins when ward ends, and ends when that begins: for, by the ſtatute of Wincheſter, in walled towns the gates ſhall be cloſed from ſun-ſetting to ſun-riſing; and watch ſhall be kept in every borough and town, eſpecially in the ſummer ſeaſon, to apprehend all rogues, vagabonds, and night-walkers, and make them give an account of themſelves. The conſtable may appoint watchmen at his diſcretion, regulated by the cuſtom of the place; and theſe, being his deputies, have, for the time being, the authority of their principal.

There are alſo conſtables denominated from particular places, as conſtable of the Tower, of Dover caſtle, of Windſor caſtle, of the caſtle of Caernarvon, and many other of the caſtles of Wales; whoſe office is the ſame with that of the caſtellani, or governors of caſtles.

CONSTABLES of London. The city of London is divided into 26 wards, and the wards into precincts, in each whereof is a conſtable. They are nominated by the inhabitants of each precinct on St Thomas's day, and confirmed, or otherwiſe, at the court of wardmote. After confirmation, they are ſworn into their offices at a court of aldermen, on the next Monday after Twefth day. Such as are choſen into the office, are obliged to place the king's arms, and the arms of the city, over their doors; and if they reſide in alleys, at the ends of ſuch alleys toward the ſtreets, to ſignify that a conſtable lives there, and that they may be the more eaſily found when wanted.

CONSTABLES to Juſtices of the Peace, in Scotland, are the proper officers for executing their orders. They have powers to ſuppreſs tumults, and to apprehend delinquents and thoſe who can give no good account of themſelves, and carry them to the next juſtice.

CONSTANCE, a ſtrong town of Germany, in the circle of Suabia, with a biſhop's ſee, whoſe biſhop is a prince of the empire. It has a handſome bridge, and ſeveral fine ſtructures, as well ſacred as profane. It carries on a great trade, and is well fortified; and though it pretends to be an imperial town, the Auſtrians keep a garriſon here. It is famous for a council held here in 1514, when there were three popes; but they were all depoſed, and Martin V. was elected in their room. The council cauſed Jerom of Prague to be burnt, though the emperior Sigiſmund had given him a ſafe conduct; in purſuance of this maxim, "that no faith is to be kept with heritics." They likewiſe condemned the doctrine of Wickliff, and ordered his bones to be burned 40 years after he was dead. However, the inhabitants now are Proteſtants. It is ſeated on a lake of the ſame name. E. Long. 9. 12. N. Lat. 47. 35.

CONSTANCE, a great lake of Germany, between Suabia and Swiſſerland. It is 30 miles in length, and 8 in breadth. It is croſſed by the river Rhine; and there are ſeveral towns on its banks.

CONSTANCY, in a general ſenſe, denotes immutability, or invariableneſs.—In ethics, or when applied to the human mind, the term implies reſolution or ſteadineſs, particularly under ſufferings and the trials of adverſity.

It was the ſaying of a heathen philoſopher, That there cannot be imagined upon earth a ſpectacle more worthy the regard of the Creator intent on his works, than a brave man ſuperior to his ſufferings. Nothing indeed can be more noble or honourable than to have courage enough to execute the commands of reaſon and conſcience; to maintain the dignity of our nature, and the ſtation aſſigned us; and to be proof againſt proverty, pain, and death itſelf, ſo far as not to do any thing that is ſcandalous or ſinful to avoid them. To be thus, is to be great above title and fortune. This argues the ſoul of an heavenly extraction, and is worthy the offspring of the Deity.

Of this virtue the following example, related in

Engliſh hiſtory, is here ſelected, as ſuperior perhaps, all circumſtances conſidered, to any other upon record.

Sir William Aſkew of Kelſay, in Lincolnſhire, had ſeveral daughters. His ſecond, named *Anne*, had received a genteel education; which, with an agreeable figure and good underſtanding, rendered her a very proper perſon to be at the head of a family. Her father, regardleſs of his daughter's inclination and happineſs, obliged her to marry a gentleman who had nothing to recommend him but his fortune, and who was a moſt bigoted Papiſt. No ſooner was he convinced of his wife's regard for the doctrines of the reformation from popery, than, by the inſtigation of the prieſts, he violently drove her from his houſe, though ſhe had born him two children, and her conduct was unexceptionable. Abandoned by her huſband, ſhe came up to London, in order to procure a divorce, and to make herſelf known to that part of the court who either profeſſed or were favourers of proteſtantiſm: but as Henry VIII. with conſent of parliament, had juſt enacted the law of the ſix articles, commonly called the *bloody ſtatute*, ſhe was cruelly betrayed by her own huſband; and, upon his information, taken into cuſtody, and examined concerning her faith. The act abovementioned denounced death againſt all thoſe who ſhould deny the doctrine of *tranſubſtantiation*; or that the bread and wine made uſe of in the ſacrament was not converted after conſecration into the *real* body and blood of Chriſt; or, maintain the neceſſity of receiving the ſacrament in both kinds; or affirm, that it was lawful for prieſts to marry; that the vows of celibacy might be broken; that private maſſes were of no avail; and that auricular confeſſion to a prieſt was not neceſſary to ſalvation. Upon theſe articles ſhe was examined by the inquiſitor, a prieſt, the lord-mayor of London, and the biſhop's chancellor; and to all their queries gave proper and pertinent anſwers; but not being ſuch as they approved, ſhe was ſent back to priſon, where ſhe remained eleven days to ruminate alone on her alarming ſituation, and was denied the ſmall conſolation of a friendly viſit. The king's council being at Greenwich, ſhe was once more examined by chancellor Wriotheſley, Gardiner biſhop of Wincheſter, Dr Cox, and Dr Robinſon; but not being able to convince her of her ſuppoſed errors, ſhe was ſent to the Tower. Mr Strype, from an authentic paper, gives us the following ſhort account of her examination, which may not, perhaps, be unentertaining or uſeleſs to the reader: "Sir Martin Bowes (lord mayor) ſitting with the council, as moſt meet for his wiſdom, and ſeeing her ſtand upon life and death, I pray you, quoth he, my lords, give me leave to talk to this woman? Leave was granted. *Lord Mayor.* Thou fooliſh woman, ſayeſt thou that the prieſt cannot make the holy body of Chriſt? *A. Aſkew.* I ſay ſo, my lord: for I have read that God made man; but that man made God I never read; nor I ſuppoſe ever ſhall read it. *Lord Mayor.* No! Though fooliſh woman, after the words of conſecration, is it not the Lord's body? *A. Aſkew.* No: it is but conſecrated bread, or ſacramental bread. *Lord Mayor.* What if a mouſe eat it after conſecration; what ſhall become of this mouſe? what ſayeſt thou, thou fooliſh woman? *A. Aſkew.* What ſhall become of her, ſay you, my lord? *Lord Mayor.* I ſay, that the mouſe is damned. *A. Aſkew.* Alack, poor mouſe!" Perceiving that ſome could not keep in their laughing, the council proceeded to the butchery and ſlaughter that they intended before they came there.—It was ſtrongly ſuſpected that Mrs Aſkew was favoured by ſome ladies of high rank; and that ſhe carried on a religious correſpondence with the queen. So that the chancellor Wriotheſley, hoping that he might diſcover ſomething that would afford matter of impeachment againſt that princeſs, the Earl of Hertford, or his Counteſs, who all favoured reformation, ordered her to be put to the rack: but her fortitude in ſuffering, and her reſolution not to betray her friends, was proof againſt that diabolical invention. Not a groan, not a word, could be extorted from her. The chancellor, provoked with what he called her obſtinacy, augmented her tortures with his own hands, and with unheard of violence: but her courage and conſtancy were invincible; and theſe barbarians gained nothing by their cruelties but everlaſting diſgrace and infamy. As ſoon as ſhe was taken from the rack, ſhe fainted away; but being recovered, ſhe was condemned to the flames. Her bones were diſlocated in ſuch a manner, that they were forced to carry her in a chair to the place of execution. While ſhe was at the ſtake, letters were brought her from the lord chancellor, offering her the king's pardon if ſhe would recant. But ſhe refuſed to look at them; telling the meſſenger, that "ſhe came not thither to deny her Lord and Maſter." The ſame letters were alſo tendered to three other perſons condemned to the ſame fate; and who, animated by her example, refuſed to accept them. Whereupon the lord-mayor commanded the fire to be kindled; and with ſavage ignorance cried out, *Fiat juſtitia*, "Let juſtice take its courſe." The faggots being lighted, ſhe commended her ſoul, with the utmoſt compoſure, into the hands of her Maker; and, like the great founder of the religion ſhe profeſſed, expired, *praying for her murderers*, July 16, 1546, about the 25th year of her age.

CONSTANTIA, a diſtrict at the Cape of Good Hope, conſiſting of two farms, which produce the well-known wine ſo much prized in Europe, and known by the name of *Cape* or *Conſtantia* wine. This place is ſituated at the diſtance of a mile and a half from Alphen, in a bending formed by and nearly under the ridge of hills, which comes from Meuiſenmountain, and juſt where it ſtrikes off towards Houtbay. One of theſe farms is called Little Conſtantia. Here the white Conſtantia wine is made. The other produces the red. According to M. De la Cail's account, not more than 60 *ſiggars* of red, and 90 of the white Conſtantia wine are made, each *ſiggar* being reckoned at 600 French pints, or about 150 Swediſh cans; ſo that the whole produce amounts to 22,500 cans. As the company are uſed to keep one third of this for themſelves, the remainder is always beſpoke by the Europeans long before it is made. At the Cape this wine is ſeldom ſeen at table, partly becauſe it is dear, and partly becauſe it is the produce of the country. The red Conſtantia wine ſells for about 60 rixdollars the half awin; but the white is uſually to be purchaſed at a more reaſonable rate. The genuine Conſtantia wine is undeniably a very racy and delicate deſert wine, and has ſomething peculiarly agreeable in the flavour of it. That its ſuperiority,

periority, however, is not owing to any thing peculiar in the manner of preparing it, ſeems extremely probable; for then, without doubt, a great deal more of it would be made. In fact, Dr Sparmann informs us, that the genuine wine can only be produced by certain particular ſoils. The diſtricts that lie next to theſe yield merely the common Cape wine, notwithſtanding that they have been planted with vine-ſtocks taken from this, as well as with ſome brought from the banks of the Rhine, whence it is ſuppoſed that the true Conſtantia ſort originally comes; nay, even tho' all the vineyards about Conſtantia ſeem to have the ſame ſoil. We have inſtances at the Cape, as well as in Europe, that good grapes ſometimes produce a bad wine; while, on the other hand, bad grapes will yield a good ſort of wine: therefore, towards making wine of a certain quality, beſides finer materials, there muſt be certain conditions and circumſtances, which, by a diligent and rational inveſtigation, might probably be explored to the great benefit of mankind.

Such as are apprized in what quantities Conſtantia wine is conſumed in Europe, will perhaps think the above calculation of the produce too limited. This, however, Dr Sparmann aſſures us, is by no means the caſe; the overplus being the produce of avarice, which goaded on by the deſire of gain, will always hit upon ſome method of ſatisfying the demands of luxury and ſenſuality. The votaries of theſe, accuſtomed to be put off with empty ſounds, do not ſeldom drink with the higheſt reliſh an imaginary Conſtantia, with which, however, this liquor has nothing in common beſides the mere name. It is therefore adviſable, even at the Cape itſelf, to take care, that whilſt one has a genuine ſample given one to taſte, one is not made to pay for a made-up red Conſtantia, which otherwiſe is in general ſold for half the price. When a wine of this kind has been (as it uſually is) meliorated by a voyage, and at the ſame time chriſtened with the pompous name of genuine Conſtantia, of which it has indeed in ſome meaſure the flavour, it eaſily ſells for ſuch in Europe.

CONSTANTINA, a ſtrong conſiderable town of Africa, in the kingdom of Algiers, and capital of a territory of the ſame name. It is the largeſt and ſtrongeſt place in all the eaſtern parts; and it is ſeated on the top of a great rock. There is no way to it but by ſteps cut out of the rock; and the uſual way of puniſhing criminals here is to throw them down the cliff. Here are a great many Roman antiquities, particularly a triumphal arch. E. Long. 7. 12. N. Lat. 36. 4.

Constantina, a town of Spain, in Andaluſia, and capital of a ſmall territory of the ſame name, with a caſtle ſeated on a mountain. W. Long. 5. 35. N. Lat. 37. 40.

CONSTANTINE, a kingdom of Barbary of that name in Africa. It is bounded on the north by the Mediterranean, on the eaſt by the kingdom of Tunis, on the ſouth by Bildulgerid, and on the weſt by the river Suſegmar, which ſeparates it from the kingdom of Bugia. The country is the new Numidia of the ancients, and had its own king: but it is now a province to Algiers.

Constantine the Great, the firſt emperor of the Romans who embraced Chriſtianity. His father, Conſtantius Clorus, rendered himſelf famous by his victorious expeditions to Germany and Britain: upon the abdication of Diocleſian, he ſhared the Roman empire with Galerius Maximinus in 305; and was at that time at York, where he died in 306; having firſt cauſed his ſon Conſtantine the Great to be proclaimed emperor by his army, and by the Engliſh. Galerius at firſt refuſed to admit Conſtantine to his father's ſhare in the imperial throne; but after having loſt ſeveral battles he conſented in 308. Maxentius, who ſucceeded Galerius oppoſed him; but was defeated, and drowned himſelf in the Tyber. The ſenate then declared Conſtantine *chief* or *firſt* Auguſtus, and Licinius his ſecond aſſociate in the empire, in 313. Theſe princes publiſhed an edict, in their joint names, in favour of the Chriſtians; but ſoon after Licinius, jealous of Conſtantine's renown, conceived an implacable hatred againſt him, and renewed the perſecutions againſt the Chriſtians. This brought on a rupture between the emperors; and a battle, in which Conſtantine was victorious. A ſhort peace enſued: but Licinius having ſhamefully violated the treaty, the war was renewed; when Conſtantine, totally defeating him, he fled to Nicomedia, where he was taken priſoner and ſtrangled in 323. Conſtantine, now become ſole maſter of the weſtern and eaſtern empires, immediately formed the plan of eſtabliſhing Chriſtianity as the religion of the ſtate; for which purpoſe, he convoked ſeveral eccleſiaſtical councils: but finding he was likely to meet with great oppoſition from the Pagan intereſt at Rome, he conceived the deſign of founding a new city, to be the capital of his Chriſtian empire; ſee Constantinople. The glory Conſtantine had acquire by eſtabliſhing the Chriſtian religion, was tarniſhed by the part he took in the perſecutions carried on by the Arians, towards the cloſe of his reign, againſt their Chriſtian brethren who differed from them: ſeduced by Euſebius, of Nicomedia, he baniſhed ſeveral eminent prelates: ſoon after which he died in 337, the 66th year of his age, and 31ſt of his reign.

As to the character of Conſtantine, he was chaſte, pious, laborious, and indefatigable; a great general, ſucceſsful in war, and deſerving his ſucceſs by his ſhining valour and by the brightneſs of his genius; a protector of arts, and an encourager of them by his beneficence. If we compare him with Auguſtus, we ſhall find that he ruined idolatry, by the ſame precautions and the ſame addreſs that the other uſed to deſtroy liberty. Like Auguſtus, he laid the foundation of a new empire; but leſs ſkilful, and leſs polite, he could not give it the ſame ſtability: he weakened the body of the ſtate by adding to it, in ſome meaſure, a ſecond head in the foundation of Conſtantinople; and tranſporting the centre of motion and ſtrength too near the eaſtern extremity, he left without heat, and almoſt without life, the weſtern parts, which ſoon became a prey to the barbarians. The Pagans were too much his enemies to do him juſtice. Eutropius ſays, that in the former part of his reign he was equal to the moſt accompliſhed princes, and in the latter to the meaneſt. The younger Victor, who makes him to have reigned more than 31 years, pretends, that in the firſt 10 years he was a hero; in the 12 ſucceeding ones a robber; and in the 10 laſt a ſpendthrift. It is eaſy to perceive, with reſpect to theſe two reproaches of Victor's, that the one relates to the riches which Conſtantine took from idolatry, and the other to thoſe with which he loaded the church.

CONSTANTINE emperor of the Eaſt in 902, left the care of the empire to his wife Helena, who loaded the people with taxes, and ſold all the offices in church and ſtate to the higheſt bidders; while the emperor employed himſelf in reading, writing, and the fine arts, till he became as good an architect and painter as he was a bad prince: he wrote ſeveral biographical and geographical works, which would have done honour to his name, if he had not neglected his duty to compoſe them. He died in 960.

CONSTANTINE (Dracoſes), the ſon of Emmanuel Paleologus, was placed on the throne by ſultan Amurath in 1448. But Mahomet II. his ſucceſſor, reſolving to dethrone him, laid ſiege to Conſtantinople by ſea and land, and took it by aſſault in 1453, after it had held out 58 days. The unfortunate emperor ſeeing the Turks enter the breaches, threw himſelf into the midſt of the enemy; and was cut to pieces; the children of the imperial houſe were maſſacred by the ſoldiers; and the women reſerved to gratify the luſt of the conqueror; and thus terminated the dynaſty of the Conſtantines, 1123 years after its eſtabliſhment at Conſtantinople.

CONSTANTINE (Robert), a learned phyſician born at Caen, taught polite literature in that city; and acquired great reputation by his ſkill in the Greek language, in hiſtory, and in medicine. He died in 1603, aged 103. He wrote a dictionary in Greek and Latin, and other works, which are eſteemed.

1
Removing the imperial ſeat to this city the cauſe of the decline of the weſtern empire.

CONSTANTINOPLE, the modern name of the city of BYZANTIUM in Thrace. It was enlarged and beautified by the Roman emperor Conſtantine the Great, in the year 330. At the ſame time he transferred thither the ſeat of the empire; and this removal is generally thought to have been one of the principal cauſes of the ſudden decline of the weſtern empire after this period.

2
Conſtantine defeats the Goths,

3
And the Sarmatians

In the year 332, the Sarmatians implored Conſtantine's aſſiſtance againſt the Goths, who had made an irruption into their territories, and deſtroyed every thing with fire and ſword. The emperor readily granted their requeſt, and gained a complete victory. Near 100,000, of the enemy periſhed either in the battle, or after it with hunger and cold. In conſequence of this overthrow, the Goths were obliged to ſue for peace; but the ungrateful Sarmatians no ſooner found themſelves delivered from their enemies, than they turned their arms againſt their benefactor, and ravaged the provinces of Mæſia and Thrace. The emperor, receiving intelligence of this treachery, returned with incredible expedition, cut great numbers of them in pieces, and obliged the reſt to ſubmit to what terms he was pleaſed to impoſe.

4
Is highly reſpected.

Conſtantine ſeems to have been a prince very highly reſpected, even by far diſtant nations. In 333, according to Euſebius, ambaſſadors arrived at Conſtantinople from the Blemyes, Indians, Ethiopians, and Perſians, courting his friendſhip. They were received in a moſt obliging manner; and learning from the ambaſſadors of Sapor king of Perſia, that there were great numbers of Chriſtians in their maſter's dominions, Conſtantine wrote a letter in their behalf to the Perſian monarch.

5
He takes a number of Sarmatians into his army.

6
His death, and diviſion of the empire.

Next year, the Sarmatians being again attacked by the Goths, found themſelves obliged to ſet at liberty and arm their ſlaves againſt them. By this means they indeed overcame the Goths; but the victorious ſlaves turning their arms againſt their maſters, drove them out of the country. This misfortune obliged them, to the number of 300,000, to apply for relief to the Roman emperor, who incorporated with his legions ſuch as were capable of ſervice; and gave ſettlements to the reſt in Thrace, Scythia, Macedon, and Italy. This was the laſt remarkable action of Conſtantine the Great. He died on May 25, 337, having divided the empire among his children and nephews, in the following manner. Conſtantine, his eldeſt ſon, had Gaul, Spain, and Britain: Conſtantius, the ſecond, had Aſia, Syria, and Egypt: and Conſtans, the youngeſt, Illyricum, Italy, and Africa. To his nephew Dalmatius, he gave Thrace, Macedon, and Achaia; and to king Annibalianus, his other nephew, Armenia Minor, Pontus, Cappadocia, and the city of Cæſarea, which he deſired might be the capital of his kingdom

7
All his relations murdered except his three ſons and two nephews.

8
Conſtantine invades the dominions of Conſtans.

9
Is defeated and killed.

After the death of Conſtantine, the army and ſenate proclaimed his three ſons emperors, without taking any notice of his two nephews, who were ſoon after murdered, with Julius Conſtantius the late emperor's brother, and all their friends and adherents. Thus the family of Conſtantine was at once reduced to his three ſons, and two nephews Gallus and Julian, the ſons of Julius Conſtantius; and of theſe the former owed his life to a malady, from which no one thought he could recover; and the latter to his infancy, being then at moſt about ſeven years of age. The three brothers divided among themſelves the dominions of the deceaſed princes; but did not long agree together. In 340, Conſtantine having in vain ſolicited Conſtans to yield part of Italy to him, raiſed a conſiderable army; and under pretence of marching to the aſſiſtance of his brother Conſtantius, who was then at war with the Perſians, made himſelf maſter of ſeveral places in Italy. Hereupon Conſtans detached part of his army againſt him; and Conſtantine, being drawn into an ambuſcade near Aquileia, was cut off with his whole forces. His body was thrown into the river Anſa; but being afterwards diſcovered, was ſent to Conſtantinople, and interred there near the tomb of his father

10
Conſtans ſole maſter of the Weſt.

11
Magnentius revolts againſt him.

By the defeat and death of his brother, Conſtans remained ſole maſter of all the weſtern part of the empire, in the quiet poſſeſſion of which he continued till the year 350. This year, Magnentius, the ſon of one Magnus, a native of Germany, finding Conſtans deſpiſed by the army on account of his indolence an inactivity, reſolved to murder him, and ſet up for himſelf. Having found means to gain over the chief officers of the army to his deſigns, he ſeized on the Imperial palace at Autun, and diſtributed among the populace what ſums he found there; which induced not only the city, but the neighbouring country, to eſpouſe his cauſe. But Conſtans being informed of what had paſſed, and finding himſelf unable to reſiſt the uſurper, fled towards Spain. He was overtaken, however, by Gaiſo, whom Magnentius had ſent after him with a choſen body of troops, who diſpatched with many wounds the unhappy prince at Helena, a ſmall village ſituated near the foot of the Pyrenees.

12 Conſtans murdered.

Thus Conſtantius acquired a right to the whole Roman empire; though one half of it was ſeized by Magnentius after the murder of Conſtans. The former had been engaged in a war with the Perſians, in which little advantage was gained on either ſide; but the Perſians now giving no more diſturbance, the emperor marched againſt the uſurpers in the weſt.

13 Three pretenders to the empire.

Beſides Magnentius, there were at this time two other pretenders to the weſtern empire. Veteranio, general of the foot in Pannonia, had, on the firſt news of the death of Conſtans, cauſed himſelf to be proclaimed emperor by the legions under his command. He was a native of Upper Mæſia, and advanced in years when he uſurped the ſovereignty; but ſo illiterate, that he then firſt learned to read. The third pretender was Flavius Popilius Nepotianus, ſon of Eutropia the ſiſter of Conſtantine the Great. Having aſſembled a company of gladiators and men of deſperate fortunes, he aſſumed the purple on the 3d of June 350, and in that attire preſented himſelf before the gates of Rome. The prefect Anicetus, who commanded there for Magnentius, ſallied out againſt him with a body of Romans; who were ſoon driven back into the city.

14 Nepotianus makes himſelf maſter of Rome.

Soon after Nepotianus made himſelf maſter of the city itſelf, which he filled with blood and ſlaughter. Magnentius being informed of what had happened, ſent againſt this new competitor his chief favourite and prime miniſter Marcellinus. Nepotianus received him with great reſolution; a bloody battle enſued between the ſoldiers of Magnentius and the Romans who had eſpouſed the cauſe of Nepotianus; but the latter being betrayed by a ſenator, named Heraclitus, his men were put to flight,

15 He is defeated and killed.

and he himſelf killed, after having enjoyed the ſovereignty only 28 days. Marcellinus ordered his head to be carried on the point of a lance through the principal ſtreets of the city; put to death all thoſe who had declared for him; and under pretence of preventing diſturbances, commanded a general maſſacre of all the relations of Conſtantine.

16 Tyranny of Magnentius.

Soon after, Magnentius himſelf came to Rome to make the neceſſary preparations for reſiſting Conſtantius, who was exerting himſelf to the utmoſt in order to revenge the death of his brother. In the city he behaved moſt tyrannically, putting to death many perſons of diſtinction, in order to ſeize their eſtates; and obliged the reſt to contribute half of what they were worth towards the expence of the war. Having by this means raiſed great ſums, he aſſembled a mighty army compoſed of Romans, Germans, Gauls, Franks, Britons, Spaniards, &c.

17 Sends propoſals of peace to Conſtantius.

At the ſame time, however, dreading the uncertain iſſues of war, he diſpatched ambaſſadors to Conſtantius with propoſals of accommodation. Conſtantius ſet out from Antioch about the beginning of autumn; and, paſſing through Conſtantinople, arrived at Heraclea, where he was met by the deputies from Magnentius, and others from Veteranio, who had agreed to ſupport each other in caſe the emperor would hearken to no terms. The deputies of Magnentius propoſed in his name a match between him and Conſtantia, or rather Conſtantina, the ſiſter of Conſtantius, and widow of Annibalianus; offering, at the ſame time, to Conſtantius the ſiſter of Magnentius. At firſt the emperor would hearken to no terms; but afterwards, that he might not have to oppoſe two enemies at once, concluded a ſeparate treaty with Veteranio, by which he agreed to take him for his partner in the empire. But when Veteranio aſcended the tribunal along with Conſtantius, the ſoldiers pulled him down from thence, crying out, That they would acknowledge no other emperor than Conſtantius alone. On this Veteranio threw himſelf at the emperor's feet, and implored his mercy. Conſtantius received him with great kindneſs, and ſent him to Pruſia in Bithynia, where he allowed him a maintenance ſuitable to his quality.

Conſtantius, now maſter of all Illyricum, and of the army commanded by Veteranio, reſolved to march againſt Magnentius without delay.

18 Gallus ſent againſt the Perſians.

In the mean time, however, on advice that the Perſians were preparing to invade the eaſtern provinces, he married his ſiſter Conſtantina to his couſin german Gallus; created him Cæſar on the 15th of March; and allotted him for his ſhare not only all the Eaſt, but likewiſe Thrace and Conſtantinople. About the ſame time Magnentius gave the title of Cæſar to his brother Decentius, whom he diſpatched into Gaul to defend that country againſt the barbarians who had invaded it;

19 Conſtantius ſtirs up the Franks to invade Gaul.

for Conſtantius had not only ſtirred up the Franks and Saxons to break into that province by promiſing to relinquiſh to them all the places they ſhould conquer, but had ſent them large ſupplies of men and arms for that purpoſe. On this encouragement the barbarians invaded Gaul with a mighty army, overthrew Decentius in a pitched battle, committed every where dreadful ravages, and reduced the country to a moſt deplorable ſituation. In the mean time Magnentius having aſſembled a numerous army, left Italy, and croſſing the Alps, advanced into the plains of Pannonia, where Conſtantius, whoſe main ſtrength conſiſted in cavalry, was waiting for him. Magnentius, hearing that his competitor was encamped at a ſmall diſtance, invited him by a meſſenger to the extenſive plains of *Sciſcia* on the Save, there to decide which of them had the beſt title to the empire.

20 Is defeated by Magnentius.

This challenge was by Conſtantius received with great joy; but as his troops marched towards Sciſcia in diſorder, they fell into an ambuſcade, and were put to flight with great ſlaughter. With this ſucceſs, Magnentius was ſo elated, that he rejected all terms of peace which were now offered by Conſtantius; but after ſome time, a general engagement enſued at Murſa,

21 Magnentius defeated at Murſa.

in which Magnentius was entirely defeated, with the loſs of 24,000 men. Conſtantius, though victor, is ſaid to have loſt 30,000, which ſeems improbable.

22 This battle fatal to the empire.

All authors, however, agree, that the battle of Murſa proved fatal to the weſtern empire, and greatly contributed to its ſpeedy decline.

After his defeat at Murſa, Magnentius retired into Italy, where he recruited his ſhattered forces as well as he could. But the beginning of the following year 352, Conſtantius, having aſſembled his troops, ſurpriſed and took a ſtrong caſtle on the Julian Alps, belonging to Magnentius, without the loſs of a man. After this the emperor advanced in order to force the reſt; upon which Magnentius was ſtruck with ſuch terror, that he immediately abandoned Aquileia, and ordered the troops that guarded the other paſſes of the Alps to follow him. Thus Conſtantius entering Italy without oppoſition, made himſelf maſter of Aquileia. From thence he advanced to Pavia, where Magnentius gained a conſiderable advantage over him. Notwithſtanding this loſs, however, Conſtantius reduced the whole country bordering on the Po, and Magnentius's men deſerted to him in whole troops, delivering up to him the places they had garriſoned; by which the tyrant was ſo diſheartened, that he left Italy, and retired with all his forces into Gaul. Soon after this, Africa, Sicily, and Spain, declared for Conſtantius; upon which Magnentius ſent a ſenator, and after him ſome biſhops, to treat of a peace; but the emperor treated the ſenator as a ſpy, and ſent back the biſhops without any anſwer.—Magnentius now finding his affairs deſperate, and that there were no hopes of pardon, recruited his army in the beſt manner he could, and diſpatched an aſſaſſin into the Eaſt to murder Gallus Cæſar; hoping that his death would oblige the emperor to withdraw his forces from Gaul, and march in perſon to the defence of the Eaſtern provinces, which were threatened by the Perſians. The aſſaſſin gained over ſome of Gallus's guards: but the plot being diſcoverd before it could be put in execution, they were all ſeized and executed as traitors.

23
Magnentius attempts to get Gallus murdered.

24
Magnentius defeated a ſecond time, kills all his family and himſelf.

In 353, the war againſt Magnentius was carried on with more vigour than ever, and at laſt happily ended by a battle fought in the Higher Dauphiny. Magnentius, being defeated, took ſhelter in Lyons; but the few ſoldiers who attended him, deſpairing of any further ſucceſs, reſolved to purchaſe the emperors favour by delivering up to him his rival, the author of ſo calamitous a war. Accordingly they ſurrounded the houſe where he lodged; upon which the tyrant, in deſpair, ſlew with his own hand his mother, his brother Deſiderius whom he had created Cæſar, and ſuch of his friends and relations as were with him; and then, fixing his ſword in a wall, threw himſelf upon it, in order, to avoid a more ſhameful death which he had reaſon to apprehend.

After the death of Magnentius, his brother Decentius Cæſar, who was marching to his aſſiſtance, and had already reached Sens, finding himſelf ſurrounded on all ſides by the emperor's forces, choſe rather to ſtrangle himſelf than fall alive into the hands of his enemies. Thus Conſtantius was left ſole maſter of the Roman empire. His panegyriſts tell us, that after his victory he behaved with the greateſt humanity, forgiving and receiving into favour his greateſt enemies; but other hiſtorians differ conſiderably from them, and tell us that Conſtantius now became haughty, imperious, and cruel, of which many inſtances are given.

25
Conſtantius ſole maſter of the empire.

26
Many grievous calamities.

This year the empire was ſubjected to very grievous calamities. Gaul was ravaged by the barbarians beyond the Rhine, and the diſbanded troops of Magnentius. At Rome, the populace roſe on account of a ſcarcity of proviſions. In Aſia, the Iſaurian robbers over-ran Lycaonia and Pamphylia; and even laid ſiege to Seleucia, a city of great ſtrength; which, however, they were not able to make themſelves maſters of. At the ſame time, the Saracens committed dreadful ravages in Meſopotamia; the Perſians alſo invaded the province of Anthemuſia on the Euphrates. But the Eaſtern provinces were not ſo much haraſſed by the barbarians as by Gallus Cæſar himſelf, who ought to have protected them. That prince was naturally of a cruel, haughty, and tyrannical diſpoſition; but being elated with his ſucceſſes againſt the Perſians, he at laſt behaved more like a tyrant and a madman than a governor. His natural cruelty is ſaid to have been heightened by the inſtigations of his wife Conſtantina, who is by Ammianus ſtyled the *Megæra*, or "fury of her ſex;" and he adds, that her ambition was equal to her cruelty. Thus all the provinces and cities in the Eaſt were filled with blood and ſlaughter. No man, however innocent, was ſure to live or enjoy his eſtate a whole day; for Gallus's temper being equally ſuſpicious and cruel, thoſe who had any private enemies took care to accuſe them of crimes againſt the ſtate, and with Gallus it was the ſame thing to be accuſed and condemned. At laſt the emperor being informed from all quarters of the evil conduct of his brother-in-law, and being at the ſame time told that he aſpired to the ſovereignty, reſolved upon his ruin. For this end he wrote letters to Gallus and Conſtantina, inviting them both into Italy. Though they had both ſufficient reaſon to fear the worſt, yet they durſt not venture to diſobey the emperor's expreſs command. Conſtantina, who was well acquainted with her brother's temper, and hoped to pacify him by her artful inſinuation, ſet out firſt, leaving Gallus at Antioch: but ſhe had ſcarce entered the province of Bithynia, when ſhe was ſeized with a fever which put an end to her life. Gallus now deſpairing of being able to appeaſe his ſovereign, thought of openly revolting; but moſt of his friends deſerted him on account of his inconſtant and cruel temper, ſo that he was at laſt obliged to ſubmit to the pleaſure of Conſtantius. He advanced, therefore, according to his orders; but at Petavium was arreſted, and ſtripped of all the enſigns of his dignity. From thence he was carried to *Flanōna*, now *Fianone* in Dalmatia, where he was examined by two of his moſt inveterate enemies. He confeſſed moſt of the crimes laid to his charge; but urged as an excuſe the evil counſels of his wife Conſtantina. The emperor, provoked at this plea which reflected on his ſiſter, and inſtigated by the enemies of Gallus, ſigned a warrant for his execution, which was performed accordingly.

27
Tyranny of Gallus.

28
He is put to death.

29
War with the Germans.

All this time the emperor had been engaged in a war with the Germans: he had marched againſt them in perſon; and though he gained no advantage, the barbarians thought proper to make peace with him. This, however, was but ſhort-lived. No ſooner was the Roman army withdrawn, than they began to make new inroads into the empire. Againſt them Conſtantius diſpatched Arbetio with the flower of the army; but he fell into an ambuſcade, and was put to flight with the loſs of a great number of men. This loſs, however, was ſoon retrieved by the valour of *Arintheus*, who became famous in the reign of Valens, and of two other officers, who falling upon the Germans, without waiting the orders of their general, put them to flight, and obliged them to leave the Roman territories.

The tranquillity of the empire, which enſued on this repulſe of the Germans, was ſoon interrupted by a pretended conſpiracy, by which in the end a true one was produced. Sylvanus, a leading man among the

30
Sylvanus betrayed by Arbetio.

the Franks, commanded in Gaul, and had there performed great exploits againſt the barbarians. He had been raiſed to this poſt by Arbetio; but only with a deſign to remove him from the emperor's preſence, in order to accompliſh his ruin, which he did in the following manner: One *Dynames*, keeper of the emperor's mules, leaving Gaul, begged of Sylvanus letters of recommendation to his friends at court; which being granted, the traitor eraſed all but the ſubſcription. He then inſerted directions to the friends of Sylvanus for the carrying on a conſpiracy; and delivering theſe forged letters to the prefect Lampridius, they were by him ſhowed to the emperor.

31
He is forced to revolt.

Thus Sylvanus was forced to revolt, and cauſe himſelf to be proclaimed emperor by the troops under his command. In the mean time, however, Dynames having thought proper to forge another letter, the fraud was diſcovered, and an enquiry ſet on foot, which brought to light the whole matter. Sylvanus was now declared innocent, and letters ſent to him by the emperor confirming him in his poſt; but theſe were ſcarce gone, when certain news arrived at the court of Sylvanus having revolted, and cauſed himſelf to be proclaimed emperor. Conſtantius, thunderſtruck at this news, diſpatched againſt him Urſicinus, an officer of great integrity, as well as valour and experience in war;

[31]
Is murdered.

who forgetting his former character, pretended to be Sylvanus's friend, and thus found means to cut him off by treachery.

32
Gaul ravaged by the barbarians.

The barbarians, who had been hitherto kept quiet by the brave Sylvanus, no ſooner heard of his death, than they broke into Gaul with greater fury than ever. They took and pillaged above forty cities, and among the reſt Cologne, which they levelled with the ground. At the ſame time the Quadi and Sarmatians entering Pannonia, deſtroyed every thing with fire and ſword. The Perſians alſo, taking advantage of the abſence of Urſicinus, over-ran, without oppoſition, Armenia and Meſopotamia; Proſper and Mauſonianus, who had ſucceeded that brave commander in the government of the Eaſt, being more intent upon pillaging than defending the provinces committed to their care. Conſtantius, not thinking it adviſable to leave Italy himſelf, reſolved at laſt to raiſe his couſin

33
Julian created Cæſar.

Julian, the brother of Gallus, to the dignity of Cæſar. Julian ſeems to have been a man of very extraordinary talents; for though before this time he had been entirely buried in obſcurity, and converſed only with books, no ſooner was he put at the head of an army than he behaved with the ſame bravery, conduct, and experience, as if he had been all his life bred up to the art of war. He was appointed governor of Gaul; but before he ſet out, Conſtantius gave him in marriage his ſiſter Helena, and made him many valuable preſents. At the ſame time, however, the jealous emperor greatly limited his authority; gave him written inſtructions how to behave; ordered the generals who ſerved under him to watch all his actions no leſs than thoſe of the enemy; and ſtrictly enjoined Julian himſelf not to give any largeſſes to the ſoldiery.

Julian ſet out from Milan on the 1ſt of December 355, the emperor himſelf accompanying him as far as Pavia, from whence he purſued his journey to the Alps, attended only by 360 ſoldiers. On his arrival at Turin he was firſt acquainted with the loſs of Cologne, which had been kept concealed from the emperor. He arrived at Vienne before the end of the year, and was received by the people of that city and the neighbourhood with extraordinary joy.

34
He ſets out for Gaul.

In 356, the barbarians beſieged *Autun*; to relieve which place, Julian marched with what forces he could raiſe. When he came there, he found the ſiege raiſed: on which he went in purſuit of the barbarians to Auxerre, croſſing with no ſmall danger thick woods and foreſts, from Auxerre to *Troies*. On his march he was ſurrounded on all ſides by the barbarians, who moved about the country in great bodies; but he put them to flight with an handful of men, cut great numbers of them in pieces, and took ſome priſoners.

35
Defeats the barbarians.

From Troies he haſtened to Rheims, where the main body of the army, commanded by Marcellus, waited his arrival. Leaving Rheims, he took his route towards Decempagi, now *Dieuze*, on the Seille in Lorrain, with a deſign to oppoſe the Germans who were buſy in ravaging that province. But the enemy attacking his rear unexpectedly, would have cut off two legions, had not the reſt of the army, alarmed at the ſudden noiſe, turned back to their aſſiſtance. A few days afterwards he defeated the Germans, though with great loſs to his own army; the victory, however, opened him a way to Cologne.

36
Repairs the fortifications of Cologne.

This city he found abandoned by the barbarians. They had neglected to fortify it: but Julian commanded the ancient fortifications to be repaired with all poſſible expedition, and the houſes to be rebuilt; after which he retired to Sens, and there took up his winter-quarters. This year alſo Conſtantius entered Germany on the ſide of Rhætia, laid waſte the country far and wide; and obliged the barbarians to ſue for peace, which was readily granted.

37
Idolatry declared capital by Conſtantius.

The ſame year he enacted two laws; by one of which it was declared capital to ſacrifice, or pay any kind of worſhip, to idols; the other, granting the effects of condemned perſons to belong to their children and relations within the third degree, except in caſes of magic and treaſon; but this laſt one he revoked two years after.

In the beginning of the year 357, the barbarians beſieged Julian a whole month in Sens; Marcellus, the commander in chief, never once offering to aſſiſt him. Julian, however, ſo valiantly defended himſelf with the few forces he had, that the barbarians at laſt retired. After this, Conſtantius declared Julian commander in chief of all the forces in Gaul; appointing under him one *Severus*, an officer of great experience, and of a quite different diſpoſition from Marcellus. On his arrival in Gaul, Julian received him with great joy, raiſed new troops, and ſupplied them with arms which he luckily found in an old arſenal. The emperor, reſolving at all events to put a ſtop to the terrible devaſtations committed by the barbarous nations, chiefly by the Alemans, wrote to Julian to march directly againſt them. At the ſame time he ſent Barbatio, who had been appointed general in place of Sylvanus, with a body of 25 or 30,000 men, out of Italy, in order to incloſe the enemy between two armies. The Leti, however, a German nation, paſſing between the armies, advanced as far as Lyons, hoping to ſurpriſe that wealthy city; but meeting with a warmer reception than they expected, contented themſelves with ravaging the country all round it. On the firſt notice of this expedition, Julian detached ſtrong parties to guard the paſſages through which he knew the barbarians muſt return. Thus they were all cut off

38
The Leti cut off by Julian.

except thoſe who marched near the camp of Barbatio; who was ſo far from cutting off their retreat, that he complained by a letter to Conſtantius of ſome officers for attempting it. Theſe officers, among whom was Valentinian, afterwards emperor of the Weſt, were, by the orders of Conſtantius, caſhiered for their diſobedience. The other barbarians either fortified themſelves in the countries which they had ſeized, ſtopping up all the avenues with huge trees, or took ſhelter in the iſlands formed by the Rhine. Julian reſolved firſt to attack the latter; and with this view demanded ſome boats of Barbatio: but he, inſtead of complying with his juſt requeſt, immediately burnt all his boats, as he did on another occaſion the proviſions which had been ſent to both armies, after he had plentifully ſupplied his own. Julian, not in the leaſt diſheartened with this unaccountable conduct, perſuaded ſome of the moſt reſolute of his men to wade over to one of the iſlands.

39
He forces the barbarians to abandon the iſlands of the Rhine.

Here they killed all the Germans who had taken ſhelter in it. They then ſeized their boats, and purſued the ſlaughter in ſeveral other iſlands, till the enemy abandoned them all, and retired to their reſpective countries with their wives and what booty they could carry. On their departure, Barbatio attempted to lay a bridge of boats over the Rhine; but the enemy, appriſed of his intention, threw a great number of huge trees into the river, which being carried by the ſtream againſt the boats, ſunk ſeveral of them, and parted the reſt. The Roman general then thought proper to retire; but the barbarians falling unexpectedly upon him in his retreat, cut great numbers of his men in pieces, took moſt of his baggage, laid waſte the neighbouring country, and returned in triumph loaded with booty. Elated with this ſucceſs, they aſſembled in great numbers under the command of *Chnodomarius*, a prince of great renown among them, and ſix other kings. They encamped in the neighbourhood of Straſbourg.

40
Entirely defeats them at Straſbourg.

Here they were encountered by Julian; who put them to flight, with the loſs of 6 or 8000 of their men ſlain in the field, and a vaſtly greater number drowned in the river; while Julian himſelf loſt only 243 private men and four tribunes. In this action Chnodomarius was taken, and ſent to Rome, where he ſoon after died.

41
He enters Germany and concludes a truce with the barbarians.

After the battle, Julian advanced with all his army to Mayence, where he built a bridge over the Rhine and entered Germany, having with difficulty prevailed upon his army to follow him. Here he ravaged the country till the time of the autumnal equinox, when being prevented by ſnow from advancing any further, he began to repair the fort of Trajan, by ſome ſuppoſed to be the caſtle of Cromburgh, about three or four leagues from Frankfort. The barbarians were now ſo much alarmed, that they ſent deputies to treat of a peace; but this Julian refuſed to grant them upon any terms. He conſented, however, to a truce for ſeven months, upon their promiſing to ſtore with proviſions the fort he was building in their country.

42
Remarkable laws of Conſtantius.

This year Conſtantius made ſome remarkable laws. By one he puniſhed with confiſcation ſuch as renounced the Chriſtian for the Jewiſh religion; and by another, addreſſed to Felix biſhop of Rome, he exempted all merchandizing eccleſiaſtics, with their wives, children, and domeſtics, from every impoſition ordinary and extraordinary; ſuppoſing the gains they made to be applied by them to the relief of the poor.

43
Julian conquers the Franks.

In 358, as ſoon as the ſeaſon was fit for action, Julian took the field againſt the Franks, with a deſign to conquer them before the truce he had concluded with the Alemans was expired. The Franks were at that time divided into ſeveral tribes, the moſt powerful of which were the Salii and Chamavi. The firſt of theſe ſent deputies, intreating that he would ſuffer them to remain as friends to the empire in the country they poſſeſſed. But Julian, without paying any regard to this deputation, entered their country, and obliged them to ſubmit; after which he allotted them lands in Gaul, incorporating great numbers of them into his cavalry. He next marched againſt the Chamavi, whom he defeated and obliged to retire beyond the Rhine. Afterwards he rebuilt three forts on the river Meuſe, which had been deſtroyed by the barbarians; but wanting proviſions in a country ſo often ravaged, he ordered 6 or 800 veſſels to be built in Britain for the conveying corn from thence into Gaul. Julian continued in the country of the Chamavi till the expiration of his truce with the Alemans; and then laying a bridge of boats over the Rhine, he entered their country, putting all to fire and ſword.

44
Grants a peace to the Germans.

At laſt two of their kings came in perſon to him to ſue for peace: which Julian granted, upon their promiſing to ſet at liberty the captives they had taken; to ſupply a certain quantity of corn when required; and to furniſh wood, iron, and carriages, for repairing the cities they had ruined. The priſoners whom he at this time releaſed, amounted to upwards of 20,000.

45
Expedition of Conſtantius againſt ſome German nations.

Soon after the vernal equinox of this year 358, Conſtantius marched in perſon againſt the Quadi and Sarmatians, whoſe country lay beyond the Danube. Having croſſed that river on a bridge of boats, he laid waſte the territories of the Sarmatians; who thereupon came in great numbers, together with the Quadi, pretending to ſue for peace. Their true deſign was to ſurpriſe the Romans; but the latter ſuſpecting it, fell upon them ſword in hand, and cut them all in pieces. This obliged the reſt to ſue for peace in good earneſt, which was granted on the delivery of hoſtages. The emperor then marched againſt the *Limigantes*, that is, the ſlaves who, in 334, had driven the Sarmatians out of their country, and ſeized it for themſelves.* They uſed the ſame artifice as the Sarmatians and Quadi had done, coming in great numbers under pretence of ſubmitting, but prepared to fall upon him unexpectedly if opportunity offered. The emperor, obſerving their ſurly looks, and diſtruſting them, cauſed his troops ſurround them inſenſibly while he was ſpeaking. The Limigantes then diſpleaſed with the conditions he offered them, laid their hands on their ſwords: on which they were attacked by the Roman ſoldiers. Finding it impoſſible to make their eſcape, they made with great fury towards the tribunal, but were repulſed by the guards forming themſeves into a wedge, and every one of them cut in pieces.

46
He expels the Limigantes.

After this, the emperor ravaged their country to ſuch a degree, that they were in the end obliged to ſubmit to the only condition he thought proper to allow them, which was to quit their country, and retire to a more diſtant place. The country was then reſtored to the Sarmatians who were its original poſſeſſors.

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* See nº 5.

47
Haughty embaſſy from Sapor king of Perſia.

This year is alſo remarkable for a very haughty embaſſy from Sapor king of Perſia. The ambaſſador, named *Narſes*, brought a letter, in which the Perſian monarch ſtyled himſelf "king of kings, brother of the ſun and moon," &c. He acquainted the emperor that he might lawfully inſiſt on having all the countries beyond the river Strymon in Macedon delivered up to him; but leſt his demands ſhould ſeem unreaſonable, he would be contented with Armenia and Meſopotamia, which had been moſt unjuſtly taken from his grandfather Narſes. He added, that unleſs juſtice was done him, he was reſolved to aſſert his right by force of arms. This letter was preſented to Conſtantius wrapped up in a piece of white ſilk; but he, without entering into any negociation with the ambaſſador, wrote a letter to Sapor, in which he told him, that as he had maintained the Roman dominions in their full extent, when he was poſſeſſed only of the Eaſt, he could not ſuffer them to be curtailed now when he was maſter of the whole empire. In a few days, however, he ſent another letter with rich preſents; being very deſirous at leaſt to put off the war till he had ſecured the northen provinces againſt the incurſions of the barbarians, that he might then employ all the forces of the empire againſt ſo formidable an enemy. This embaſſy proved unſucceſsful, as did alſo another which was ſent ſoon after. The laſt ambaſſadors were impriſoned as ſpies, but afterwards diſmiſſed unhurt.

48
A law againſt magicians, &c.

By a law of Conſtantius dated in 358, all magicians, augurs, aſtrologers, and pretenders to the art of divination, were declared enemies to mankind; and ſuch of them as were found in the court either of the emperor or of Julian, he commanded to be put to the torture, and ſpecified what torments they were to undergo.

In 359 Julian continued his endeavours for relieving the province of Gaul, which had ſuffered ſo much from the incurſions of the barbarians. He erected magazines in different places, viſited the cities which had ſuffered moſt, and gave orders for repairing their walls and fortifications properly. He then croſſed the Rhine, and purſued the war in Germany with great ſucceſs, inſomuch that the barbarians ſubmitted to ſuch terms as he pleaſed to impoſe.

49
Treachery of the Limigantes.

In the mean time the emperor, having received intelligence that the Limigantes had quitted the country in which he had placed them, haſtened to the banks of the Danube, in order to prevent their entering Pannonia. On his arrival he ſent deputies, deſiring to know what had induced them to abandon the country which had been allotted them. The Limigantes anſwered, in appearance with the greateſt ſubmiſſion imaginable, that they were willing to live as true ſubjects of the empire in any other place; but that the country he had allotted them was quite uninhabitable, as they could demonſtrate if they were but allowed to croſs the river, and lay their complaints before him. This requeſt was granted; but while he aſcended his tribunal, the barbarians unexpectedly fell upon his guards ſword in hand, killed ſeveral of them, and the emperor with difficulty ſaved himſelf by flight.

50
They are all cut off.

The reſt of the troops, however, ſoon took the alarm, and ſurrounding the Limigantes, cut them all off to a man. This year Conſtantius inſtituted a court of inquiſition againſt all thoſe who conſulted heathen oracles.

51
The heathens cruelly perſecuted.

Paulus Catena, a noted and cruel informer, was diſpatched into the Eaſt to proſecute them; and Modeſtus, then count of the Eaſt, and equally remarkable for his cruelty, was appointed judge. His tribunal was erected at Scythopolis in Paleſtine; whither perſons of both ſexes, and of every rank and condition, were daily dragged in crowds from all parts, and either confined in dungeons, or torn in pieces in a moſt cruel and barbarous manner by racks, or publicly executed.

52
The Perſians begin hoſtilities.

In 359, Sapor king of Perſia began hoſtilities, being encouraged thereto by the abſence of Urſicinus, whom the emperor had recalled, and appointed in his room one Sabinianus, a perſon very unfit for ſuch an office. During this campaign, however, he made very little progreſs; having only taken two Roman forts, and deſtroyed the city of Amida, the ſiege of which is ſaid to have coſt him 30,000 men. On the firſt news of the Perſian invaſion, Conſtantius had thought proper to ſend Urſicinus into the Eaſt; but his enemies prevented him from receiving the ſupplies neceſſary for carrying on the war, ſo that he found it impoſſible to take any effectual means for ſtopping the progreſs of the Perſians. On his return, he was unexpectedly charged with the loſs of Amida, and all the diſaſters that had happened during the campaign. Two judges were appointed to inquire into his conduct; but they, being creatures of his enemies, left the matter doubtful. On this Urſicinus was ſo much exaſperated, that he appealed to the emperor, and in the heat of paſſion, let fall ſome unguarded expreſſions, which being immediately carried to the emperor, the general was deprived of all his employments.

53
Conſtantius marches in perſon againſt them.

Conſtantius reſolved to march next year in perſon againſt the Perſians; but in the mean time, dreading to encounter ſo formidable an enemy, he applied himſelf wholly to the aſſembling of a mighty army, by which he might be able fully to cope with them. For this purpoſe he wrote to Julian to ſend him part of his forces, without conſidering that by ſo doing he left the province of Gaul expoſed to the ravages of the barbarians. Julian reſolved immediately to comply with the emperor's orders; but at the ſame time to abdicate the dignity of Cæſar, that he might not be blamed for the loſs of the province. Accordingly he ſuffered the beſt ſoldiers to be draughted out of his army. They were, however, very unwilling to leave him,

54
Julian proclaimed emperor.

and at laſt proclaimed him emperor. Whether this was done abſolutely againſt Julian's conſent or not is uncertain; but he wrote to the emperor, and perſuaded the whole army alſo to ſend a letter along with his, in which they acquainted Conſtantius with what had happened, and entreated him to acknowledge Julian as his partner in the empire. But this was poſitively refuſed by Conſtantius, who began to prepare for war. Julian then, deſigning to be before-hand with the emperor, cauſed his troops take an oath of allegiance to himſelf, and with ſurpriſing expedition made himſelf maſter of the whole country of Illyricum, and the important paſs ſeparating that country from Thrace. Conſtantius was thunder-ſtruck with this news; but hearing that the Perſians had retired, he marched

55
Conſtantius marches againſt him but dies.

with all his forces againſt his competitor. On his arrival at Tarſus in Cilicia, he was ſeized with a feveriſh diſtemper, occaſioned chiefly by the uneaſineſs and perplexity of his mind. He purſued his march, however, to Mopſucrene, a place on the borders of Cilicia, at the foot of Mount Taurus. Here he was obliged to ſtop by the violence of his diſorder which increaſed every day, and at laſt carried him off on the 13th of November 361, in the 45th year of his age.

56
Julian reſtores the heathen religion.

By the death of Conſtantius Julian now became maſter of the whole Roman empire without a rival. He had been educated in the Chriſtian religion; but ſecretly apoſtatized from it long before, and as ſoon as he ſaw himſelf maſter of Illyricum openly avowed his apoſtacy, and cauſed the temples of the gods to be opened. When the meſſengers arrived at Naiſſus in Illyricum, where he then was, to acquaint him with his being ſole maſter of the empire, they found him conſulting the entrails of victims concerning the event of his journey. As the omens were uncertain, he was at that time very much embarraſſed and perplexed; but the arrival of the meſſengers put an end to all his fears, and he immediately ſet out for Conſtantinople. At Heraclea he was met by almoſt all the inhabitants of this metropolis, into which he made his public entry on the 11th of December 361, being attended by the whole ſenate in a body, by all the magiſtrates, and by the nobility magnificently dreſſed, every one teſtifying the utmoſt joy at ſeeing ſuch a promiſing young prince raiſed to the empire without bloodſhed. He was again declared emperor by the ſenate of Conſtantinople; and as ſoon as that ceremony was over, he cauſed the obſequies of Conſtantius to be performed with great pomp.

57
Condemns ſome of the late emperor's miniſters.

The firſt care of Julian was to inquire into the conduct of the late emperor's miniſters. Several of theſe having been found guilty of enormous crimes, were condemned and executed; particularly the noted informer Paulus Catena, and another named *Apodamus*, were ſentenced to be burnt alive. Along with theſe, however, was put to death one Urſula, a man of unexceptionable character, and to whom Julian himſelf was highly indebted. He had been ſupplied with money by Urſula unknown to the emperor, at the time when he was ſent into Gaul with the title of Cæſar, but without the money neceſſary for the ſupport of that dignity. For what reaſon he was now put to death, hiſtorians do not acquaint us. Julian himſelf tells us, that he was executed without his knowledge.

58
Reforms the court.

The emperor next ſet about reforming the court. As the vaſt number of officers was in his time become an intolerable burden, he diſcharged all thoſe whom he thought uſeleſs. He reduced, among the reſt, the officers called *agentes in rebus*, from 10,000 to 17; and diſcharged thouſands of cooks, barbers, &c. who by their large ſalaries drained the exchequer. The *curioſi*, whoſe office it was to inform the emperor of what had paſſed in the different provinces, were all diſcharged, and that employment entirely ſuppreſſed. Thus he was enabled to eaſe the people of the heavy taxes with which they were loaded: and this he did by abating a fifth part of all taxes and impoſts throughout the kingdom.

59
Recalls the philoſophers, magicians, &c.

As to religious matters, Julian, as before obſerved, was a Pagan, and immediately on his acceſſion to the throne, reſtored the heathen religion. He invited to court the philoſophers, magicians, &c. From all parts; nevertheleſs he did not raiſe any perſecution againſt the Chriſtians. On the contrary, he recalled from baniſhment all the orthodox biſhops who had been ſent into exile during the former reign; but with a deſign, as is obſerved both by the Chriſtian and Pagan writers, to raiſe diſturbances and ſow diſſenſions in the church.

60
Marches againſt the Perſians.

As the Perſians were now preparing to carry on the war with vigour, Julian found himſelf under a neceſſity of marching againſt them in perſon. But before he ſet out, he enriched the city of Conſtantinople with many valuable gifts. He formed a large harbour to ſhelter the ſhips from the ſouth wind, built a magnificent porch leading to it, and in another porch a ſtately library, in which he lodged all his books. In the month of May, A. D. 362, he ſet out for Antioch; and on the firſt of January renewed in that city the ſacrifices to Jupiter for the ſafety of the empire, which had been ſo long omitted. During his ſtay in this city, he continued his preparations for the Perſian war, erecting magazines, making new levies, and above all conſulting the oracles, aruſpices, magicians, *&c.* The oracles of Delphi, Delos, and Dodona, aſſured him of victory. The aruſpices, indeed, and moſt of his courtiers and officers, did all that lay in their power to divert him from his intended expedition; but the deceitful anſwers of the oracles and magicians, and the deſire of adding the Perſian monarch to the many kings he had already ſeen humbled at his feet, prevailed over all other conſiderations. Many nations ſent deputies to him offering their aſſiſtance; but theſe offers he rejected, telling them that the Romans were to aſſiſt their allies, but ſtood in no need of any aſſiſtance from them. He likewiſe rejected, and in a very diſobliging manner, the offers of the Saracens; anſwering them, when they complained of his ſtopping the penſion paid them by other emperors, that a warlike prince had ſteel, but no gold; which they reſenting, joined the Perſians, and continued faithful to them to the laſt. However, he wrote to Arſaces king of Armenia, enjoining him to keep his troops in readineſs to execute the orders he ſhould ſoon tranſmit to him.

61
Croſſes the Euphrates.

Having made the neceſſary preparations for ſo important an enterpriſe, Julian ſent orders to his troops to croſs the Euphrates, deſigning to enter the enemy's country before they had the leaſt notice of his march; for which purpoſe he had placed guards on all the roads. From Antioch he proceeded to Litarba, a place about 15 leagues diſtant, which he reached the ſame day. From thence he went to Beræa, where he halted a day, and exhorted the council to reſtore the worſhip of the gods; but this exhortation, it ſeems, was complied with but by few. From Beræa he proceeded to Batnæ; and was better pleaſed with the inhabitants of the latter, becauſe they had, before his arrival, reſtored the worſhip of the gods. There he offered ſacrifices; and having immolated a great number of victims, he purſued the next day his journey to Hierapolis, the capital of the province of Euphrateſiana, which he reached on the 9th of March. Here he lodged in the houſe of one for whom he had a particular eſteem, chiefly becauſe neither Conſtantius nor Gallus.

Conſtantinopolitan hiſtory.

Gallus, who had both lodged in his houſe, had been able to make him renounce the worſhip of his idols. As he entered this city, 50 of his ſoldiers were killed by the fall of a porch. He left Hierapolis on the 13th of March; and having paſſed the Euphrates on a bridge of boats, came to Batnæ a ſmall city of Oſrhoene, about 10 leagues from Hierapolis; and here 50 more of his ſoldiers were killed by the fall of a ſtack of ſtraw. From Batnæ he proceeded to Carrhæ; where, in the famous temple of the moon, it is ſaid, he ſacrificed a woman to that planet.

62 Invades Perſia.

While Julian continued in this city, he réceived advice that a party of the enemies horſe had broke into the Roman territories. On this he reſolved to leave an army in Meſopotamia, to guard the frontiers of the empire on that ſide, while he advanced on the other into the heart of the Perſian dominions. This army conſiſted, according to ſome, of 20,000, according to others, of 30,000 choſen troops. It was commanded by Procopius, and Sebaſtian a famous manichean who had been governor of Egypt, and had perſecuted there, with the utmoſt cruelty, the orthodox Chriſtians. Theſe two were to join, if poſſible, Arſaces king of Armenia, to lay waſte the fruitful plains of Media, and meet the emperor in Aſſyria. To Arſaces Julian himſelf wrote, but in the moſt diſobliging manner imaginable, threatening to treat him as a rebel if he did not execute, with the utmoſt punctuality, the orders given him; and at the concluſion told him, that the God he adored would not be able to ſcreen him from his indignation.

There were two roads leading from Carrhæ to Perſia; the one to the left by Niſibis; the other to the right through the province of Aſſyria, along the banks of the Euphrates. Julian choſe the latter, but cauſed magazines to be erected on both roads; and, after having viewed his army, ſet out on the 25th of March. He paſſed the Abora, which ſeparated the Roman and Perſian dominions, near its conflux with the Euphrates; after which he broke down the bridge, that his troops might not be tempted to deſert, ſeeing they could not return home. As he proceeded on his march, a ſoldier and two horſes were ſtruck dead by a flaſh of lightning; and a lion of an extraordinary ſize preſenting himſelf to the army, was in a moment diſpatched by the ſoldiers with a ſhower of darts. Theſe omens occaſioned great diſputes between the philoſophers and aruſpices: the latter looking upon them as inauſpicious, adviſed the emperor to return; but the former refuted their arguments with others more agreeable to Julian's temper.

63 Lays waſte Aſſyria.

Having paſſed the Abora, Julian entered Aſſyria, which he found very populous, and abounding with all the neceſſaries of life: but he laid it waſte far and near, deſtroying the magazines and proviſions which he could not carry along with him; and thus he put it out of his power to return the ſame way he came; a ſtep which was judged very impolitic.

64 Advances to Cteſiphon.

As he met with no army in the field to oppoſe him, he advanced to the walls of Cteſiphon, the metropolis of the Perſian empire; having reduced all the ſtrong holds that lay in his way. Here, having cauſed the canal to be cleared, which was formerly dug by Trajan between theſe two rivers, he conveyed his fleet from the former to the latter. On the banks of the Tigris he was oppoſed by the enemy. But Julian paſſed that river in ſpite of their utmoſt efforts, and drove them into the city with the loſs of a great number of their men, he himſelf, in the mean time, loſing only 70 or 75.

65 Begins his retreat, but is diſtreſſed for want of proviſions.

Julian had now advanced ſo far into the enemy's country, that he found it neceſſary to think of a retreat, as it was impoſſible for him to winter in Perſia. For this reaſon he made no attempt on Cteſiphon, but began to march back along the banks of the Tigris, ſoon after he had paſſed that river. In the mean time the king of Perſia was aſſembling a formidable army, with a deſign to fall upon the Romans in their march; but being deſirous of putting an end to ſo deſtructive a war, he ſent very advantageous propoſals of peace to Julian. Theſe the Roman emperor very imprudently rejected; and ſoon after, deceived by treacherous guides, he quitted the river, and entered into an unknown country totally laid waſte by the enemy, and where he was continually haraſſed, by ſtrong parties, who in a manner ſurrounded his army, and attacked him ſometimes in the front, and ſometimes in the rear. A ſtill worſe ſtep he was perſuaded to take by the treacherous guides already mentioned; and this was to burn his fleet, leſt it ſhould fall into the hands of the enemy. As ſoon as the fleet was ſet on fire, the whole army cried out, that the emperor was betrayed, and that the guides were traitors employed by the enemy. Julian ordered them immediately to be put to the rack, upon which they confeſſed the treaſon; but it was too late. The fleet was already in flames; they could by no means be extinguiſhed; and no part was ſaved except 12 veſſels, which were deſigned to be made uſe of in the building of bridges, and for this purpoſe were conveyed over land in waggons.

The emperor thus finding himſelf in a ſtrange country, and his army greatly diſpirited, called a council of his chief officers, in which it was reſolved to proceed to Corduene, which lay ſouth of Armenia, and belonged to the Romans. With this view, they had not proceeded far when they were met by the king of Perſia, at the head of a very numerous army, attended by his two ſons, and all the principal nobility of the kingdom. Several ſharp encounters happened, in which, though the Perſians were always defeated, yet the Romans reaped no advantages from their victories, but were reduced to the laſt extremity for want of proviſions.

66 Is mortally wounded in a ſudden attack by the Perſians.

In one of theſe ſkirmiſhes, when the Romans were ſuddenly attacked, the emperor, eager to repulſe the enemy, haſtened to the field of battle without his armour, when he received a mortal wound by a dart, which, through his arm and ſide, pierced his very liver. Of this wound he died the ſame night, the 26th of June 363, in the 32d year of his age, after having reigned ſcarce 20 months from the time he became ſole maſter of the Roman empire.

67 Jovian raiſed to the empire.

As Julian had declined naming any ſucceſſor, the choice of a new emperor devolved on the army. They unanimouſly choſe Jovian, a very able commander, whoſe father had lately reſigned the poſt of *comes domeſticorum*, in order to lead a retired life. The valour and experience of Jovian, however, were not ſufficient to extricate the Roman army from the difficulties in which they had been plunged by the imprudence of his predeceſſor. The famine raged in the camp to ſuch a degree, that not a ſingle man would have been left alive, had not the Perſians unexpectedly ſent propoſals of peace. Theſe were now received with the utmoſt joy.

68
Concludes a peace with the Perſians.

A peace was concluded for 30 years; the terms of which were, that Jovian ſhould reſtore to the Perſians the five provinces which had been taken from them in the reign of Diocleſian, with ſeveral caſtles, and the cities of Niſibis and Singara. After the concluſion of the treaty, Jovian purſued his march without moleſtation. When he arrived at Antioch, he revoked all the laws that had been made in the former reign againſt Chriſtianity and in favour of paganiſm. He eſpouſed alſo the cauſe of the orthodox Chriſtians againſt the Arians; and recalled all thoſe who had been formerly baniſhed, particularly Athanaſius, to whom he wrote a very obliging letter with his own hand. It is generally believed alſo that Athanaſius, at the deſire of Jovian, now compoſed the creed which ſtill goes by his name, and is ſubſcribed by all the biſhops in Europe. But this emperor did not live to make any great alterations, or even to viſit his capital as emperor; for in his way to Conſtantinople he was found dead in his bed, on the 16th or 17th of February 364, after he had lived 33 years, and reigned ſeven months and 40 days.

69
His death.

70
Valentinian choſen emperor, chooſes Valens for his partner.

After the death of Jovian, Valentinian was choſen emperor. Immediately on his acceſſion, the ſoldiers mutinied, and with great clamour required him to chooſe a partner in the ſovereignty. Though he did not inſtantly comply with their demand, yet in a few days he choſe his brother Valens for his partner; and, as the empire was threatened on all ſides with an invaſion of the barbarous nations, he thought proper to divide it. This famous partition was made at Mediana in Dacia; when Valens had for his ſhare the whole of Aſia, Egypt, and Trace; and Valentinian all the Weſt; that is, Illyricum, Italy, Gaul, Spain, Britain, and Africa.

71
Procopius revolts.

After this partition, Valens returned to Conſtantinople, where the beginning of his reign was diſturbed by the revolt of Procopius, a relation of Julian. On the death of that emperor, he had fled into Taurica Cherſoneſus for fear of Jovian; but not truſting the barbarians who inhabited that country, he returned in diſguiſe into the Roman territories, where having gained over an eunuch of great wealth, by name *Eugenius*, lately diſgraced by Valens, and ſome officers who commanded the troops ſent againſt the Goths, he got himſelf proclaimed emperor. At firſt he was joined only by the loweſt of the people, but at length he was acknowledged by the whole city of Conſtantinople. On the news of this revolt, Valens would have abdicated the ſovereignty, had he not been prevented by the importunities of his friends. He therefore diſpatched ſome troops againſt the uſurper; but theſe were gained over, and Procopius continued for ſome time to gain ground. It is probable he would finally have ſucceeded, had he not become ſo much elated with this good fortune, that he grew tyrannical and inſupportable to his own party.

72
Is defeated and put to death.

In conſequence of his alteration in his diſpoſition, he was firſt abandoned by ſome of his principal officers; and ſoon after defeated in battle, taken priſoner, and put to death.

73
War with the Goths.

This revolt produced a war betwixt Valens and the Goths. The latter, having been ſolicited by Procopius, and ſent 3000 men to his aſſiſtance. On hearing the news of the uſurper's death, they marched back; but Valens detached againſt them a body of troops, who took them all priſoners notwithſtanding the vigorous reſiſtance they made. Athanaric, king of the Goths, expoſtulated on this proceeding with Valens; but that emperor proving obſtinate, both parties prepared for war. In 367 and 369, Valens gained great advantages over his enemies; and obliged them to ſue for peace, which was concluded upon terms very advantageous to the Romans. The reſt of this reign contains nothing remarkable, except the cruelty with which Valens perſecuted the orthodox clergy.

74
Eighty orthodox clergy eccleſiaſtics put to death.

The latter ſent 80 of their number to him, in order to lay their complaints before him; but he, inſtead of giving them any relief, determined to put them all to death. But the perſon who was ordered to execute this ſentence, fearing leſt the public execution of ſo many eccleſiaſtics might raiſe diſturbances, ordered them all to be put on board a ſhip, pretending that the emperor had ordered them only to be ſent into baniſhment; but when the veſſel was at ſome diſtance from land, the mariners ſet fire to it, and made their own eſcape in the boat. The ſhip was driven by a ſtrong wind into an harbour, where it was conſumed and all that were in it.

75
Magicians perſecuted.

A perſecution was alſo commenced againſt magicians, or thoſe who had books of magic in their cuſtody. This occaſioned the deſtruction of many innocent perſons; for books of this kind were often conveyed into libraries unknown to the owners of them, and this was certainly followed by death and confiſcation of goods. Hereupon perſons of all ranks were ſeized with ſuch terror that they burnt their libraries, leſt books of magic ſhould have been ſecretly conveyed in amongſt the others. In 378, the Goths, whom Valens had admitted into Thrace, advanced from that province to Macedon and Theſſaly, where they committed dreadful ravages.

76
Valens defeated and killed by the Goths.

They afterwards blocked up the city of Conſtantinople, plundered the ſuburbs, and at laſt totally defeated and killed the emperor himſelf. The day after the battle, hearing that an immenſe treaſure was lodged in Adrianople, the barbarians laid ſiege to that place: but being quite ſtrangers to the art of beſieging towns, they were repulſed with great ſlaughter; upon which they dropped that enterpriſe, and returned before Conſtantinople. But here great numbers of them were cut in pieces by the Saracens, whom Maria their queen had ſent to the aſſiſtance of the Romans; ſo that they were obliged to abandon this deſign likewiſe, and retire from the neighbourhood of that city.

77
Gratian takes Theodoſius for his partner.

By the death of Valens, the empire once more fell into the hands of a ſingle perſon. This was Gratian, who had held the empire of the Weſt after the death of Valentinian. He repulſed many barbarous nations who threatened the empire at that time with diſſolution; but finding himſelf preſſed on all ſides, he ſoon reſolved to take a colleague, in order to eaſe him of ſome part of the burden. Accordingly, on the 19th of January 379, he declared Theodoſius his partner in the empire, and committed to his care all the provinces which had been governed by Valens.

Theodoſius is greatly extolled by the hiſtorians of thoſe ages on account of his extraordinary valour and piety; and for theſe qualifications has been honoured with the ſirname of *the Great*. From the many perſecuting laws, however, made in his time, it would ſeem that his piety was at leaſt very much miſguided; and that if he was naturally of a human and compaſſionate diſpoſition, ſuperſtition and paſſion had often totally obſcured it. He certainly was a man of great conduct and experience in war, and indeed the preſent ſtate of the empire called for an exertion of all his abilities. The provinces of Dacia, Thrace, and Illyricum, were already loſt; the Goths, Taifali, Alans, and Huns, were maſters of the greateſt part of theſe provinces, and had ravaged and laid waſte the reſt. The Iberians, Armenians, and Perſians, were likewiſe up in arms, and ready to take advantage of the diſtracted ſtate of the empire. The few ſoldiers, who had ſurvived the late defeat, kept within the ſtrong holds of Thrace, without daring ſo much as to look abroad, much leſs face the victorious enemy, who moved about the country in great bodies. But notwithſtanding this critical ſituation, the hiſtorians of thoſe times give us no account of the tranſactions of the year 379. Many great battles indeed are ſaid to have been fought, and as many victories obtained by Theodoſius; but the accounts of theſe are ſo confuſed and contradictory, that no ſtreſs can be laid upon them.

87
Miſerable ſtate of the empire on his acceſſion.

In the month of February 380, Theodoſius was ſeized with a dangerous malady, ſo that Gratian found himſelf obliged to carry on the war alone. This emperor, apprehending that the neighbouring barbarians might break into ſome of the provinces, concluded a peace with the Goths, which was confirmed by Theodoſius on his recovery. The treaty was very advantageous to the barbarians; but they, diſregarding all their engagements, no ſooner heard that Gratian had left Illyricum, than they paſſed the Danube, and breaking into Thrace and Pannonia, advanced as far as Macedon, deſtroying all with fire and ſword. Theodoſius, however, drawing together his forces, marched againſt them; and, according to the moſt reſpectable authorities, gained a complete victory; though Zoſimus relates, that he was utterly defeated.

79
The Goths defeated by Theodoſius.

The following year, Athanaric, the moſt powerful of all the Gothic princes, being driven out by a faction at home, recurred to Theodoſius, by whom he was received with great tokens of friendſhip. The emperor himſelf went out to meet him, and attended him with his numerous retinue into the city. The Gothic prince died the ſame year; and Theodoſius cauſed him to be buried after the Roman manner with ſuch pomp and ſolemnity, that the Goths, who attended him in his flight, returned home with a reſolution never to moleſt the Romans any more. Nay, out of gratitude to the emperor, they took upon them to guard the banks of the Danube, and prevent the empire from being invaded on that ſide.

80
Gratian murdered by Maximus,

In 383, one Maximus revolted againſt Gratian in Britain; and in the end, having got the unhappy emperor into his power, cauſed him to be put to death, and aſſumed the empire of the Weſt himſelf. Gratian had divided his dominions with his brother Valentinian, whom he allowed to reign in Italy and Weſt Illyricum, reſerving the reſt to himſelf. Maximus therefore, immediately after his uſurpation, ſent deputies to Theodoſius, aſſuring him that he had no deſigns on the dominions of Valentinian. As Theodoſius at that time found himſelf in danger from the barbarians, he not only forbore to attack Maximus after this declaration, but even acknowledged him for his partner in the empire. It was not long, however, before the ambition of the uſurper prompted him to break his promiſe. In 387, he paſſed the Alps on a ſudden; and meeting with no oppoſition, marched to Milan where Valentinian uſually reſided. The young prince fled firſt to Aquileia; and from thence to Theſſalonica, to implore the protection of Theodoſius. The latter, in anſwer to Valentinian's letter, informed him, that he was not at all ſurpriſed at the progreſs Maximus had made, becauſe the uſurper had protected, and Valentinian had perſecuted, the orthodox Chriſtians. At laſt he prevailed on the young prince to renounce the Arian hereſy which he had hitherto maintained; after which Theodoſius promiſed to aſſiſt him with all the forces of the Eaſt. At firſt, however, he ſent meſſengers to Maximus, earneſtly exhorting him to reſtore the provinces he had taken from Valentinian, and content himſelf with Gaul, Spain, and Britain. But the uſurper would hearken to no terms. This very year he beſieged and took Aquileia, Quaderna, Bononia, Mutina, Rhegium, Placentia, and many other cities in Italy. The following year he was acknowledged in Rome, and in all the provinces of Africa. Theodoſius, therefore, finding a war inevitable, ſpent the remaining months of this and the beginning of the following year in making the neceſſary preparations. His army conſiſted chiefly of Goths, Huns, Alans, and other barbarians, whom he was glad to take into the ſervice in order to prevent their raiſing diſturbances on the frontiers. He defeated Maximus in two battles, took him priſoner, and put him to death. The uſurper had left his ſon Victor, whom he created Auguſtus, in Gaul, to awe the inhabitants in his abſence. Againſt him the emperor diſpatched Arbogaſtes, who took him priſoner after having diſperſed the troops that attended him, and put him to death. The victory was uſed afterwards by Theodoſius with great clemency and moderation.

81
Who invades the dominions of Valentinian.

82
His ſucceſs.

83
Defeated and put to death by Theodoſius.

84
The temples in Alexandria, and throughout all Egypt, deſtroyed.

In 389, Theodoſius took a journey to Rome; and, according to Prudentius, at this time converted the ſenate and people from idolatry to Chriſtianity. The next year was remarkable for the deſtruction of the celebrated temple of Serapis in Alexandria; which, according to the deſcription of Ammianus Marcellinus, ſurpaſſed all others in the world, that of Jupiter Capitolinus alone excepted. The reaſon of its being now deſtroyed was as follows. Theophilus, biſhop of Alexandria, having begged and obtained of the emperor an old temple, formerly conſecrated to Bacchus, but then ruined and forſaken, with a deſign to convert it into a church, the workmen found among the rubbiſh ſeveral obſcene figures, which the biſhop, to ridicule the ſuperſtition of the Heathens, cauſed to be expoſed to public view. This provoked the Pagans to ſuch a degree, that they flew to arms; and falling unexpectedly upon the Chriſtians, cut great numbers of them in pieces. The latter, however, ſoon took arms in their own defence; and being ſupported by the few ſoldiers who were quartered in the city, began to repel force by force. Thus a civil war was kindled and no day paſſed without ſome encounter. The Pagans uſed to retire to the temple of Serapis: and thence ſallying out unexpectedly ſeized on ſuch Chriſtians as they met, and, dragging them into the temple, either forced them by the moſt exquiſite torments to ſacrifice to their idol, or, if they refuſed, racked them to death. As they ſoon expected to be attacked by the emperor's troops, they choſe a philoſopher named *Olympus* for their leader, with a deſign to defend themſelves to the laſt extremity. The emperor, however, would not ſuffer any puniſhment to be inflicted upon them for the lives of thoſe they had taken away, but readily forgave them: however, he ordered all the temples of Alexandria to be immediately pulled down, and commanded the biſhop to ſee his orders put in execution. The Pagans no ſooner heard that the emperor was acquainted with their proceedings than they abandoned the temple, which was in a ſhort time deſtroyed by Theophilus; nothing being left except the foundations, which could not be removed on account of the extraordinary weight and ſize of the ſtones. Not ſatisfied with the deſtruction of the Alexandrian temples, the zealous biſhop encouraged the people to pull down all the other temples, oratories, chapels, and places ſet apart for the worſhip of the heathen gods throughout Egypt, and the ſtatues of the gods themſelves to be either burnt or melted down. Of the innumerable ſtatues which at that time were to be found in Egypt, he is ſaid to have ſpared but one, *viz.* that of an ape, in order to expoſe the Pagan religion to ridicule. On his return to Conſtantinople, Theodoſius ordered ſuch temples as were yet ſtanding to be thrown down, and the Arians to be every where driven out of the cities.

85 Valentinian murdered by Arbogaſtes, who raiſes Eugenius to the empire.

In 392 Valentinian, emperor of the Weſt, was treacherouſly murdered by Arbogaſtes his general; who, though he might afterwards have eaſily ſeized on the ſovereignty himſelf, choſe to confer it upon one Eugenius, and to reign in his name. This new uſurper, though a Chriſtian, was greatly favoured by the Pagans, who were well apprized that he only bore the title of emperor, while the whole power lodged in Arbogaſtes, who pretended to be greatly attached to their religion. The aruſpices began to appear anew, and informed him that he was deſtined to the empire of the whole world; that he would ſoon gain a complete victory over Theodoſius, who was as much hated as Eugenius was beloved by the gods, &c. But though Eugenius ſeemed to favour the Pagans, yet in the very beginning of his reign he wrote to St Ambroſe. The holy man did not anſwer his letter till he was preſſed by ſome friends to recommend them to the new prince; and then he wrote to this infamous uſurper with all the reſpect due to an emperor. Soon after his acceſſion to the empire, Eugenius ſent deputies to Theodoſius; and they are ſaid to have been received by him in a very obliging manner. He did not, however, intend to enter into any alliance with this uſurper, but immediately began his military preparations. In 394, he ſet out from Conſtantinople, and was at Adrianople on the 15th of June that year. He bent his march through Dacia, and the other provinces between Thrace and the Julian Alps, with a deſign to force the paſſes of theſe mountains, and break into Italy before the army of Eugenius was in a condition to oppoſe him. On his arrival at the Alps, he found theſe paſſes guarded by Flavianus prefect of Italy, at the head of a conſiderable body of Roman troops. Theſe were utterly defeated by Theodoſius, who thereupon croſſed the Alps and advanced into Italy. He was ſoon met by Eugenius; and a bloody battle enſued, without any deciſive advantage on either ſide. The next day the emperor led his troops in perſon againſt the enemy, utterly defeated them, and took their camp.

86 Eugenius defeated, taken priſoner, and put to death.

Eugenius was taken priſoner by his own men, and brought to Theodoſius, who reproached him with the murder of Valentinian, with the calamities he had brought on the empire by his unjuſt uſurpation, and with putting his confidence in Hercules, and not in the true God; for on his chief ſtandard he had diſplayed the image of that fabulous hero. Eugenius begged earneſtly for his life; but while he lay proſtrate at the emperor's feet, his own ſoldiers cut off his head, and carrying it about on the point of a ſpear, ſhowed it to thoſe in the camp, who had not yet ſubmitted to Theodoſius. At this they were all thunderſtruck; but being informed that Theodoſius was ready to receive them into favour, they threw down their arms and ſubmitted.

87 Arbogaſtes lays violent hands on himſelf.

After this, Arbogaſtes, deſpairing of pardon, fled to the mountains; but being informed that diligent ſearch was made for him, he laid violent hands on himſelf. His children, and thoſe of Eugenius, took ſanctuary in churches; but the emperor not only pardoned, but took the opportunity of converting them to Chriſtianity, reſtored to them their paternal eſtates, and raiſed them to conſiderable employments in the ſtate. Soon after this, Theodoſius appointed his ſon Honorius emperor of the Weſt, aſſigning him for his ſhare Italy, Gaul, Spain, Africa, and Weſt Illyricum.

88 Theodoſius dies.

The next year, as he prepared for his return to Conſtantinople, he was ſeized with a dropſy, owing to the great fatigues he had undergone during the war. As ſoon as he perceived himſelf to be in danger, he made his will; by which he bequeathed the empire of the Eaſt to Arcadius, and confirmed Honorius in the poſſeſſion of the Weſt. He likewiſe confirmed the pardon which he had granted to all thoſe who had borne arms againſt him, and remitted a tribute which had proved very burdenſome to the people; and charged his two ſons to ſee theſe points of his will executed. He died at Milan on the 17th of January 395, in the 16th of his reign and 50th of his age.

89 Empire uſurped by Baſiliſcus.

From the time of Theodoſius to the time when the Roman empire in the Weſt was totally deſtroyed by the Goths, we find but very little remarkable in the hiſtory of Conſtantinople. At this time the eaſtern empire was uſurped by Baſiliſcus, who had driven out Zeno the lawful emperor; being aſſiſted in his conſpiracy by the empreſs Verina his ſiſter. Zeno fled into Iſauria, whither he was purſued by Illus and Trecondes, two of the uſurper's generals; who having eaſily defeated the few troops he had with him, forced the unhappy prince to ſhut himſelf up in a caſtle, which they immediately inveſted. But in a ſhort time Baſiliſcus having diſobliged the people by his cruelty, avarice, and other bad qualities, for which he was no leſs remarkable than his predeceſſor had been, his generals joined with Zeno, whom they reſtored to the throne. After his reſtoration, Zeno, having got Baſiliſcus into his power, confined him in a caſtle of Cappadocia together with his wife Zenonides, where they both

90 Is ſtarved to death.

91 Great fire at Conſtantinople.

periſhed with hunger and cold. This happened in the year 467, after Baſiliſcus had reigned about 20 months. During the time of this uſurpation a dreadful fire happened at Conſtantinople, which conſumed great part of the city, with the library containing 120,000 volumes; among which were the works of Homer, written, as is ſaid, on the great gut of a dragon 120 feet long.

The misfortunes which Zeno had undergone did not work any reformation upon him. He ſtill continued the ſame vicious courſes which had given occaſion to the uſurpation of Baſiliſcus. Other conſpiracies were formed againſt him, but he had the good fortune to eſcape them. He engaged in a war with the Oſtrogoths, in which he proved unſucceſsful, and was obliged to yield the provinces of Lower Dacia and Mœſia to them. In a ſhort time, however, Theodoric their king made an irruption into Thrace, and advanced within 15 miles of Conſtantinople, with a deſign to beſiege that capital: but the following year, 485, they retired in order to attack Odoacer king of Italy; of which country Theodoric was proclaimed king in 493. The emperor Zeno died in the year 491, in the 65th year of his age, and 17th of his reign.

92 Decline of the Roman empire, to what owing.

The Roman empire had now for a long time been on the decline: the ancient valour and military diſcipline which had for ſuch a long time rendered the Romans ſuperior to other nations, had greatly degenerated; ſo that they were now by no means ſo powerful as formerly. The tumults and diſorders which had happened in the empire from time to time by the many uſurpations, had contributed alſo to weaken it very much. But what proved of the greateſt detriment was the allowing vaſt ſwarms of barbarians to ſettle in the different provinces, and to ſerve in the Roman empire in ſeparate and independent bodies. This had proved the immediate cauſe of the diſſolution of the weſtern empire; but as it affected the eaſtern parts leſs, the Conſtantinopolitan empire continued for upwards of 900 years after the weſtern one was totally diſſolved. The weak and imprudent adminiſtration of Zeno, and Anaſtaſius who ſucceeded him, had reduced the eaſtern empire ſtill more; and it might poſſibly have expired in a ſhort time after the weſtern one, had not the wiſe and vigorous conduct of Juſtin, and his partner Juſtinian, revived in ſome meaſure the ancient martial ſpirit which had originally raiſed the Roman empire to its higheſt pitch of grandeur.

93 It revives under Juſtin and Juſtinian.

Juſtin aſcended the throne in 518. In 521 he engaged in a war with the Perſians, who had all along been very formidable enemies to the Roman name. Againſt them he employed the famous Beliſarius: but of him we hear nothing remarkable till after the acceſſion of Juſtinian. This prince was the nephew of Juſtin, and was by him taken as his partner in the empire in 527; and the ſame year Juſtin died, in the 77th year of his age and 9th of his reign. Juſtinian being now ſole maſter of the empire, bent his whole force againſt the Perſians. The latter proved ſucceſsful in the firſt engagement; but were ſoon after utterly defeated by Beliſarius on the frontiers of Perſia, and likewiſe by another general named *Dorotheus* in Armenia. The war continued with various ſucceſs during the firſt five years of Juſtinian's reign. In the ſixth year a peace was concluded upon the following terms: 1. That the Roman emperor ſhould pay to Coſrhoes, the king of Perſia, 1000 pounds weight of gold. 2. That both princes ſhould reſtore the places they had taken during the wars. 3. That the commander of the Roman forces ſhould no longer reſide at Daras on the Perſian frontiers, but at a place called *Conſtantina* in Meſopotamia, as he had formerly done. 4. That the Iberians, who had ſided with the Romans, ſhould be at liberty to return to their own country or ſtay at Conſtantinople. This peace, concluded in 532, was ſtyled *eternal*; but in the event proved of very ſhort duration.

94 Juſtinian's war with the Perſians.

95 Great tumult in Conſtantinople.

About this time happened at Conſtantinople the greateſt tumult mentioned in hiſtory. It began among the different factions in the circus, but ended in an open rebellion. The multitude, highly diſſatisfied with the conduct of John the *præfectus prætorio*, and of Trebonianus then queſtor, forced Hypatius, nephew to the emperor Anaſtaſius, to accept the empire, and proclaimed him with great ſolemnity in the forum. As the two abovementioned miniſters were greatly abhorred by the populace on account of their avarice, Juſtinian immediately diſcharged them, hoping by that means to appeaſe the tumult: but this was ſo far from anſwering the purpoſe, that the multitude only grew the more outrageous upon it; and moſt of the ſenators joining them, the emperor was ſo much alarmed, that he had thoughts of abandoning the city and making his eſcape by ſea. In this dilemma the empreſs Theodora encouraged and perſuaded him rather to part with his life than the kingdom; and he at laſt reſolved to defend himſelf to the utmoſt, with the few ſenators who had not yet abandoned him. In the mean time, the rebels having attempted in vain to force the gates of the palace, carried Hypatius in triumph to the circus; where, while he was beholding the ſports from the imperial throne, amidſt the ſhouts and acclamations of the people, Beliſarius, who had been recalled from Perſia, entered the city with a conſiderable body of troops. Being then appriſed of the uſurpation of Hypatius, he marched ſtraight to the circus; fell ſword in hand upon the diſarmed multitude: and with the aſſiſtance of a band of Heruli, headed by Mundus governor of Illyricum, cut about 30,000 of them in pieces. Hypatius the uſurper, and Pompeius another of the nephews of Anaſtaſius, were taken priſoners and carried to the emperor, by whoſe orders they were both beheaded, and their bodies caſt into the ſea. Their eſtates were confiſcated, and likewiſe the eſtates of ſuch ſenators as had joined with them; but the emperor cauſed great part of their lands and effects to be afterwards reſtored, together with their honours and dignities, to their children.

Juſtinian having now no other enemy to contend with, turned his arms againſt the Vandals in Africa, and the Goths in Italy; both which provinces he recovered out of the hands of the barbarians *. But before his general Beliſarius had time to eſtabliſh fully the Roman power in Italy, he was recalled in order to carry on the war againſt Coſrhoes king of Perſia, who, in defiance of the treaty formerly concluded in 532, entered the Roman dominions at the head of a powerful army. The ſame year, however, a peace was concluded between the two nations upon the following conditions: 1. That the Romans ſhould, with-

96 Another war with the Perſians.

* See *Barbary* and *Goths*.

in two months, pay to the Perſian king 5000 pounds weight of gold, and an annual penſion of 500. 2. That the Perſians ſhould relinquiſh all claim to the fortreſs of Daras, and maintain a body of troops to guard the Caſpian gates, and prevent the barbarians from breaking into the empire. 3. That upon payment of the abovementioned ſum, Coſrhoes ſhould immediately withdraw his troops from the Roman dominions. The treaty being ſigned, and the ſtipulated ſum paid, Coſrhoes began to march back again; but by the way plundered ſeveral cities as if the war had ſtill continued. Hereupon Juſtinian reſolved to purſue the war with the utmoſt vigour; and for that purpoſe diſpatched Beliſarius into the eaſt. But ſoon after he was obliged to recal him in order to oppoſe the Goths who had gained great advantages in Italy after his departure.

97 Peace concluded.

The Perſian war was then carried on with indifferent ſucceſs till the year 558, when a peace was concluded upon the emperor again paying an immenſe ſum to the enemy. The ſame year the Huns, paſſing the Danube in the depth of winter, marched in two bodies directly for Conſtantinople; and laying waſte the countries through which they paſſed, came, without meeting the leaſt oppoſition, within 150 furlongs of the city. But Beliſarius marching out againſt them with an handful of men, put them to flight; the emperor, however, to prevent them from invading the empire anew, agreed to pay them an annual tribute, upon their promiſing to defend the empire againſt all other barbarians, and to ſerve in the Roman armies when required. This was the laſt exploit performed by Beliſarius, who on his return to Conſtantinople was diſgraced, ſtripped of all his employments, and confined to his houſe, on pretence of a conſpiracy againſt the emperor *. In the year 565 a real conſpiracy was formed againſt Juſtinian, which he happily eſcaped, and the conſpirators were executed; but the emperor did not long ſurvive it, being carried off by a natural death in 566, in the 39th year of his reign.

During the reign of Juſtinian, the majeſty of the Roman empire ſeemed to revive. He recovered the provinces of Italy and Africa out of the hands of the barbarians, by whom they had been held for a number of years;

98 Decline of the empire after Juſtinian.

but after his death they were ſoon loſt, and the empire tended faſt to diſſolution. In 569 Italy was conquered by the Lombards, who held it for the ſpace of 200 years. Some amends, however, was made for the loſs by the acquiſition of *Perſarmenia;* the inhabitants of which, being perſecuted by the Perſians on account of the Chriſtian religion which they profeſſed, revolted to the Romans. This produced a war between the two nations, who continued to weaken each other, till at laſt the Perſian monarchy was utterly overthrown, and that of the Romans greatly reduced by the Saracens †. Theſe new enemies attacked the Romans in the year 632, and purſued their conqueſts with incredible rapidity. In the ſpace of four years they reduced the provinces of Egypt, Syria, and Paleſtine. In 648 they were alſo maſters of Meſopotamia, Phœnicia, Africa, Cyprus, Aradus, and Rhodes; and having defeated the Roman fleet, commanded by the emperor Conſtans in perſon, they concluded a peace on condition of keeping the vaſt extent of territory they had ſeized, and paying for it 1000 nummi a-year.

An expedition againſt the Lombards was about this time undertaken, but with very little ſucceſs, a body of 20,000 Romans being almoſt entirely cut off by one of the Lombard generals.

99 Unſucceſsful expedition againſt the Lombards.

In 671 the Saracens ravaged ſeveral provinces, made a deſcent in Sicily, took and plundered the city of Syracuſe, and over-ran the whole iſland, deſtroying every thing with fire and ſword. In like manner they laid waſte Cilicia; and having paſſed the winter at Smyrna, they entered Thrace in the ſpring of the year 672, and laid ſiege to Conſtantinople itſelf.

100 Conſtantinople beſieged by the Saracens.

Here, however, they were repulſed with great loſs: but next ſpring they renewed their attempt, in which they met with the ſame bad ſucceſs; many of their ſhips being burnt by the *ſea-fire,* as it was called, becauſe it burnt under water: and in their return home their fleet was wrecked off the Scyllæan promontory. At laſt a peace was concluded for 30 years, on condition that the Saracens ſhould retain all the provinces they had ſeized; and that they ſhould pay to the emperor and his ſucceſſors 3000 pounds weight of gold, 50 ſlaves, and as many choice horſes.

101 Empire invaded by the Bulgarians.

This peace was ſcarce concluded, when the empire was invaded by a new enemy, who proved very troubleſome for a long time. Theſe were the Bulgarians; who breaking into Thrace, defeated the Roman army ſent againſt them, and ravaged the country far and wide. The emperor conſented to pay them an annual penſion, rather than continue a doubtful war; and allowed them to ſettle in Lower Mœſia, which from them was afterwards called *Bulgaria.* In 687, they were attacked by Juſtinian II. who entered their country without provocation, or regarding the treaties formerly concluded with them. But they falling ſuddenly upon him, drove him out of their country, and obliged him to reſtore the towns and captives he had taken. In 697, this emperor was depoſed; and in his exile fled to Trebelis king of the Bulgarians, by whom he was kindly entertained, and by whoſe means he was reſtored to his throne; but ſoon forgetting this favour, he invaded the country of the Bulgarians, with a deſign to wreſt from them thoſe provinces which he had yielded to them.

102 They defeat Juſtinian II.

He was attended in this expedition by no better ſucceſs than his ingratitude deſerved, his army being utterly defeated, and he himſelf obliged to make his eſcape in a light veſſel to Conſtantinople. The Bulgarians continued their inroads and ravages at different times, generally defeated the Romans who ventured to oppoſe them, till the year 800, the ſeventh of the reign of Nicephorus, when they ſurpriſed the city of Sardica, in Mœſia, and put the whole garriſon, conſiſting of 6000 men, to the ſword. The emperor marched againſt them with a conſiderable army: but the enemy retired at his approach; and he, inſtead of purſuing them, returned to Conſtantinople.

103 Their country cruelly ravaged by Nicephorus.

Two years after, he entered Bulgaria at the head of a powerful army, deſtroying every thing with fire and ſword. The king offered to conclude a peace with him upon honourable terms; but Nicephorus, rejecting his propoſals, continued to waſte the country, deſtroying the cities, and putting all the inhabitants, without diſtinction of ſex or age, to the ſword. The king was ſo much affected with theſe cruelties which were exerciſed on his ſubjects, that he ſent a ſecond embaſſy to Nicephorus, offering to conclude

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* See *Beliſarius,*

† See *Arabia.*

a peace with him upon any terms, provided he would quit his country. But Nicephorus diſmiſſing the ambaſſadors with ſcorn, the Bulgarian monarch attacked unexpectedly the Roman camp, forced it, and cut off almoſt the whole army, with the emperor himſelf, and a great number of patricians.

104
Who is cut off with his whole army.

His ſucceſſor Michael likewiſe engaged in war with the Bulgarians; but being utterly defeated, he was ſo grieved that he reſigned the empire. After this the Bulgarians continued to be very formidable enemies to the empire till the year 979, when they were attacked by Baſilius II.

105
Their country invaded by Baſilius II.

The Bulgarians were at that time governed by a king named *Samuel*; who having ravaged the Roman territories, as was the common practice of his nation, Baſilius ſent againſt him one Nicephorus Uranus at the head of a powerful army. Uranus, leaving his baggage at Lariſſa, reached by long marches the Sperchius, and encamped with his whole army over againſt the enemy, who lay on the oppoſite bank. As the river was greatly ſwelled with the heavy rains that had lately fallen, Samuel, not imagining the Romans would attempt to paſs it, ſuffered his troops to roam in large parties about the country in queſt of booty. But Uranus having at length found out a place where the river was fordable, paſſed it in the dead of the night without being perceived. He then fell upon the Bulgarians who were left in the camp, and lay for the moſt part aſleep: cut great numbers of them in pieces: took a great number of priſoners, with all their baggage; and made himſelf maſter of their camp. Samuel and his ſon were dangerouſly wounded; and would have been taken, had they not all that day concealed themſelves among the dead. The next night they ſtole away to the mountains of Ætola, and from thence made their eſcape into Bulgaria. The following year the emperor entered Bulgaria at the head of a numerous and well-diſciplined army; defeated Samuel in a pitched battle, and took ſeveral ſtrong cities. The emperor himſelf, however, at laſt, narrowly eſcaped being cut off with his whole army; being unexpectedly attacked by the Bulgarians in a narrow paſs. From this danger he was relieved by the arrival of Nicephorus Xiphias, governor of Philpopolis, with a conſiderable body of troops; who falling upon the enemies rear, put them to flight.

106
His monſtrous cruelty.

Baſilius purſued them cloſe; and having taken an incredible number of captives, cauſed their eyes to be pulled out, leaving to every hundred a guide with one eye, that he might conduct them to Samuel. This ſhocking ſpectacle ſo affected the unhappy king, that he fell into a deep ſwoon, and died two days after. The Roman emperor purſued his conqueſts, and in the ſpace of two years made himſelf maſter of moſt of the enemies' ſtrong holds.

107
The country ſubdued.

He defeated alſo the ſucceſſor of Samuel in ſeveral engagements; and having at laſt killed him in battle, the Bulgarians ſubmitted themſelves without reſerve. The vaſt treaſures of their princes were by Baſilius diſtributed among his ſoldiers by way of donative. Soon after, the widow of the late king, with her ſix daughters and three of her ſons, ſurrendered themſelves to the Roman emperor, by whom they were received with the utmoſt civility and reſpect. This obliging behaviour encouraged the three other ſons of the late king, and moſt of the princes of the blood, who had taken ſhelter in the mountains, to ſubmit, and throw themſelves on the emperor's mercy.

108
Ibatzes alone holds out.

Ibatzes, however, a perſon nearly allied to the royal family, who had diſtinguiſhed himſelf in a very eminent manner during the whole courſe of the war, refuſed to ſubmit, and fled to a ſteep and craggy mountain, with a deſign to defend himſelf there to the laſt extremity. Baſilius endeavoured to cauſe him ſubmit by fair means, but he equally deſpiſed both threats and promiſes.

109
He is taken by a ſtratagem.

At laſt Euſtathius Daphnomelus, whom Baſilius had lately appointed governor of Achridus, the chief city of Bulgaria, undertook to ſecure him by a moſt deſperate and improbable ſcheme. Without communicating his deſign to any, he repaired, with two perſons in whom he could confide, to the mountain on which Ibatzes had fortified himſelf. He hoped to paſs undiſcovered among the many ſtrangers who flocked thither to celebrate the approaching feaſt of the Virgin Mary, for whom Ibatzes had a particular veneration. In this he found himſelf miſtaken; for he was known by the guards, and carried before the prince. To him he pretended to have ſomething of importance to communicate; but as ſoon as Ibaztes had retired with him into a remote place, Daphnomelus threw himſelf ſuddenly upon him, and with the aſſiſtance of the two men whom he had brought with him, pulled out both his eyes, and got ſafe to an abandoned caſtle on the top of the hill. Here they were immediately ſurrounded by the troops of Ibatzes; but Daphnomelus exhorting them now to ſubmit to the emperor, by whom he aſſured them they would be well received, they congratulated Daphnomelus on his ſucceſs, and ſuffered him to conduct the unhappy Ibatzes a priſoner to Baſilius. The emperor was no leſs ſurpriſed than pleaſed at the ſucceſs of this bold attempt; and rewarded Daphnomelus with the government of Dyrrhachium, and all the rich moveables of his priſoner. After this, having accompliſhed the entire reduction of Bulgaria, he returned to Conſtantinople with an incredible number of captives; where he was received by the ſenate and people with all poſſible demonſtrations of joy.

All this time the Saracens had at intervals invaded the Roman dominions, and even attempted to make themſelves maſters of Conſtantinople. Their internal diviſions, however, rendered them now much leſs formidable enemies than they had formerly been; ſo that ſome provinces were even recovered for a time out of their hands; though the weak and diſtracted ſtate of the empire rendered it impoſſible to preſerve ſuch conqueſts.

110
The empire invaded by the Turks.

But in 1041, the empire was invaded by an enemy, not very powerful at that time indeed, but who by degrees gathered ſtrength ſufficient to overthrow both the Roman and Saracen empires. Theſe were the Turks;

111
Account of them.

who having quitted their ancient habitations in the neighbourhood of mount Caucaſus, and paſſed the Caſpian ſtraits, ſettled in Armenia Major, about the year 844. There they continued an unknown and deſpicable people, till the inteſtine wars of the Saracens gave them an opportunity of aggrandizing themſelves. About the year 1030, Mohammed the ſon of Sambrael ſultan of Perſia, not finding himſelf a match for Piſaris ſultan of Babylon, with whom he was at war, had recourſe to the Turks, who ſent him 3000 men under the command of one Tangrolipix, a leading man among them. By their aſſiſtance Mohammed defeated his adverſary; but when the Turks deſired leave to return home, he refuſed to part with them. Upon this they withdrew without his conſent to a neighbouring deſart; and being there joined by ſeveral diſcontented Perſians, began to make frequent inroads into the ſultan's territories. Againſt them Mohammed immediately diſpatched an army of 20,000 men; who, being ſurpriſed in the night, were utterly defeated by Tangrolipix. The fame of this victory drew multitudes to him from all parts; ſo that in a ſhort time Tangrolipix ſaw himſelf at the head of 50,000 men. Upon this Mohammed marched againſt them in perſon, but was thrown from his horſe in the beginning of the engagement, and killed by the fall; upon which his men threw down their arms, and ſubmitted to Tangrolipix.

After this victory the Turkiſh general made war upon the ſultan of Babylon: whom he at length ſlew, and annexed his dominions to his own. He then ſent his nephew, named *Cutlu-Moſes*, againſt the Arabians; **112 They defeat the Romans.** but by them he was defeated, and forced to fly towards Media. Through this province he was denied a paſſage by Stephen the Roman governor; upon which Cutlu-Moſes was obliged to force a paſſage by encountering the Roman army. Theſe he put to flight, took the governor himſelf priſoner, and without any further oppoſition reached the confines of Perſia, where he ſold Stephen for a ſlave. Returning from thence to Tangrolipix, he excuſed in the beſt manner he could, his defeat by the Arabians; but at the ſame time acquainted him with his victory over the Romans in Media, encouraging him to invade that fertile country, which he ſaid might be eaſily conquered, as it was inhabited by none but *women*, meaning the Romans. At that time Tangrolipix did not hearken to his advice, but marched againſt the Arabians at the head of a numerous army. He was, however, attended with no better ſucceſs than his nephew had been; and therefore began to reflect on what he had told him. Soon after he ſent Aſan his brother's ſon with an army **113 A Turkiſh army entirely cut off.** of 20,000 men to reduce Media. Purſuant to his orders, the young prince entered that country, and committed every where dreadful ravages: but being in the end drawn into an ambuſh by the Roman generals, **114 They again invade the empire.** he was cut off with his whole army. Tangrolipix, no way diſcouraged by this misfortune, ſent a new army into Media near 100,000 ſtrong; who after having ravaged the country without oppoſition, laid ſiege to Artza a place of great trade, and therefore reckoned the moſt wealthy in thoſe parts. Not being able to reduce it by any other means, they ſet it on fire; and thus in a ſhort time it was utterly deſtroyed: the buildings being reduced to aſhes, and 150,000 of the inhabitants periſhing either by the flames or the ſword. After this Abraham Halim, half brother to Tangrolipix, hearing that the Romans, reinforced with a body of troops under the command of Liparites governor of Iberia, had taken the field, marched againſt them, **115 An obſtinate engagement.** and offered them battle; which they not declining, the two armies engaged with incredible fury. The victory continued long doubtful; but at length inclined to the Romans; who nevertheleſs did not think proper to purſue the fugitives, as their general Liparites was taken priſoner. The emperor, greatly concerned for the captivity of Liparites, diſpatched ambaſſadors with rich preſents, and a large ſum of money to redeem him, and at the ſame time to conclude an alliance with Tangrolipix. The ſultan received the preſents; but generouſly returned them together with the money to Liparites, whom he ſet at liberty without any ranſom: only requiring him, at his departure, never more to bear arms againſt the Turks. Not long after, Tangrolipix ſent a perſon of great authority among the Turks, with the character of ambaſſador, to Conſtantinople; who having arrogantly exhorted the emperor to ſubmit to his maſter, and acknowledge himſelf his tributary, was ignominiouſly driven out of the city,

Tangrolipix, highly affronted at the reception his ambaſſador had met with, entered Iberia while the emperor Conſtantine Monomachus was engaged in a war with the Patzinacæ, a Scythian nation. Having ravaged that country, he returned from thence to Media **116 The Turks beſiege Mantzichierta.** and laid ſiege to Mantzichierta, a place defended by a numerous garriſon, and fortified with a triple wall and deep ditches. However, as it was ſituated in an open plain country, he hoped to be maſter of it in a ſhort time. But finding the beſieged determined to defend themſelves to the laſt extremity, he reſolved to raiſe the ſiege, after he had continued it 30 days. One of his officers, however, named *Alcan*, prevailed on him to continue it but one day longer, and to commit the management of the attacks to him. This being granted, Alcan diſpoſed his men with ſuch ſkill, and ſo encouraged them by his example, that notwithſtanding the vigorous oppoſition they met with, the place would have probably been taken, had not Alcan been ſlain as he was mounting the wall. The beſieged, knowing him by the richneſs of his armour, drew him by the hair into the city, and cutting off his head threw it over the wall among the enemy: which ſo diſheartened them, that they gave over the aſſault and retired. **117 The ſiege raiſed.** The next ſpring Tangrolipix returned, and ravaged Iberia with the utmoſt cruelty, ſparing neither ſex nor age. But on the approach of the Roman army he retired to Tauris, leaving 30,000 men behind him to infeſt the frontiers of the empire. This they did with great ſucceſs, the borders being through the avarice of Monomachus unguarded. Till the time of this emperor, the provinces bordering on the countries of the barbarians had maintained, at their own charge, forces to defend them; and were on that account exempted from paying tribute: but as Monomachus exacted from them the ſame ſums that were paid by others, they were no longer in a condition to defend themſelves.

In 1063 died the emperor Conſtantine Ducas, having left the empire to his three ſons, Michael, Andronicus, and Conſtantine: but as they were all very young, **118 The empreſs Eudocia forced to ſwear that ſhe will never marry.** he appointed the empreſs Eudocia regent during their minority, after having required of her an oath never to marry; which oath was with great ſolemnity lodged in the hands of the patriarch. He likewiſe obliged the ſenators ſolemnly to ſwear that they would acknowledge none for their ſovereign but his three ſons. No ſooner, however was he dead, than the Turks, hearing that the empire was governed by a woman, broke into Meſopotamia, Cilicia, and Cappadocia, deſtroying all with fire and ſword. The empreſs was no way in a condition to oppoſe them, the greater part of the army having been diſbanded in her huſband's life-time, and the troops that were ſtill on foot being undiſciplined, and altogether unfit for ſervice. The concern which this gave the empreſs was aggravated by the ſeditious ſpeeches of a diſcontented party at home, who repeated on all occaſions that the preſent ſtate of affairs required a man of courage and addreſs at the helm, inſtead of a weak and helpleſs woman; and as they imagined the empreſs would never think of marrying, in conſequence of the oath ſhe had taken, they hoped by theſe ſpeeches to induce the people to revolt, and chooſe a new emperor.

119 The empreſs determines to break her oath.

This Eudocia was aware of; and therefore determined to prevent the evils that threatened herſelf and her family, by marrying ſome perſon of merit who was capable of defeating their enemies both at home and abroad. At this time one Romanus Diogenes, a perſon of a moſt beautiful aſpect, extraordinary parts, and illuſtrious birth, being accuſed of aſpiring to the empire, tried, and convicted, was brought forth to receive ſentence of death. But the empreſs, touched with compaſſion at his appearance, gently upbraided him with his ambition, ſet him at liberty, and ſoon after appointed him commander in chief of all her forces.

120 She recovers the writing in which it was contained,

In this ſtation he acquitted himſelf ſo well, that the empreſs reſolved to marry him if ſhe could but recover the writing in which her oath was contained out of the hands of the patriarch. In order to this, ſhe applied to a favourite eunuch; who going to the patriarch, told him, that the empreſs was ſo taken with his nephew named *Bardas*, that ſhe was determined to marry and raiſe him to the empire, provided the patriarch, abſolved her from the oath ſhe had taken, and convinced the ſenate of the lawfulneſs of her marriage. The patriarch, dazzled with the proſpect of his nephew's promotion, readily undertook to perform both. He firſt obtained the conſent of the ſenate by repreſenting to them the dangerous ſtate of the empire, and exclaiming againſt the raſh oath which the jealouſy of the late emperor had extorted from the empreſs. He then publicly diſcharged her from it; reſtored the writing to her; and exhorted her to marry ſome deſerving object, who being entruſted with an abſolute authority, might be capable of defending the empire.

121 And marries Romanus Diogenes.

The empreſs, thus diſcharged from her oath, married a few days after Romanus Diogenes; who was thereupon proclaimed emperor, to the great diſappointment of the patriarch.

As the new emperor was a man of great activity and experience in war, he no ſooner ſaw himſelf veſted with the ſovereign power, than he took upon him the command of the army, and paſſed over into Aſia with the few forces he could aſſemble,

122 He paſſes over into Aſia.

recruiting and inuring them on his march to military diſcipline, which had been utterly neglected in the preceding reigns. On his arrival in this continent, he was informed that the Turks had ſurpriſed and plundered the city of Neocæſarea, and were retiring with their booty.

123 He defeats the Turks.

On this news he haſtened after them at the head of a choſen body of light armed troops, and came up with them on the third day. As the Turks were marching in diſorder, without the leaſt apprehenſion of an enemy, Romanus cut great numbers of them in pieces, and eaſily recovered the booty; after which he purſued his march to Aleppo, which he retook from them, together with Hierapolis, where he built a ſtrong caſtle.

124 Gains a ſecond victory.

As he was returning to join the forces he had left behind him, he was met by a numerous body of Turks, who attempted to cut off his retreat. At firſt he pretended to decline an engagement through fear; but attacked them afterwards with ſuch vigour when they leaſt expected it, that he put them to flight at the firſt onſet, and might have gained a complete victory had he thought proper to purſue them. After this, ſeveral towns ſubmitted to him; but the ſeaſon being now far ſpent, the emperor returned to Conſtantinople. The following year he paſſed over into Aſia early in the ſpring; and being informed that the Turks had ſacked the rich city of Iconium, beſides gaining other conſiderable advantages, he marched in perſon againſt them. But the Turks, not thinking it adviſable to wait his coming, retired in great haſte.

125 They are again defeated.

The Armenians, however, encouraged by the approach of the emperor's army, fell upon the enemy in the plains of Tarſus, put them to flight, and ſtripped them both of their baggage and the booty they had taken. The ſpring following the emperor once more entered Aſia at the head of a conſiderable army which he had raiſed, and with incredible pains diſciplined during the winter. When the two armies drew near to each other, Axan, the Turkiſh Sultan, and ſon of the famous Tangrolipix, ſent propoſals to Romanus for a laſting and honourable peace.

126 The Romans defeated and the emperor taken.

Theſe were imprudently rejected, and a deſperate engagement enſued, when, in ſpite of the utmoſt efforts of the emperor, his army was routed, and he himſelf wounded and taken priſoner. When this news was brought to Axan, he could ſcarcely believe it; but being convinced by the appearance of the royal captive in his preſence, he tenderly embraced him, and addreſſed him in an affectionate manner: "Grieve not (ſaid he), moſt noble emperor, at your misfortune; for ſuch is the chance of war, ſometimes overwhelming one, and ſometimes another: you ſhall have no occaſion to complain of your captivity; for I will not uſe you as my priſoner, but as an emperor." The Turk was as good as his word. He lodged the emperor in a royal pavilion; aſſigned him attendants, with an equipage ſuitable to his quality; and diſcharged ſuch priſoners as he deſired. After he had for ſome days entertained his royal captive with extraordinary magnificence, a perpetual peace was concluded betwixt them, and the emperor diſmiſſed with the greateſt marks of honour imaginable. He then ſet out with the Turkiſh ambaſſador for Conſtantinople, where the peace was to be ratified; but by the way he was informed that Eudocia had been driven from the throne by John the brother of Conſtantine Ducas, and Pſellus a leading man in the ſenate, who had confined her to a monaſtery, and proclaimed her eldeſt ſon, Michael Ducas, emperor.

127 Eudocia depoſed and confined in a monaſtery.

On this intelligence, Romanus retired to a ſtrong caſtle near Theodoſiopolis, where he hoped in a ſhort time to be joined by great numbers of his friends and adherents. But in the mean time John, who had taken upon him to act as guardian to the young prince, diſpatched Andronicus with a conſiderable army againſt him. Andronicus having eaſily defeated

Conſtantinopolitan hiſtory.

128
Romanus put to death.

feated the ſmall army which Romanus had with him, obliged him to fly to Adana a city in Cilicia, where he was cloſely beſieged, and at laſt obliged to ſurrender. Andronicus carried his priſoner into Phrygia, where he fell dangerouſly ill, being as was ſuſpected, ſecretly poiſoned. But the poiſon being too ſlow in its operation, John ordered his eyes to be put out; which was done with ſuch cruelty that he died ſoon after in the year 1067, having reigned three years and eight months.

129
The Turks again invade the empire.

130
They defeat the Romans.

Axan was no ſooner informed of the tragical end of his friend and ally; than he reſolved to invade the empire anew; and that not with a deſign only to plunder as formerly, but to conquer, and keep what he had once conquered. The emperor diſpatched againſt him Iſaac Comnenus, with a conſiderable army; but he was utterly defeated and taken priſoner by Axan. Another army was quickly ſent off under the command of John Ducas the emperor's uncle. He gained at firſt ſome advantages, and would probably have put a ſtop to their conqueſts, had not one Ruſelius, or Urſelius, revolted with the troops he had under his command, cauſed himſelf to be proclaimed emperor, and reduced ſeveral cities in Phrygia and Cappadocia. Againſt him John marched with all his forces, ſuffering the Turks in the mean time to purſue their conqueſts: but coming to an engagement with the rebels, his army was entirely defeated and he himſelf taken priſoner. Notwithſtanding this victory, Reſelius was ſo much alarmed at the progreſs of the Turks, that he not only releaſed his priſoner, but joined with him againſt the common enemy, by whom they were both defeated and taken priſoners. Axan, however, was for ſome time prevented from purſuing his conqueſts by Cutlu-Moſes, nephew to the late Tangrolipix. He had revolted againſt his uncle; but being defeated by him in a pitched battle, had taken refuge in Arabia, whence he now returned at the head of a conſiderable army, in order to diſpute the ſovereignty with Axan. But while the two armies were preparing to engage, the kalif of Babylon, who was ſtill looked upon as the ſucceſſor of the great prophet, interpoſed his authority. He repreſented the dangers of their inteſtine diſſenſions; and by his mediation, an agreement was as laſt concluded, on condition that Axan ſhould enjoy undiſturbed the monarchy lately left him by his father, and Cutlu-Moſes ſhould poſſeſs ſuch provinces of the Roman empire as he or his ſons ſhould in proceſs of time conquer.

131
They gain a ſecond victory.

132
They conquer ſeveral provinces.

After this agreement, both the Turkiſh princes turned their forces againſt the empire; and before the year 1077, made themſelves maſters of all Media, Lycaonia, Cappadocia, and Bithynia, fixing the capital city of their empire at Nice in the latter province. During all this time, the emperors of Conſtantinople, as well as their ſubjects, ſeemed to be in a manner infatuated. No notice was taken of the great progreſs made by theſe barbarians. The generals were ambitious only of ſeizing the tottering empire, which ſeemed ready to fall a prey to the Turks; and, after it was obtained, ſpent their time in oppreſſing their ſubjects, rather than in making any attempts to repulſe the enemy.

Conſtantinopolitan hiſtory.

133
Alexius Comnenus ſtops their progreſs.

At laſt Alexius Comnenus, having wreſted the empire from Nicephoru Botoniates, in 1077, began to prepare for oppoſing ſo formidable an enemy. But before he ſet out, as his ſoldiers had committed great outrages on his acceſſion to the empire, he reſolved to make confeſſion of his ſins, and do open penance for thoſe he had ſuffered his army to commit. Accordingly he appeared in the attire of a penitent before the patriarch and ſeveral other eccleſiaſtics, acknowledged himſelf guilty of the many diſorders that had been committed by his ſoldiers, and begged of the patriarch to impoſe upon him a penance ſuitable to the greatneſs of his crimes. The penance enjoined him and his adherents by the patriarch was to faſt, lie upon the ground, and practiſe ſeveral other auſterities for the ſpace of 40 days. This command was religiouſly obeyed, and the emperor then began to prepare for war with ſo much vigour, that Solyman, the Turkiſh ſultan, ſon and ſucceſſor to Cultu-Moſes, diſpatched ambaſſadors to Alexius with propoſals of peace. Theſe were at firſt rejected; but the emperor was at laſt glad to accept them on certain advice, that Robert Guiſchard, duke of Puglia and Calabria, was making great preparations againſt him in the Weſt.

134
Robert Guiſchard's expedition againſt the emperor.

135
He paſſes over into Epirus and beſieges Dyrrhachium.

To this expedition, Robert was incited by Michael Ducas. That prince had been depoſed by Nicephoru Botoniates, and towards the end of the uſurper's reign fled into the Weſt, where he was received by Robert, who was prevailed on to favour his cauſe. For this purpoſe, Robert made great Preparations; and theſe were continued even after the depoſition of Botoniates. He ſailed with all his forces from Brunduſium; and landing at Buthrotum in Epirus, made himſelf maſter of that place, while his ſon Bohemond with part of the army reduced Aulon, a celebrated port and city in the country now called *Albania*. From thence they advanced to Dyrrhachium, which they inveſted both by ſea and land; but met with a moſt vigorous oppoſition from George Paleologus, whom the emperor had entruſted with the defence of that important place. In ſpite of the utmoſt efforts of the enemy, this commander held out till the arrival of the Venetian fleet, by whom Robert's navy commanded by Bohemond was utterly defeated, the admiral himſelf having narrowly eſcaped being taken priſoner. After this victory, the Venetians landed without loſs of time, and being joined by Paleologus's men, fell upon Robert's troops with ſuch fury, that they deſtroyed their works, burnt their engines, and forced them back to their camp in great diſorder. As the Venetians were now maſters at ſea, the beſieged were ſupplied with plenty of proviſions, while a famine began to rage in the camp of the enemy; and this calamity was ſoon followed by a plague, which in the ſpace of three months is ſaid to have deſtroyed ten thouſand men. Nothwithſtanding all theſe diſaſters, however, Robert did not abandon the ſiege: having found means to ſupply his famiſhed troops with proviſions, he continued it with ſuch vigour, that the courage of the beſieged began at laſt to fail them; and Paleologus ſent repeated meſſages to the emperor, acquainting him that he would be obliged to ſurrender unleſs very ſpeedily aſſiſted. On this Alexius marched in perſon to the relief of the city, but was defeated with great loſs by Robert. The whole right wing of Alexius's army, finding themſelves hard preſſed by the enemy, fled to a church dedicated to St Michael, imagining they would there find themſelves in a place of ſafety; but the victorious army purſuing them, ſet fire to the church, which was burnt to aſhes with all who were in it. The emperor himſelf with great difficulty made his eſcape, leaving the enemy maſters of his camp and all his baggage.

136 The city ſurrenders.

Soon after this defeat, the city ſurrendered; and Alexius being deſtitute of reſources for carrying on the war, ſeized on the wealth of churches and monaſteries, which gave much offence to the clergy, and had like to have occaſioned great diſturbances in the Imperial city. At the ſame time, Alexius entering into an alliance with Henry emperor of Germany, perſuaded him to invade the dominions of Robert in Italy. At firſt Henry met with great ſucceſs; but was ſoon overcome, and driven out of that country by Robert. Bohemond, in the mean time, reduced ſeveral places in Illyricum; and, having defeated Alexius in two pitched battles, entered Theſſaly, and ſat down before Lariſſa. This place, being defended by an officer of great courage and experience in war, held out till the emperor came to its relief. Soon after his arrival he found means to draw a ſtrong party of Bohemond's men into an ambuſcade, and cut them off almoſt entirely. However, in the battle which was fought a few days after, Bohemond had the advantage; but his troops mutinying and refuſing to carry on the war, he was obliged to return to Italy. Alexius taking advantage of his abſence, recovered ſeveral cities; and being informed that Robert was making great preparations againſt him, he had recourſe once more to the Venetians. By them he was aſſiſted with a powerful fleet, which defeated that of Robert in two engagements; but being ſoon after ſurpriſed by him, they were defeated with the loſs of almoſt their whole navy. Robert is ſaid to have uſed his victory with great barbarity, putting many of his priſoners to death with unheard-of torments. The Venetians equipped a ſecond fleet; and joining that of the emperor, fell unexpectedly upon Robert's navy, who were riding without the leaſt apprehenſion in Buthrotum, ſunk moſt of his ſhips, and took a great number of priſoners, his wife and younger ſons having narrowly eſcaped falling into their hands.

137 The war ended by the death of Robert.

Robert made great preparations to revenge this defeat; but was prevented by death from executing his deſigns: and, after his deceaſe, his ſon Roger did not think proper to purſue ſo dangerous and expenſive a war. He therefore recalled his troops, and the places which had been conquered by Robert and Bohemond ſubmitted anew to the emperor.

138 The Scythian war.

This war was ſcarce ended, when the Scythians paſſing the Danube laid waſte great part of Thrace, committing every where the greateſt barbarities. Againſt them the emperor diſpatched an army under the command of Pacurianus and Branas. The latter inſiſted upon engaging the enemy contrary to the opinion of his colleague; and his raſhneſs cauſed the loſs of the greater part of the army, who were cut off by the Scythians, together with the two generals. *Talicius*, an officer who had ſignalized himſelf on many occaſions, was appointed to command the army in their room. He fell upon the enemy as they lay ſecurely in the neighbourhood of Philippopolis, cut great numbers of them in pieces, and obliged the reſt to retire in great confuſion. The following ſpring, however, they returned in ſuch numbers, that the emperor reſolved to march againſt them in perſon. Accordingly he ſet out for Adrianople, and from thence to a place called *Lardea*.

139 The Romans defeated.

Here, contrary to the advice of his beſt officers, he ventured a battle; in which he was utterly defeated with the loſs of vaſt numbers of his men, he himſelf eſcaping with the utmoſt difficulty. The next year he was attended with no better ſucceſs, his army being entirely defeated with the loſs of his camp and baggage.

140 They at laſt defeat the Scythians.

In the year following, 1084, the emperor retrieved his credit; and gave the Scythians ſuch an overthrow, that very few eſcaped the general ſlaughter. Notwithſtanding this diſaſter, however, they again invaded the empire in 1093: To this they were encouraged by an impoſtor called *Leo*, who pretended to be the eldeſt ſon of Romanus Diogenes. The young prince had been ſlain in a battle with the Turks; but as the Scythians only wanted a pretence to renew the war, they received the impoſtor with joy. By a ſtratagem, however, Leo was murdered; and the Scythians being afterwards overthrown in three great battles, were obliged to ſubmit on the emperor's own terms.

141 The Holy War.

Since the year 1083, the war had been carried on with the Turks with various ſucceſs; but now an aſſociation was formed in the Weſt againſt theſe infidels, which threatened the utter ruin of the Turkiſh nation. This was occaſioned by the ſuperſtition of the Chriſtians, who thought it a meritorious action to venture their lives for the recovery of the Holy Land, poſſeſſed at that time by the Turks and Saracens. Had the weſtern princes been properly aſſiſted by the emperors of the Eaſt in this undertaking, the Turks had undoubtedly been unable to reſiſt them; but ſo far from this, the Latins were looked upon by them as no leſs enemies than the Turks; and indeed whatever places they took from the infidels, they never thought of reſtoring to the emperors of Conſtantinople, to whom they originally belonged, but erected a number of ſmall independent principalities; which neither having ſufficient ſtrength to defend themſelves, nor being properly ſupported by one another, ſoon became a prey to the Turks.

142 Dreadful fire at Conſtantinople.

In the year 1203, happened a dreadful fire at Conſtantinople, occaſioned by ſome Latin ſoldiers. Theſe had plundered a moſque, which the Turks reſiding in Conſtantinople had been ſuffered to build there. For this reaſon they were attacked by the infidels; who being much ſuperior to them in numbers, the Latins found themſelves obliged to ſet fire to ſome houſes, in order to make their eſcape with ſafety. The flame ſpreading in an inſtant from ſtreet to ſtreet, reduced in a ſhort time great part of the city to aſhes, with the capacious ſtore-houſes which had been built at a vaſt expence on the quay. The late emperor Iſaac Angelus, who had been reſtored to his throne by the Latins, died ſoon after their departure from Conſtantinople, leaving his ſon Alexius ſole maſter of the empire. The young prince, to diſcharge the large ſums he had promiſed to the French and Venetians for their aſſiſtance, was obliged to lay heavy taxes on his ſubjects; and this, with the great eſteem and friendſhip ſhowed to his deliverers. raiſed a general diſcontent among the people of Conſtantinople, who were ſworn enemies to the Latins. This encouraged John Ducas, ſurnamed *Murtzuphlus*, from his joined

143 Murtzuphlus ſtrangles the emperor.

144 The city plundered by the Latins.

and thick eye-brows, to attempt the ſovereignty. Unhappily he found means to put his treacherous deſigns in execution; and ſtrangled the young prince with his own hands. After this he preſented himſelf to the people; told them what he had done, which he pretended was in order to ſecure their liberties; and earneſtly intreated them to chooſe an emperor who had courage enough to defend them againſt the Latins, that were ready to oppreſs and enſlave them. On this he was inſtantly ſaluted emperor by the inconſtant multitude; but this uſurpation proved the ruin of the city. The Latins immediately reſolved to revenge the death of the young prince; and, as they had been ſo often betrayed and retarded in their expeditions to the Holy Land by the emperors of Conſtantinople, to make themſelves maſters of that city, and ſeize the empire for themſelves. In conſequence of this reſolution they muſtered all their forces in Aſia, and having croſſed the ſtraits, laid ſiege to Conſtantinople, by ſea and land. The tyrant, who was a man of great courage and experience in war, made a vigorous defence. The Latins, however, after having battered the walls for ſeveral days together with an incredible number of engines, gave a general aſſault on the 8th of April 1204. The attack laſted from break of day till three in the afternoon, when they were forced to retire, after having loſt ſome of their engines, and a great number of men. The aſſault was nevertheleſs renewed four days after; when, after a warm diſpute, the French planted their ſtandard on one of the towers; which the Venetians obſerving, they quickly made themſelves maſters of four other towers, where they likewiſe diſplayed their enſigns. In the mean time three of the gates being broke down by the battering rams, and thoſe who had ſcaled the walls having killed the guards, and opened the gates between the towers they had taken, the whole army entered, and drew up in battle array between the walls. The Greeks fled up and down in the greateſt confuſion; and ſeveral parties were by the Latins diſpatched to ſcour the ſtreets, who put all they met to the ſword, without diſtinction of age or condition. Night put a ſtop to the dreadful ſlaughter, when the princes ſounding the retreat, placed their men in different quarters of the city, with orders to be upon their guard, not doubting but they ſhould be attacked early next morning. They were ſurpriſed, however, at that time by the entire ſubmiſſion of the Greeks; to whom they promiſed their lives, but at the ſame time, ordering them to retire to their houſes, they gave up the city to be plundered by the ſoldiers for that day. They ſtrictly enjoined their men to abſtain from ſlaughter, to preſerve the honour of the women, and to bring the whole booty into one place, that a juſt diſtribution might be made according to the rank and merit of each individual. The Greeks had undoubtedly concealed their moſt valuable effects during the night; many perſons of the firſt rank had eſcaped, and carried along with them immenſe treaſures; the ſoldiers had probably, as is uſual in all ſuch caſes, reſerved things of great value for themſelves, notwithſtanding all prohibitions to the contrary; and yet the booty, without the ſtatues, pictures, and jewels, amounted to a ſum almoſt incredible. As for Murtzuphlus, he made his eſcape in the night; embarking on a ſmall veſſel with *Euphroſyne*, the wife of *Alexius Angelus* a late uſurper, and her daughter *Eudoxia*, for whoſe ſake he had abandoned his lawful wife.

145 The Latins expelled.

Conſtantinople continued ſubject to the Latins till the year 1261, when they were expelled by one *Alexius Strategopulus*. He was a perſon of an illuſtrious family; and, for his eminent ſervices, diſtinguiſhed with the title of *Cæſar*. He had been ſent againſt Alexius Angelus deſpot of Epirus, who now attempted to recover ſome places in Theſſaly and Greece from Michael Paleologus, one of the Greek emperors, that, ſince the capture of Conſtantinople, had kept their court at Nice; and to try whether he could on his march ſurpriſe the imperial city itſelf. Alexius, having paſſed theſt raits encamped at a place called *Rhegium*, where he was informed by the natives that a ſtrong body of the Latins had been ſent to the ſiege of *Daphnuſa*, that the garriſon was in great want of proviſions, and that it would be no difficult mattter to ſurpriſe the city. Hereupon the Greek general reſolved at all events to attempt it; in which he was encouraged by ſome of the inhabitants, who, coming privately to his camp, offered themſelves to be his guides. He approached the walls in the dead of the night, which ſome of his men ſcaled without being obſerved; and, killing the centries whom they found aſleep, opened one of the gates to the reſt of the army. The Greeks ruſhing in, put all they met to the ſword; and at the ſame time, to create more terror, ſet fire to the city in four different places. The Latins, concluding from thence that the enemy's forces were far more numerous than they really were, did not ſo much as attempt either to drive them out, or to extinguiſh the flames. In this general confuſion, the emperor Baldwin, quitting the enſigns of majeſty fled with Juſtinian the Latin patriarch, and ſome of his intimate friends, to the ſea-ſide; and there, embarking on a ſmall veſſel, ſailed firſt to Eubœa, and afterwards to Venice, leaving the Greeks in full poſſeſſion of Conſtantinople. When news of this ſurpriſing and altogether unexpected ſucceſs of Alexius were firſt brought to Paleologus, he could ſcarce give credit to it; but receiving ſoon after letters from Alexius himſelf, with a particular account of ſo memorable an event, he ordered public thanks to be returned in all the churches, appeared in public in his imperial robes, attended by the nobility in their beſt apparel, and ordered couriers to be diſpatched with the agreeable news into all parts of the empire.

146 Entry of Michael Paleologus into the city.

Soon after having ſettled his affairs at Nice, he ſet out for Conſtantinople with the empreſs, his ſon Andronicus, the ſenate, and nobility, to take poſſeſſion of the imperial city, and fix his reſidence in that place that had originally been deſigned for the ſeat of the eaſtern empire. Having paſſed the ſtraits, he advanced to the *golden gate*, and continued ſome days without the walls, while the citizens were buſied in making the neceſſary preparations to receive him with a magnificence ſuitable to the occaſion. On the day appointed, the golden gate, which had been long ſhut up, was opened, and the emperor entering it amidſt the repeated acclamations of the multitude, marched on foot to the great palace. He was preceded by the biſhop of *Cyzicus*, who carried an image of the Virgin Mary, ſuppoſed to have been done by St Luke, and fol-

147
He reſolves to reſtore it to its former grandeur.

followed by all the great officers, nobility, and chief citizens, pompouſly dreſſed. Public thanks were again returned in the church of St Sophia, at which the emperor aſſiſted in perſon, with the clergy, the ſenate, and nobility. Theſe exerciſes were ſucceeded by all ſorts of rejoicings; after which the emperor carefully ſurveyed the imperial city. This ſurvey greatly allayed his joy. He ſaw the ſtately palaces and other magnificent buildings of the Roman emperors lying in ruins; the many capacious buildings that had been erected by his predeceſſors, at an immenſe charge, deſtroyed by fire, and other unavoidable accidents of war; ſeveral ſtreets abandoned by the inhabitants, and choaked up with rubbiſh, &c. Theſe objects gave the emperor no ſmall concern, and kindled in him a deſire of reſtoring the city to its former luſtre. In the mean time, looking upon Alexius as the reſtorer of his country, he cauſed him to be clad in magnificent robes; placed with his own hand a crown on his head; ordered him to be conducted through the city, as it were in triumph; decreed that for a whole year the name of Alexius ſhould be joined in the public prayers with his own: and, to perpetuate the memory of ſo great and glorious an action, he commanded his ſtatue to be erected on a ſtately pillar of marble before the church of the Apoſtles. His next care was to re-people the city, many Greek families having withdrawn from it while it was held by the Latins, and the Latins now preparing to return to their reſpective countries. The former were recalled home; and the latter, in regard of the great trade they carried on, were allowed many valuable privileges, which induced them not to remove. The Greeks were allowed to live in one of the moſt beautiful quarters of the city, to be governed by their own laws and magiſtrates, and to trade without paying cuſtoms or taxes of any kind. Great privileges were likewiſe granted to the natives of Venice and Piſa, which encouraged them to lay aſide all thoughts of removing, and the trade they carried on proved afterwards highly advantageous to the ſtate.

148
Great diſturbances occaſioned by the treachery of Paleologus.

It was not long, however, before theſe regulations were altered. The emperor being ſoon after informed that Baldwin, lately expelled from Conſtantinople, had married his daughter to Charles king of Sicily, and given him, by way of dowry, the imperial city itſelf, he ordered the Genoeſe, who were become very numerous, to remove firſt to Heraclea, and afterwards to Galata, where they continued. As for the Piſans and Venetians, who were not ſo numerous and wealthy, they were allowed to continue in the city. Paleologus, though he had cauſed himſelf to be proclaimed emperor, and was poſſeſſed of abſolute ſovereignty, was as yet only guardian to the young emperor John Laſcaris, then about 12 years of age. But having now ſettled the ſtate, and having gained the affections both of natives and foreigners, he began to think of ſecuring himſelf and his poſterity in the full enjoyment of the empire; and for this reaſon cruelly ordered the eyes of the young prince to be put out, pretending that none but himſelf had any right to the city or empire of Conſtantinople, which he alone had recovered out of the hand of the Latins.

This piece of treachery and inhumanity involved him in great troubles. The patriarch immediately excommunicated him; and he would in all probability have been driven from the throne by a combination of the weſtern princes, had he not engaged pope Urban IV. to eſpouſe his cauſe, by promiſing to ſubmit himſelf and his dominions to the Latin Church. Thus, indeed, he diverted the preſent ſtorm; but this proceeding cauſed the greateſt diſturbances, not only in Conſtantinople, but throughout the whole empire, nor was Paleologus able to reconcile his ſubjects to this union.

149
Union of the Greek and Latin churches.

150
Diſſolved.

In 1283 Michael died, and was ſucceeded by his ſon Andronicus. His firſt ſtep was to reſtore the ancient Greek ceremonies, thinking he could not begin his reign with a more popular act. But thus he involved himſelf in difficulties ſtill greater than before. Though Michael had not been able fully to reconcile his Greek ſubjects to the Latin ceremonies, yet he had in ſome degree accompliſhed his purpoſe. The Latins had got a conſiderable footing in the city, and defended their ceremonies with great obſtinacy; ſo that the empire was again thrown into a ferment by this imprudent ſtep.

151
War with the Turks.

All this time the Turks had been continuing their encroachments on the empire, which had it not been for the cruſades publiſhed againſt them by the Pope, they would in all probability have made themſelves maſters of before this time. They were now, however, very ſucceſsfully oppoſed by Conſtantine the emperor's brother: but his valour rendered him ſuſpected by the emperor; in conſequence of which he was thrown into priſon, along with ſeveral perſons of great diſtinction. On the removal of this brave commander, the Turks, under the famous Othoman, made themſelves maſters of ſeveral places in Phrygia, Caria, and Bithynia; and, among the reſt, of the city of Nice. To put a ſtop to their conqueſts, the emperor diſpatched againſt them Philanthropenus and Libadarius, two officers of great experience in war. The former gained ſome advantages over the enemy; but being elated with his ſucceſs, cauſed himſelf to be proclaimed emperor. This rebellion, however, was ſoon ſuppreſſed, Philanthropenus being betrayed by his own men: but the Turks taking advantage of theſe inteſtine commotions, not only extended their dominions in Aſia, but conquered moſt of the iſlands in the Mediterranean; and being maſters at ſea, infeſted the coaſts of the empire, to the utter ruin of trade and commerce.

From this time the Roman empire tended faſt to diſſolution. After the revolt of Philanthropenus, the emperor could no longer truſt his ſubjects, and therefore hired the Maſſagetes to aſſiſt him: but they, behaving in a careleſs manner, were firſt defeated by their enemies, and afterwards turned their arms againſt thoſe they came to aſſiſt. He next applied to the Catalans, who behaved in the ſame manner; and having ravaged the few places left the emperor in Aſia, returned into Europe, and called the Turks to their aſſiſtance.

152
Their firſt appearance in Europe.

This happened in the year 1292, and was the firſt appearance of the Turks in Europe. This enterprize, however, was unſucceſsful. Having loaded themſelves with booty, they offered to depart quietly if they were allowed a ſafe paſſage, and ſhips to tranſport them to Aſia. To this the emperor, willing to get rid of ſuch troubleſome gueſts, readily conſented, and ordered the veſſels to be got ready with all poſſible expedition. But the Greek officers obſerving the immenſe booty with which they were loaded, reſolved to fall upon them in the night, and cut them all off at once. This ſcheme, however, was not managed with ſuch ſecrecy but that the Turks had notice of it, and therefore prepared for their defence. They firſt ſurpriſed a ſtrong caſtle in the neighbourhood, and then found means to acquaint their countrymen in Aſia with their dangerous ſituation. Their brethren, enticed with the hopes of booty, were not long of coming to their aſſiſtance; and having croſſed the Helleſpont in great numbers, ravaged the adjacent country, making excurſions to the very gates of Conſtantinople. At laſt the emperor determined to root them out; and accordingly marched againſt them with all his forces, the country people flocking to him from all quarters. The Turks at firſt gave themſelves over for loſt; but finding the Greeks negligent of diſcipline, they attacked their army unexpectedly, utterly defeated it, and made themſelves maſters of the camp. After this unexpected victory, they continued for two years to ravage Thrace in the moſt terrible manner. At laſt, however, they were defeated; and being afterwards ſhut up in the Cherſoneſus, they were all cut in pieces or taken.

153 They are all cut in pieces, or taken.

Soon after new commotions took place in this unhappy empire, of which the Turks did not fail to take the advantage. In 1327 they made themſelves maſters of moſt of the cities on the Mæander; and, among the reſt, of the ſtrong and important city of Pruſa in Bithynia. The next year, however, Othoman, who may juſtly be ſtyled the founder of the Turkiſh monarchy, being dead, the emperor laid hold of that opportunity to recover Nice, and ſome other important places, from the infields. But theſe were loſt the year following, together with Abydus and Nicomedia: and in 1330 a peace was concluded upon condition that they ſhould keep all their conqueſts. This peace they obſerved no longer than ſerved their own purpoſes; for new commotions breaking out in the empire, they purſued their conqueſts, and by the year 1357 had reduced all Aſia. They next paſſed the Helleſpont under the conduct of Solyman the ſon, or as others will have it, the brother of Orchanes, the ſucceſſor of Othoman, and ſeized on a ſtrong caſtle on the European ſide. Soon after the Turkiſh ſultan died, and was ſucceeded by Amurath. He extended the conqueſts of his predeceſſors, and in a ſhort time reduced all Thrace, making Adrianople the ſeat of his empire. Amurath was ſlain by treachery in a little time after, and was ſucceeded by his ſon Bajazet. This prince greatly enlarged his dominions by new conqueſts. In a ſhort time he reduced the countries of Theſſaly, Macedon, Phocis, Peloponneſus, Myſia, and Bulgaria, driving out the deſpots or petty princes who ruled there. Elated with his frequent victories, he began to look upon the Greek emperor, to whom nothing was now left but the city of Conſtantinople and the neighbouring country, as his vaſſal. Accordingly he ſent him an arrogant and haughty meſſage, commanding him to pay a yearly tribute, and ſend his ſon Manuel to attend him in his military expeditions. This demand the emperor was obliged to comply with, but died ſoon after in the year 1392.

154 Adrianople taken by the Turks.

Manuel no ſooner heard of his father's death than he haſtened to Conſtantinople, without taking leave of the ſultan, or acquainting him with the reaſons of his ſudden departure. At this Bajazet was ſo highly offended, that he paſſed with great expedition out of Bithynia into Thrace, ravaged the country adjoining to Conſtantinople, and at laſt inveſted the city itſelf both by ſea and land. In this extremity Manuel had recourſe to the weſtern princes; who ſent him an army of 130,000 men, under the command of Sigiſmund king of Hungary, and John count of Nevers. But though the weſtern troops proved at firſt ſucceſsful, they were in the end defeated with great ſlaughter by Bajazet, who then returned to the ſiege with greater vigour than ever. As he found, however, that the citizens were determined to hold out to the laſt, he applied to John, the ſon of Manuel's elder brother, who had a better title to the crown than Manuel himſelf. With him he entered into a private agreement, by virtue of which Bajazet was to place John upon the throne of Conſtantinople; on the other hand, John was to deliver up the city to the Turks, and remove the imperial ſeat to Peloponneſus, which the ſultan promiſed to relinquiſh to him and his poſterity. At the ſame time he ſent deputies to the inhabitants of Conſtantinople, offering to withdraw his army, and ceaſe from further hoſtilities, provided they expelled Manuel and placed John upon the throne. This propoſal rent the city into two factions; but Manuel prevented the miſchiefs which were ready to enſue, by a voluntary reſignation, upon condition that he ſhould be allowed to retire to whatever place he thought proper with his wife and children.

155 Bajazet beſieges Conſtantinople.

With this condition John readily complied; and Manuel having received him into the city, and conducted him to the palace, ſet ſail for Venice. From thence he went to the courts of all the weſtern princes to ſolicit their aſſiſtance againſt the Turks, whoſe power was grown formidable to all Europe. He was every where received with the greateſt demonſtrations of eſteem, and promiſed large ſupplies; all Chriſtendom being now alarmed at the progreſs of the infidels.

In the mean time Bajazet did not fail to put John in mind of his promiſe; but the citizens refuſing to comply with ſuch a ſcandalous treaty, the ſiege was renewed, and the city aſſaulted with more fury than ever. When it was already reduced to the laſt extremity, news were brought the ſultan that Tamerlane, the victorious Tartar, having over-run all the Eaſt with incredible celerity, had now turned his arms againſt the Turks, and was preparing to break into Syria. Bajazet, alarmed at the danger that threatened him, raiſed the ſiege in great haſte, and advanced againſt Tamerlane with a very numerous and well-diſciplined army; but the Tartar totally defeated and took him priſoner, after having cut moſt of his men in pieces: and thus Conſtantinople was preſerved for the preſent.

156 He is defeated and taken priſoner by Tamerlane.

But this relief was of ſhort duration. In 1424 the city was again beſieged by Amurath II. The inhabitants defended themſelves with great bravery; but muſt in the end have ſubmitted, had not the emperor prevailed upon the prince of Caramania to countenance an impoſtor and pretender to the Turkiſh throne. This obliged Amurath to raiſe the ſiege, and march with all his forces againſt the uſurper, whom he ſoon reduced.

157 Amurath beſieges Conſtantinople.

158 The ſiege raiſed.

reduced. Having then no other enemies to contend with, he entered Macedon at the head of a powerful army; and having ravaged the country far and near, he took and plundered Theſſalonica, as he did alſo moſt of the cities of Ætolia, Phocis, and Bœotia. From Greece he marched into Servia; which country he ſoon reduced. He next broke into the dominions of the king of Hungary, and beſieged the ſtrong city of Belgrade; but here he met with a vigorous repulſe, no fewer than 15,000 Turks being ſlain by the Chriſtians in one ſally, which obliged the ſultan to drop the enterprize and retire.

159 **Succeſs of John Hunniades againſt the Turks.**

In his retreat he was attacked by the celebrated John Hunniades, who cut great numbers of his men in pieces, and obliged the reſt to fly with precipitation. Not long after he gained a ſtill more complete victory over the enemy in the plains of Tranſylvania, with the loſs of only 3000 of his own men, whereas 20,000 of the Turks were killed on the field of battle, and almoſt an equal number in the purſuit. Amurath, who was then at Adrianople, ſent an army into Tranſylvania far more numerous than the former; but they were attended with no better ſucceſs, being cut off almoſt to a man by the brave Hungarian.

160 **He is at laſt defeated.**

He gained ſeveral other victories no leſs remarkable; but was at laſt entirely defeated in 1448; and with this defeat ended all hopes of preſerving the Roman empire. The unhappy emperor was now obliged to pay an annual tribute of 300,000 aſpers to the ſultan; and to yield up to him ſome ſtrong holds which he ſtill held on the Euxine Sea. However, as he doubted not but Amurath would ſoon attempt to become maſter of the city itſelf, he renewed the union between the Greek and Latin churches, hoping that this would induce the weſtern princes to aſſiſt him in the defence of the city againſt the Turks. This union produced great diſturbances, which the emperor did not long ſurvive, but died in 1448, leaving the empire, now confined within the walls of Conſtantinople, to his brother Conſtantine.

Amurath the Turkiſh ſultan died in 1450, and was ſucceeded by his ſon Mohammed. In the beginning of his reign he entered into an alliance with Conſtantine, and pretended a great deſire to live in friendſhip with him and the other Chriſtian princes; but no ſooner had he put an end to a war in which he was engaged with Ibrahim king of Caramania, than he built a ſtrong fort on the European ſide of the Boſphorus, oppoſite to another in Aſia; in both of which he placed ſtrong garriſons. Theſe two caſtles commanded the Straits; and the former being but five miles from the city, kept it in a manner blocked up. This ſoon produced a miſunderſtanding between him and the emperor; which ended in the ſiege of the city.

161 **Conſtantinople beſieged by Mohammed.**

The ſiege commenced on the ſixth of April 1453. Mohammed's numerous forces covering the plains before it on the land-ſide, and a fleet of 300 ſail blocking it up by ſea. The emperor, however, had taken care to ſecure the haven in which were three large ſhips, 20 ſmall ones, and a great number of galleys, by means of a chain drawn croſs the entrance. Mohammed began the ſiege by planting batteries as near the city as he could, and raiſing mounts in ſeveral places as high as the walls themſelves, whence the beſieged were inceſſantly galled with ſhowers of arrows. He had in his camp a piece of ordnance of prodigious ſize, which is ſaid to have carried a ball of 100 pounds weight, made of hard black ſtone brought from the Euxine Sea. With this vaſt piece the enemy made ſeveral breaches in the walls; which, however, were repaired with incredible expedition by the beſieged. But Mohammed, the better to carry on the ſiege, cauſed new levies to be made throughout his extenſive dominions, by which his army was ſoon increaſed to near 400,000 men; while the garriſon conſiſted only of 9000 regular troops, *viz.* 6000 Greeks and 3000 Genoeſe and Venetians. As the enemy continued to batter the walls day and night without intermiſſion, a great part of them was at laſt beaten down; but while the Turks were buſy in filling up the ditch, in order to give the aſſault, a new wall was built. This threw the tyrant into a prodigious rage, which was greatly heightened when he ſaw his whole fleet worſted by five ſhips, four of which were laden with corn from Peloponneſus, and the others with all manner of proviſions from the iſle of Chios. Theſe opened themſelves a way through the whole Turkiſh fleet; and, to the inexpreſſible joy of the Chriſtians; at laſt got ſafe into the harbour.

162 **He conveys 80 galleys over land into the haven.**

The Turks attempted ſeveral times to force the haven; but all their efforts proving ineffectual, Mohammed formed a deſign of conveying 80 galleys over land for the ſpace of eight miles into it. This he accompliſhed by means of certain engines, the contrivance of a renegado; and having then either taken or ſunk all the ſhips contained in it, he cauſed a bridge to be built over it with ſurpriſing expedition. By this means the city was laid open to an aſſault from that ſide likewiſe. The place was now aſſaulted on all ſides; and Conſtantine being well appriſed that he could not long hold out againſt ſuch a mighty fleet and ſo numerous an army, ſent deputies to Mohammed, offering to acknowledge himſelf his vaſſal, by paying him yearly what tribute he ſhould think proper to impoſe, provided he raiſed the ſiege and withdrew. The tyrant anſwered that he was determined at all events to become maſter of the city: but if the emperor delivered it up forthwith, he would yield up to him Peloponneſus, and other provinces to his brothers, which they ſhould enjoy peaceably as his friends and allies: but if he held out to the laſt extremity, and ſuffered it to be taken by aſſault, he would put him and the whole nobility to the ſword, abandon the city to be plundered by his ſoldiers, and carry the inhabitants into captivity.

163 **A mutiny in the Turkiſh camp.**

This condition was raſhly rejected by the emperor; who thereby involved himſelf and all his ſubjects in the moſt terrible calamity. The ſiege was renewed with more vigour than ever, and continued till the 25th of May; when a report being ſpread in the Turkiſh camp that a mighty army was advancing in full march to the relief of the city under the conduct of the celebrated John Hunniades, the common ſoldiers, ſeized with a panic, began to mutiny, and preſs Mohammed in a tumultuous manner to break up the ſiege. Nay, they openly threatened him with death, if he did not immediately abandon the enterprize and retire from before the city, which they deſpaired of being able to reduce before the arrival of the ſuppoſed ſuccours. Mohammed was upon the point of complying with their demand,

mand, when he was adviſed by Zagan, a Turkiſh officer of great intrepidity, and an irreconcileable enemy to the Chriſtian name, to give without loſs of time a general aſſault. To this he ſaid the ſoldiery, however mutinous, would not be averſe, provided the ſultan ſolemnly promiſed to abandon the city to be plundered by them. As ſuch an advice beſt ſuited the humour of Mohammed, he readily embraced it; and cauſed a proclamation to be publiſhed throughout the camp, declaring, that he gave up to his ſoldiers all the wealth of that opulent city, requiring to himſelf only the empty houſes.

The deſire of plunder ſoon got the better of that fear which had ſeized the Turkiſh army, and they unanimouſly deſired to be led on to the attack. Hereupon Conſtantine was ſummoned for the laſt time to deliver up the city, with a promiſe of his life and liberty; but to this he anſwered, that he was unalterably determined either to defend the city or to periſh with it.

164
A general aſſault given.

The attack began at three in the morning on Tueſday the 29th of May; ſuch troops were firſt employed as the ſultan valued leaſt, and deſigned them for no other purpoſe than to tire the Chriſtians, who made a prodigious havock of that diſorderly multitude. After the carnage had laſted ſome hours, the Janizaries and other freſh troops advanced in good order, and renewed the attack with incredible vigour. The Chriſtians ſummoning all their courage and reſolution, twice repulſed the enemy; but being in the end quite ſpent, they were no longer able to ſtand their ground; ſo that the enemy in ſeveral places broke into the city. In the mean time Juſtiniani, the commander of the Genoeſe and a ſelect body of Greeks, having received two wounds, one in the thigh and the other in the hand, was ſo diſheartened, that he cauſed himſelf to be conveyed to Galata, where he ſoon after died of grief. His men, diſmayed at the ſudden flight of their general, immediately quitted their poſts and fled in the utmoſt confuſion.

165
Bravery of the emperor.

However the emperor, attended with a few of the moſt reſolute among the nobility, ſtill kept his poſt, ſtriving with unparalleled reſolution to oppoſe the multitude of barbarians that now broke in from every quarter. But being in the end overpowered with numbers, and ſeeing all his friends lie dead on the ground, "What! (cried he aloud) is there no Chriſtian left alive to ſtrike off my head?"

166
He is killed.

He had ſcarce uttered theſe words, when one of the enemy, not knowing him, gave him a deep cut acroſs the face with his ſabre; and at the ſame time, another coming behind him, with a blow on the back part of his head laid him dead on the ground.

167
The town plundered and the inhabitants maſſacred.

After the death of the emperor, the few Chriſtians that were left alive betook themſelves to flight; and the Turks, meeting with no further oppoſition, entered the city, which they filled with blood and ſlaughter. They gave no quarter, but put all they met to the ſword, without diſtinction. Many thouſands took refuge in the church of St Sophia, but they were all maſſacred in their aſylum by the enraged barbarians; who, prompted by their natural cruelty, the deſire of revenge, and love of booty, ſpared no place nor perſon. Moſt of the nobility were, by the ſultan's orders, cut off, and the reſt kept for purpoſes more grevious than death itſelf. Many of the inhabitants, among whom were ſome men of great learning, found means to make their eſcape while the Turks were buſied in plundering the city. Theſe embarking on five ſhips then in the harbour, arrived ſafe in Italy; where, with the ſtudy of the Greek tongue, they revived the liberal ſciences, which had long been neglected in the Weſt. After the expiration of three days, Mohammed commanded his ſoldiers to forbear all further hoſtilities on pain of death; and then put an end to as cruel a pillage and maſſacre as any mentioned in hiſtory. The next day he made his public and triumphal entry into Conſtantinople, and choſe it for the ſeat of the Turkiſh empire, which it has continued to be ever ſince.

168
Preſent ſtate of city.

This city is now called by the Turks *Iſtampol*, and by the Greeks *Iſtampoli* or *Stampoli*. It is ſeated at the eaſtern extremity of Romania, on a ſmall neck of land which advances towards Natolia, from which it is ſeparated by a channel of a mile in breadth. The ſea of Marmora waſhes its walls on the ſouth, and a gulph of the channel of Conſtantinople does the ſame on the north. It is delightfully ſituated between the Black Sea and the Archipelago, from whence it is ſupplied with all neceſſaries. The grand ſeignior's palace, called the *Seraglio*, is ſeated on the ſea-ſide, and is ſurrounded with walls flanked with towers, and ſeparated from the city by canals. It is ſaid the harbour will eaſily hold 1200 ſhips. The number of houſes muſt needs be prodigious, ſince one fire has burnt down 30,000 in a day, without greatly changing the aſpect of the city. However, in general, they are but mean, eſpecially on the outſide, where there are few or no windows; and the ſtreets being narrow, gives them a melancholy look. They reckon that there are 3770 ſtreets, ſmall and great, but they are ſeldom or never clean; and the people are infeſted with the plague almoſt every year. The inhabitants are half Turks, two-thirds of the other half Chriſtians, and the reſt Jews. Here are a great number of ancient monuments ſtill remaining, and particularly the ſuperb temple of Sophia, which is turned into a moſque, and far ſurpaſſes all the reſt. The ſtreet called *Adrianople* is the longeſt and broadeſt in the city; and the bazars, or bezeſteins, are the markets for ſelling all ſorts of merchandize. The old and the new are pretty near each other: and are large ſquare buildings, covered with domes, and ſupported by arches and pilaſters. The new is the beſt, and contains all ſorts of goods which are there expoſed to ſale. The market for ſlaves, of both ſexes, is not far off; and the Jews are the principal merchants, who bring them here to be ſold. There are a great number of young girls brought from Hungary, Greece, Candia, Ruſſia, Mingrelia, and Georgia, for the ſervice of the Turks, who generally buy them for their ſeraglios. The great ſquare, near the moſque of ſultan Bajazet, is the place for public diverſions, where the jugglers and mountebanks play a great variety of tricks. The circumference of this city is by ſome ſaid to be 15 miles, and by Mr Tournefort 23 miles; to which if we add the ſuburbs, it may be 34 miles in compaſs. The ſuburb called *Pera* is charmingly ſituated; and is the place where the ambaſſadors of England, France, Venice, and Holland, reſide. This city is built in the form of a triangle; and as the ground riſes gradually, there is a view of the whole town from the ſea. The public buildings, ſuch as the palaces, the moſques, bagnios, and caravanſaries for the entertainment of ſtrangers, are many of them very magnificent. E. Long. 29. 20. N. Lat. 41. 4.

CONSTAT, in law, the name of a certificate which the clerk of the pipe and auditors of the exchequer make at the requeſt of any perſon who intends to plead or move in that court for the diſcharge of any thing; and the effect of it is, the certifying what does *conſtare* upon record touching the matter in queſtion.—A conſtat is held to be ſuperior to a certificate; becauſe this may err or fail in its contents; that cannot, as certifying nothing but what is evident upon record.

Alſo the exemplification under the great ſeal of the inrolment of any letters-patent is called a *conſtat*.

CONSTELLATION, in aſtronomy, a ſyſtem of ſeveral ſtars that are ſeen in the heavens near to one another. Aſtronomers not only mark out the ſtars, but, that they may better bring them into order, they diſtinguiſh them by their ſituation and poſition in reſpect to each other; and therefore they diſtribute them into aſteriſms or conſtellations, allowing ſeveral ſtars to make up one conſtellation: and for the better diſtinguiſhing and obſerving them, they reduce the conſtellations to the forms of animals, as men, bulls, bears, &c.; or to the images of ſome things known, as of a crown, a harp, a balance, &c.; or give them the names of thoſe whoſe memories, in conſideration of ſome notable exploit, they had a mind to tranſmit to future ages.

The diviſion of the ſtars by images and figures is of great antiquity, and ſeems to be as old as aſtronomy itſelf: for in the moſt ancient book of Job, Orion, Arcturus, and the Pleiades, are mentioned; and we meet with the names of many of the conſtellations in the writings of the firſt poets, Homer and Heſiod.

The ancients, in their diviſion of the firmament, took in only ſo much as came under their notice, diſtributing it into 48 conſtellations; but the modern aſtronomers comprehend the whole ſtarry firmament, dividing it into three regions. See ASTRONOMY-*Index*.

CONSTERNATION is defined by ethical writers to be an exceſs of horror, owing to the ill government of our admiration and fear: or ſuch an immoderate degree of fear as confounds the faculties, and incapacitates a perſon for conſultation and execution.

CONSTIPATION, in medicine, a hardneſs of the belly, with great coſtiveneſs. See COSTIVENESS.

CONSTITUENT PART, in phyſiology, an eſſential part in the compoſition of any thing, differing little from what is otherwiſe called *element* or *principle*.

CONSTITUTION, in matters of policy, ſignifies the form of government eſtabliſhed in any country or kingdom.

CONSTITUTION alſo denotes an ordinance, deciſion, regulation, or law, made by authority of any ſuperior, eccleſiaſtical or civil.

Apoſtolical CONSTITUTIONS, a collection of regulations attributed to the apoſtles, and ſuppoſed to have been collected by St Clement, whoſe name they likewiſe bear.

It is the general opinion, however, that they are ſpurious, and that St Clement had no hand in them. They appeared firſt in the 4th age, but have been much changed and corrupted ſince that time. They are divided into eight books, conſiſting of a great number of rules and precepts, relating to the duties of Chriſtians, and particularly the ceremonies and diſcipline of the church. Mr Whiſton, in oppoſition to the general opinion, aſſerts them to be a part of the ſacred writing, dictated by the apoſtles in their meetings, and written down from their own mouth by St Clement; and intended as a ſupplement to the New Teſtament, or rather as a ſyſtem of Chriſtian faith, and polity. The reaſon why the Conſtitutions are ſuſpected by the orthodox, and perhaps the reaſon alſo why their genuineneſs is defended by Mr Whiſton, is, that they ſeem to favour Arianiſm.

CONSTITUTION, in a phyſical ſenſe, ſignifies the particular temperature of the body.

It is curious to obſerve, ſays Dr Percival, the revolution which hath taken place, within this century, in the conſtitutions of the inhabitants of Europe. Inflammatory diſeaſes more rarely occur, and, in general, are much leſs rapid and violent in their progreſs than formerly (A); nor do they admit of the ſame antiphlogiſtic method of cure that was practiſed with ſucceſs 100 years ago. The experienced Sydenham makes 40 ounces of blood the mean quantity to be drawn in the acute rheumatiſm; whereas this diſeaſe, as it now appears in the London hoſpitals, will not bear above half that evacuation. Vernal intermittents are frequently cured by a vomit and the bark, without veneſection; which is a proof that at preſent they are accompanied with fewer ſymptoms of inflammation than they were wont to be. This advantageous change, however, is more than counterbalanced by the introduction of a numerous claſs of nervous ailments, in a great meaſure unknown to our anceſtors; but which now prevail univerſally, and are complicated with almoſt every other diſtemper. The bodies of men are enfeebled and enervated; and it is not uncommon to obſerve very high degrees of irritability, under the external appearance of great ſtrength and robuſtneſs. The hypochondria, palſies, cachexies, dropſies, and all thoſe diſeaſes which ariſe from laxity and debility, are in our days endemic every where; and the hyſterics, which uſed to be peculiar to the women, as the name itſelf indicates, now attack both ſexes indiſcriminately. It is evident that ſo great a revolution could not be effected without a concurrence of many cauſes; but amongſt theſe (according to Dr Percival), the preſent general uſe of tea * holds the firſt and principal rank. The ſecond place may perhaps be allowed to exceſs in ſpirituous liquors. This pernicious cuſtom, in many inſtances at leaſt, owes its riſe to the former,

* See *Tea*.

(A) The decreaſe in the violence of inflammatory diſeaſes may perhaps in part be aſcribed to the preſent improved method of treating them. Moderate evacuations, cool air, aceſcent diet, and the liberal uſe of ſaline and antimonial medicines, are better adapted to check the progreſs of fevers, than copious bleedings, ſtimulating purgatives, and profuſe ſweats excited by theriaca and mithridate.

which, by the lowneſs and depreſſion of ſpirits it occaſions, renders it almoſt neceſſary to have recourſe to ſomething cordial and exhilarating. And hence proceed thoſe odious and diſgraceful habits of intemperance, with which many of the ſofter ſex are now, alas! chargeable.

CONSTRICTOR, an appellation given to ſeveral muſcles, on account of their conſtringing or cloſing ſome of the orifices of the body.

CONSTRICTION, in geometry, is the drawing ſuch lines, ſuch a figure, &c. as are previouſly neceſſary for making any demonſtration appear more plain and undeniable.

Construction *of Equations*. See Equations.

Construction, in grammar; ſyntax, or the arranging and connecting the words of a ſentence according to the rules of the language. See Grammar, and Language.

The conſtruction is generally more ſimple, eaſy, and direct, in the modern tongues than in the ancient: we have very few of thoſe inverſions which occaſion ſo much embarraſſment and obſcurity in the Latin; our thoughts are uſually delivered in the ſame order wherein the imagination conceives them: the nominative caſe, for inſtance, always precedes the verb, and the verb goes before the oblique caſes it governs.

The Greeks and Latins, M. St. Evremont obſerves, uſually end their periods, where, in good ſenſe and reaſon, they ſhould have begun; and the elegance of their language conſiſts, in ſome meaſure, in this capricious arrangement, or rather in this tranſpoſal and diſorder of the words. See Language.

Construction *of Statutes*, among lawyers. See Law, Part II. nº 49.

CONSUALIA, in antiquity, feaſts which were held among the ancients, in honour of the god Conſus *i. e.* Neptune; different from thoſe other feaſts of the ſame deity called Neptunalia. They were introduced with a magnificent cavalcade, or proceſſion on horſeback; becauſe Neptune was reputed to have firſt taught men the uſe of horſes; whence his ſurname of Ἱππιος, *Equeſtris*.

Evander is ſaid to have firſt inſtituted this feaſt: it was re-eſtabliſhed by Romulus, under the name of *Conſus*; becauſe it was ſome god under the denomination of Conſus, that ſuggeſted to him the rape of the Sabines. It is ſaid, that it was with a view to this rape that he made that eſtabliſhment. This, however, is certain, that it was to this feaſt all his neighbours were invited; when, taking advantage of the ſolemnities and ſacrifices, he ſeized the women. To draw the greater concourſe of people, he gave out, that he had found an altar hid under ground, which he intended to conſecrate, with ſacrifices to the god to whom it had been originally erected. Thoſe who take upon them to explain the myſteries of the heathen theology, ſay, that the altar hid under ground, is a ſymbol of the ſecret deſign of Romulus to ſeize his neighbours wives.

The conſualia were of the number of feaſts called ſacred; as being conſecrated to a divinity.—Originally they were not diſtinguiſhed from thoſe of the Circus: whence it is, that Valerius Maximus ſays, that the rape of the Sabines was effected at the games of the Circus.

Plutarch obſerves, that during the days of this ſolemnity, horſes and aſſes were left at reſt, and were dreſſed up with crowns, &c. on account of its being the feaſt of Neptunus Equeſtris.— Feſtus ſays, the cavalcade was performed with mules; it being an opinion, that this was the firſt animal uſed to draw the car.

Servius gives us to underſtand, that the conſualia fell on the 13th of Auguſt; Plutarch, in the life of Romulus, places them on the 18th, and the old Roman calendar on the 21ſt of that month.

CONSUBSTANTIAL, in theology, a term of like import with co-eſſential; denoting ſomething of the ſame ſubſtance with another. The orthodox believe the Son of God to be conſubſtantial with the Father.

The term ομοȣσιος, *conſubſtantial*, was firſt adopted by the fathers of the councils of Antioch and Nice, to expreſs the orthodox doctrine the more preciſely, and to ſerve as a barrier and precaution againſt the errors and ſubtleties of the Arians; who owned every thing excepting the conſubſtantiality.

The Arians allowed, that the word was God, as having been made God; but they denied that he was the ſame God, and of the ſame ſubſtance with the Father: accordingly they exerted themſelves to the utmoſt to aboliſh the uſe of the word. The emperor Conſtantine uſed all his authority with the biſhops to have it expunged out of the ſymbols; but it ſtill maintained itſelf, and is at this day, as it was then, the diſtinguiſhing criterion between an Athanaſian and an Arian.

Sandius will have it, that the word conſubſtantial was unknown till the time of the council of Nice; but it is certain it had been before propoſed to the council of Antioch, wherein Paulus Samoſatenus had been condemned; though it had there the fortune to be rejected. Curcellæus, on the other hand, maintains, that it was an innovation in doctrine in the council of Nice, to admit an expreſſion, the uſe whereof had been aboliſhed by the council of Antioch.

According to St Athanaſius, the word conſubſtantial was only condemned in the council of Antioch, inaſmuch as it implied the idea of a pre-exiſtent matter, prior to the things formed thereof: now, in this ſenſe, it is certain, the Father and the Son are not conſubſtantial, there having been no pre-exiſtent matter.

CONSUBSTANTIATION, a tenet of the Lutheran church with regard to the manner of the change made in the bread and wine in the euchariſt. The divines of that profeſſion maintain, that after conſecration, the body and blood of our Saviour are ſubſtantially preſent, together with the ſubſtance of the bread and wine, which is called conſubſtantiation, or impanation.

CONSUL, the chief magiſtrate of the Roman commonwealth, inveſted with regal authority for the ſpace of one year. They were two in number, called conſuls *a conſulendo*, and annually choſen in the Campus Martius. The two firſt conſuls were L. Jun. Brutus, and L. Tarquinius Collatinus, choſen in the year of Rome 244, after the expulſion of the Tarquins. In the firſt times of the republic the two conſuls were always choſen from Patrician families or noblemen, but the people obtained the privilege in the year of Rome 388, of electing one of the conſuls from their own body, and ſometimes both were plebeians. The firſt conſul among the plebeians was L. Sextius. It was required that every candidate for the conſulſhip ſhould be 43 years of age, called *legitimum tempus*. He was always to appear at the election as a private man without a retinue, and it was requiſite before he canvaſſed for the office to have diſcharged the functions of quæſtor, edile, and prætor. Sometimes theſe qualifications were diſregarded. Val. Corvinus was made a conſul in his 23d year, and Scipio in his 24th. Young Marius, Pompey, and Auguſtus, were alſo under the proper age when they were inveſted with the office, and Pompey had never been quæſtor or prætor. The power of the conſuls was unbounded, and they knew no ſuperior but the gods and the laws; but after the expiration of their office their conduct was minutely ſcrutinized by the people, and miſbehaviour was often puniſhed by the laws. The badge of their office was the *prætexta*, a robe fringed with purple, afterwards exchanged for the *toga picta* or *palmata*. They were preceded by 12 lictors carrying the *faſces* or bundles of ſticks, in the middle of which appeared an axe. The axe, as being the characteriſtic rather of tyranny than of freedom, was taken away from the *faſces* by Valerius Poplicola, but it was reſtored by his ſucceſſor. They took it by turns monthly to be preceded by the lictors while at Rome, leſt the appearance of two perſons with the badges of royal authority ſhould raiſe apprehenſions in the multitude. While one appeared publicly in ſtate, only a crier walked before the other, and the lictors followed behind without the faſces. Their authority was equal; yet the Valerian law gave the right of priority to the older, and the Julian law to him who had moſt children; and he was generally called *conſul major* or *prior*. As their power was abſolute, they preſided over the ſenate, and could convene and diſmiſs it at pleaſure. The ſenators were their counſellors; and among the Romans the manner of reckoning their years was by the name of the conſuls, and by *M. Tull. Cicerone et L. Antonio Conſulibus*, for inſtance, the year of Rome 689 was always underſtood. This cuſtom laſted from the year of Rome 244 till the 1294, or 541ſt year of the Chriſtian era. In public aſſemblies the conſuls ſat in ivory chairs, and held in their hand an ivory wand called *ſcipio eburneus*, which had an eagle on its top as a ſign of dignity and power. When they had drawn by lot the provinces over which they were to preſide during their conſulſhip, they went to the capitol to offer their prayers to the gods, and intreat them to protect the republic; after this they departed from the city arrayed in their military dreſs and preceded by the lictors. Sometimes the provinces were aſſigned them without drawing by lot, by the will and appointment of the ſenators. At their departure they were provided by the ſtate with whatever was requiſite during their expedition. In their provinces they were both attended by the 12 lictors, and equally inveſted with regal authority. They were not permitted to return to Rome without the ſpecial command of the ſenate; and they always remained in the province till the arrival of their ſucceſſor. At their return they harangued the people, and ſolemnly proteſted that they had done nothing againſt the laws or intereſt of their country, but had faithfully and diligently endeavoured to promote the greatneſs and welfare of the ſtate. No man could be conſul two following years; yet this inſtitution was ſometimes broken, and we find Marius re-elected conſul after the expiration of his office during the Cimbrian war. The office of conſul, ſo dignified during the times of the commonwealth, became a mere title under the emperors, and retained nothing of its authority but the uſeleſs enſigns of original dignity. Even the duration of the office, which was originally annual, was reduced to two or three months by J. Cæſar; but they who were admitted on the firſt of January denominated the year, and were called *ordinarii*. Their ſucceſſors during the year were diſtinguiſhed by the name of *ſuffecti*. Tiberius and Claudius abridged the time of the conſulſhip; and the emperor Commodus made no leſs than 25 conſuls in one year. Conſtantine the Great renewed the original inſtitution, and permitted them to be a whole year in office.

Conſul, at preſent, is an officer eſtabliſhed by virtue of a commiſſion from a king or ſtate, in all foreign countries of any conſiderable trade, to facilitate and diſpatch buſineſs, and protect the merchants of the nation. The Engliſh conſuls are to keep up a correſpondence with the miniſters of England reſiding in the courts whereon their conſulate depends. They are to ſupport the commerce and the intereſt of the nation; to diſpoſe of the ſums given and the preſents made to the lords and principals of places, to obtain their protection, and prevent the inſults of the natives on the merchants of the nation.

CONSUMMATION, the end, period, or completion of any work. Thus, we ſay, the *conſummation* of all things, meaning the end of the world. By the incarnation, all the prophecies are ſaid to be *conſummated*. See Prophecy, and Accompliſhment.

Consummation of Marriage, denotes the laſt act of marriage, which makes its accompliſhment; or the moſt intimate union between the married pair, &c.

CONSUMPTION, in medicine, a word of very extenſive ſignification, implies all diſorders that bring any decay or waſte upon the conſtitution; but is moſt commonly uſed for the *phthiſis pulmonalis*. See Medicine-*Index*.

Consumptiom, in farriery. See Farriery, § viii.

CONSUS, the pagan god of counſel. He had an altar under ground in the great circus at Rome, to ſhow that counſel ought to be kept ſecret. See Conſualia.

CONTACT, is when one line, plane, or body, is made to touch another; and the parts that do thus touch are called the *points* or *places of contact*.

CONTAGION, in phyſic, the communicating a diſeaſe from one body to another. In ſome diſeaſes it is only effected by an immediate contact or touch, as the venom of the pox; in others it is conveyed by infected clothes, as the itch; and in others it is ſuppoſed to be tranſmitted through the air at a conſiderable diſtance, by means of ſteams or effluvia exſpiring from the ſick, as in the plague and other peſtilential diſorders, in which caſe the air is ſaid to be contagious, though this has been diſputed.

CONTEMPLATION, an act of the mind, whereby it applies itſelf to conſider and reflect upon the works of God, nature, &c.

CONTEMPORARY, or Cotemporary, a perſon or thing that exiſted in the ſame age with another. Thus, Socrates, Plato, and Ariſtophanes, were contemporaries.

CONTEMPT, in a general ſenſe, the act of deſpiſing, or the ſtate of being deſpiſed.

Contempt, in law, is a diſobedience to the rules and orders of a court, which hath power to puniſh ſuch offence; and as this is ſometimes a greater, and ſometimes a leſſer offence, ſo it is puniſhed with greater or leſs puniſhment, by fine, and ſometimes by impriſonment.

CONTENT, in geometry, the area or quantity of matter or ſpace included in certain bounds.

CONTESSA, a port-town, of Turkey in Europe, in the province of Macedonia, ſituated on a bay of the Archipelago, about 200 miles weſt of Conſtantinople. E. Long. 25. 0. N. Lat. 41. 0.

CONTEXT, among divines and critics, that part of ſcripture or other writing which lies about the text, before or after it, or both. To take the full and genuine ſenſe of the text, the context ſhould be regarded.

CONTEXTURE, a word freqently uſed in ſpeaking both of the works of nature and art; and denoting the diſpoſition and union of the conſtituent parts with reſpect to one another.

CONTI, a town of Picardy in France, with the title of a principality. It is ſeated on the river Seille, in E. Long. 2. 17. N. Lat. 49. 54.

CONTIGUITY, in geometry, is when the ſurface of one body touches that of another.

CONTIGUOUS, a relative term underſtood of things diſpoſed ſo near each other, that they join their ſurfaces or touch. The houſes in ancient Rome were not contiguous as ours are, but all inſulated.

CONTINENCE, in ethics, a moral virtue, by which we reſiſt concupiſcence. It ſhould ſeem that there is this diſtinction between chaſtity and continence, in that it requires no effort to be chaſte, which reſults from conſtitution; whereas continence appears to be the conſequence of a victory gained over ourſelves. The verb *continere*, in the Latin, ſignifies "to reſtrain." The term, however, is moſt uſually applied to men; as *chaſtity* is to women. See Chastity.

Continence is a virtue that makes but an inconſiderable figure in our days. However, we ought not to loſe our ideas of things, though we have debauched our true reliſh in our practice: for, after all, ſolid virtue will keep its place in the opinion of the wiſe and ſenſible part of mankind. And though cuſtom has not made it ſo ſcandalous as it ought to be to inſnare innocent women, and triumph in the falſehood; ſuch actions as we ſhall relate muſt be accounted true gallantry, and riſe higher in our eſteem the farther they are removed from our imitation.

Livy, *Val. Maximus*, &c.

1. Scipio the Younger, when only 24 years of age, was appointed by the Roman republic to the command of the army againſt the Spaniards. His wiſdom and valour would have done honour to the moſt experienced general. Determined to ſtrike an important blow, he formed a deſign of beſieging Carthagena, then the capital of the Carthaginian empire in Spain. His meaſures were ſo judiciouſly concerted, and with ſo much courage and intrepidity purſued, both by ſea and land, that notwithſtanding a bold and vigorous defence, the capital was taken by ſtorm. The plunder was immenſe. Ten thouſand free-men were made priſoners; and above 300 more, of both ſexes, were received as hoſtages. One of the latter, a very ancient lady, the wife of Mandonius, brother of Indibilis king of the Ilergetes, watching her opportunity, came out of the crowd, and, throwing herſelf at the conqueror's feet, conjured him, with tears in her eyes, to recommend to thoſe who had the ladies in their keeping to have regard to their ſex and birth. Scipio, who did not underſtand her meaning at firſt, aſſured her that he had given orders that they ſhould not want for any thing. But the lady replied, "Thoſe conveniences are not what affect us. In the condition to which fortune hath reduced us, with what ought we not to be contented? I have many other apprehenſions, when I conſider, on one ſide, the licentiouſneſs of war; and, on the other, the youth and beauty of the princeſſes which you ſee here before us; for as to me, my age protects me from all fear in this reſpect." She had with her the daughters of Indibilis, and ſeveral other ladies of high rank, all in the flower of youth, who conſidered her as their mother. Scipio then comprehending what the ſubject of her fear was, "My own glory (ſays he), and that of the Roman people, are concerned in not ſuffering that virtue, which ought always to be reſpected wherever we find it, ſhould be expoſed in my camp to a treatment unworthy of it. But you give me a new motive for being more ſtrict in my care of it, in the virtuous ſolicitude you ſhow in thinking only of the preſervation of your honour, in the midſt of ſo many other objects of fear." After this converſation, he committed the care of the ladies to ſome officers of experienced prudence, ſtrictly commanding that they ſhould treat them with all the reſpect they could pay to the mothers, wives, and daughters, of their allies and particular friends. It was not long before Scipio's integrity and virtue were put to the trial. Being retired in his camp, ſome of his officers brought him a young virgin of ſuch exquiſite beauty, that ſhe drew upon her the eyes and admiration of every body. The young conqueror ſtarted from his ſeat with confuſion and ſurprize; and, like one thunderſtruck, ſeemed to be robbed of that preſence of mind and ſelf-poſſeſſion ſo neceſſary in a general, and for which Scipio was remarkably famous. In a few moments, having rallied his ſtraggling ſpirits, he inquired of the beautiful captive, in the moſt civil and polite manner, concerning her country, birth, and connections; and finding that ſhe was betrothed to a Celtiberian prince named Allucius, he ordered both him and the captive's parents to be ſent for. The Spaniſh prince no ſooner appeared in his preſence, than, even before he ſpoke to the father and mother, he took him aſide; and, to remove the anxiety he might be in on account of the young lady, he addreſſed him in theſe words: "You and I are young, which admits of my ſpeaking to you with more liberty. Thoſe who brought me your future ſpouſe, aſſured me, at the ſame time, that you loved her with extreme tenderneſs: and her beauty left me no room to doubt it. Upon which re-

reflecting, that if, like you, I had thought on making an engagement, and were not wholly engroſſed with the affairs of my country, I ſhould deſire that ſo honourable and legitimate a paſſion ſhould find favour, I think myſelf happy in the preſent conjuncture to do you this ſervice. Though the fortune of war has made me your maſter, I deſire to be your friend. Here is your wife: take her, and may the gods bleſs you with her. One thing, however, I would have you be fully aſſured of, that ſhe has been amongſt us as ſhe would have been in the houſe of her father and mother. Far be it from Scipio to purchaſe a looſe and momentary pleaſure at the expence of virtue, honour, and the happineſs of an honeſt man. No: I have kept her for you, in order to make you a preſent worthy of you and of me. The only gratitude I require of you for this ineſtimable gift is, that you would be a friend to the Roman people." Allucius's heart was too full to make him any anſwer: but throwing himſelf at the general's feet, he wept aloud. The captive lady fell into the ſame poſture; and remained ſo, till the father burſt out into the following words: "Oh! divine Scipio! the gods have given you more than human virtue! Oh! glorious leader! Oh! wondrous youth! does not that obliged virgin give you, while ſhe prays to the gods for your proſperity, rapture above all the tranſports you could have reaped from the poſſeſſion of her injured perſon?"

The relations of the young lady had brought with them a very conſiderable ſum for her ranſom: but when they ſaw that ſhe was reſtored to them in ſo generous and godlike a manner, they intreated the conqueror, with great earneſtneſs, to accept that ſum as a preſent; and declared, by his complying, that new favour would complete their joy and gratitude. Scipio, not being able to reſiſt ſuch warm and earneſt ſolicitations, told them that he accepted the gift, and ordered it to be laid at his feet: then addreſſing himſelf to Allucius, I add (ſays he) to the portion which you are to recieve from your father-in-law this ſum; which I deſire you to accept as a marriage-preſent."

If we conſider that Scipio was at this time in the prime of life, unmarried, and under no reſtraint, we cannot but acknowledge, that the conqueſt he made of himſelf was far more glorious than that of the Carthaginian empire: and though his treatment of this captive prince was not more delicate and generous than what might juſtly be expected from a perſon endowed with reaſon and reflection; yet conſidering how few there are in his circumſtances who would have acted as he did, we cannot but applaud his conduct, and propoſe him as a ſuitable example to future ages. Nor was his virtue unrewarded. The young prince, charmed with the liberality and politeneſs of Scipio, went into his country to publiſh the praiſes of ſo generous a victor. He cried out, in the tranſports of his gratitude, "That there was come into Spain a young hero like the gods; who conquered all things leſs by the force of his arms than the charms of his virtue and the greatneſs of his beneficence." Upon this report all Celtiberia ſubmitted to the Romans; and Allucius returned in a ſhout to Scipio, at the head of 1400 choſen horſe, to facilitate his future conqueſts. To render the marks of his gratitude ſtill more durable, Allucius cauſed the action we have juſt related to be engraven on a ſilver ſhield, which he preſented to Scipio; a preſent infinitely more eſtimable and glorious than all his treaſures and triumphs. This buckler, which Scipio carried with him when he returned to Rome, was loſt, in paſſing the Rhone, with part of the baggage. It continued in that river till the year 1665, when ſome fiſhermen found it. It is now in the king of France's cabinet.

2. The circumſtance which raiſes Alexander the Great above many conquerors, and, as it were, above himſelf, is the uſe he made of his victory after the battle of Iſſus. This is the moſt beautiful incident in his life. It is the point of view in which it is his intereſt to be conſidered; and it is impoſſible for him not to appear truly great in that view. By the victory of Iſſus he became poſſeſſed of the whole Perſian empire; not only Syſigambis, Darius's mother, was his captive, but alſo his wife and daughters, princeſſes whoſe beauty was not to be equalled in all Aſia. Alexander, like Scipio, was in the bloom of life, a conqueror, free, and not yet engaged in matrimony: nevertheleſs, his camp was to thoſe princeſſes a ſacred aſylum, or rather a temple, in which their chaſtity was ſecured as under the guard of virtue itſelf; and ſo highly revered, that Darius, in his expiring moments, hearing the kind treatment they had met with, could not help lifting up his dying hands towards heaven, and wiſhing ſucceſs to ſo wiſe and generous a conqueror, who could govern his paſſions at ſo critical a time. Plutarch informs us more particularly, that the princeſſes lived ſo retired in the camp, according to their own deſire, that they were not ſeen by any perſon except their own attendants; nor did any other perſon dare to approach their apartments. After the firſt viſit, which was a reſpectful and ceremonious one, Alexander, to avoid expoſing himſelf to the dangers of human frailty, made a ſolemn reſolution never to viſit Darius's queen any more. He himſelf informs us of this memorable circumſtance, in a letter written by him to Parmenio, in which he commanded him to put to death certain Macedonians who had forced the wives of ſome foreign ſoldiers. In this letter was the following paragraph: "For as to myſelf, it will be found that I neither ſaw nor would ſee the wife of Darius; and did not ſuffer any one to ſpeak of her beauty before me."

Plutarch.

3. Iſocrates informs us, that Nicocles, king of Salamin, gloried in never having known any woman beſides his wife; and was amazed that all other contracts of civil ſociety would be treated with due regard, whilſt that of marriage, the moſt ſacred and inviolable of obligations, was broken through with impunity; and that men ſhould not bluſh to commit an infidelity with reſpect to their wives, of which, ſhould their wives be guilty, it would throw them in the utmoſt anguiſh and fury.

4. Henry VI. king of England, though unhappy in his family and government, was nevertheleſs poſſeſſed of many virtues. He was ſo remarkable for his chaſtity, that before his marriage he would not allow any lady of a ſuſpicious character and ungarded conduct to frequent the court: and having obſerved one day ſome ladies with their boſoms uncovered, he turned away his eyes from the indecent object, and reprimanded them ſmartly in the ſimple dialect of the times;

Rapin.

“ Fy, fy, (ſaid he) for ſhame; forſooth ye be to blame.”

5. In the reign of king Charles II. when licentiouſneſs was at its height in Britain, a yeoman of the guards refuſed the miſtreſs of a king. The lady, who was diſſatisfied with her noble lover, had fixed her eyes upon this man, and thought ſhe had no more to do than ſpeak her pleaſure. He got out of her way. He refuſed to underſtand her; and when ſhe preſſed him further, he ſaid, “ I am married.” The ſtory reached the king, with all its circumſtances: but they who expected an extravagant laugh upon the occaſion were diſappointed. He ſent for the perſon: he found him a gentleman, though reduced to that mean ſtation; and “ Odds fiſh, man (ſays he), though I am not honeſt enough to be virtuous myſelf, I value them that are.” He gave him an appointment, and reſpected him for life.

6. The extreme parts of Scotland, whoſe people are deſpiſed for their poverty, are honeſt in this reſpect to a wonder; and in the Swede's dominion, towards the pole, there is no name for adultery. They thought it an offence man could not commit againſt man; and have no word to expreſs it in their language. The unpoliſhed Lapland peaſant, with theſe thoughts, is, as a human creature, much more reſpectable than the gay Briton, whoſe heart is ſtained with vices, and eſtranged from natural affection; and he is happier. The perfect confidence mutually repoſed between him and the honeſt partner of his breaſt, entails a ſatisfaction even in the loweſt poverty. It gilds the humble heart, and lights the cabin; their homely meal is a ſacrifice of thanks, and every breath of ſmoke ariſes in incenſe. If hand be laid upon hand, it is ſure affection; and if ſome infant plays about their knees, they look upon him and upon each other with a delight that greatneſs ſeldom knows, becauſe it feels diſtruſt.

CONTINENT, in general, an appellation given to things continued without interruption; in which ſenſe we ſay, *continent fever*, &c.

Continent, in geography, a great extent of land not interrupted by ſeas, in contradiſtinction to iſland and peninſula, &c. See Geography.—Sicily is ſaid to have been anciently torn from the continent of Italy; and it is an old tradition, which ſome antiquaries ſtill have a regard to, that Britain was formerly a part of the continent of France.

The world is uſually divided into two great continents, the old and the new. Whether there exiſts in the *ſouthern hemiſphere* another continent, or the whole be only an immenſe watery region, is a queſtion that for near three centuries has engaged the attention of the learned as well as the commercial world, and given riſe to many intereſting voyages and diſcoveries; concerning which, ſee the article South *Sea*.

CONTINGENT, ſomething caſual or unuſual. Hence future contingent, denotes a conditional event which may or may not happen, according as circumſtances fall out.

Contingent, is alſo a term of relation for the quota that falls to any perſon upon a diviſion. Thus each prince of Germany in time of war is to furniſh ſo many men, ſo much money, and munition, for his contingent.

CONTINUED, or Continual, in a general ſenſe, means inceſſant, or proceeding without interruption.

Continued Fever, is ſuch a one as ſometimes remits, but never intermits or goes entirely off till its period.

Continued Baſs, in muſic, thus called, ſays Rouſſeau, becauſe it is continued through the whole piece. Its principal uſe, beſides that of regulating the harmony, is to ſupport the voice and preſerve the tone. They pretend that it was one *Ludovico Viana*, of whom a treatiſe ſtill remains, who towards the end of the laſt century firſt put the continued baſs in practice.

Continued Proportion, in arithmetic, is that where the conſequent of the firſt ratio is the ſame with the antecedent of the ſecond; as, 4 : 8 : : 8 : 16; in contradiſtinction to diſcrete proportion.

CONTINUITY, is defined by ſome ſchoolmen the immediate coheſion of parts in the ſame quantum; by others, a mode of body, whereby its extremities become one: and by others, a ſtate of body reſulting from the mutual implication of its parts. There are two kinds of continuity, mathematical and phyſical. The firſt is merely imaginary, ſince it ſuppoſes real or phyſical parts where there are none. The other, or phyſical continuity, is that ſtate of two or more particles, in which their parts are ſo mutually implicated as to conſtitute one uninterrupted quantity or continuum.

CONTINUO, in muſic, ſignifies the thorough baſs, as *baſſo continuo* is the continual or thorough baſs, which is ſometimes marked in muſic-books by the letters B. C.

CONTOBABDITES, a ſect in the ſixth century. Their firſt leader was Severus of Antioch; who was ſucceeded by John the grammarian ſurnamed Philoponus, and one Theodoſius, whoſe followers were alſo called *Theodoſians*. Part of them, who were willing to receive a book compoſed by Theodoſius on the Trinity, made a ſeparate body, and were called *Contobabdites*, from ſome place, which Nicephorus does not mention, but which muſt apparently have been the place where they held their aſſemblies. The Contobabdites allowed of no biſhops; which is the only circumſtance given us concerning them.

CONTOR, Condor, or Cundur, the American name of a ſpecies of Vultur.

CONTORSION, in general, ſignifies the action of twiſting or wreſting a member of the body out of its natural ſituation. Rope dancers accuſtom themſelves to contorſions of their limbs, from their youth, to render the fibres of their articulations lax, and ſupple to all kinds of poſtures.

Contorsion, in medicine, has many ſignifications. 1. It denotes the iliac paſſion. 2. An incomplete diſlocation, when a bone is in part, but not entirely, forced from its articulation. 3. A diſlocation of the vertebræ of the back ſide-ways, or a crookedneſs of theſe vertebræ. And, 4. A diſorder of the head, in which it is drawn towards one ſide, either by a ſpaſmodic contraction of the muſcles on the ſame ſide, or a palſy of the antagoniſt muſcles on the other.

CONTORTÆ, the name of the 30th order in Linnæus's næus's Fragments of a natural method, conſiſting of plants which have a ſingle petal that is twiſted or bent to one ſide. This order contains the following genera, viz. echites, cerbera, gardenia, genipa, microcnemum, nerium, periploca, rawolfia, tabernæmontana, vinca, apocynum, aſclepias, comeraria, ceropegia, cynanchum, plumeria, ſtapelia.

CONTOUR, in painting, the outline, or that which defines a figure.

A great part of the ſkill of the painter lies in managing the contours well. Contour, with the Italian painters, ſignifies the lineaments of the face.

CONTOURNE, in heraldry, is uſed when a beaſt is repreſented ſtanding or running with its face to the ſiniſter ſide of the eſcutcheon, they being always ſuppoſed to look to the right, if not otherwiſe expreſſed.

CONTOURNIATED, a term among antiquaries applied to medals, the edges of which appear as if turned in a lath. This ſort of work ſeems to have had its origin in Greece; and to have been deſigned to perpetuate the memories of great men, particularly thoſe who had bore away the prize at the ſolemn games. Such are thoſe remaining of Homer, Solon, Euclid, Pythagoras, Socrates, and ſeveral athletæ.

CONTRABAND, in commerce, a prohibited commodity, or merchandiſe bought or ſold, imported or exported, in prejudice to the laws and ordinances of a ſtate, or the public prohibitions of the ſovereign. Contraband goods are not only liable to confiſcation themſelves, but alſo ſubject all other allowed merchandiſe found with them in the ſame box, bale, or parcel, together with the horſes, waggons, &c. which conduct them. There are contrabands likewiſe, which, beſides the forfeiture of the goods, are attended with ſeveral penalties and diſabilities.

CONTRACT, in a general ſenſe, a mutual conſent of two or more parties, who voluntarily promiſe and oblige themſelves to do ſomething; pay a certain ſum, or the like. All donations, exchanges, leaſes, &c. are ſo many different contracts.

Contract is particularly uſed in common law, for an agreement or covenant between two, with a lawful conſideration or cauſe. As, if I ſell my horſe for money; or covenant, in conſideration of L. 20, to make you a leaſe of a farm; theſe are good contracts becauſe there is *quid pro quo.*

Uſurious Contract, is a contract to pay more intereſt for money than the laws allow. See Usury.

Thoſe contracts are ſaid to be *null* which the law prohibits the making of; ſuch are all contracts between perſons incapable of contracting, as minors, religious, lunatics, wives without conſent of their huſbands, &c.

Contract is alſo uſed for the inſtrument in wriing, which ſerves as a proof of the conſent granted, and the obligation paſſed between the parties.

Among the ancient Romans, contracts, and all voluntary acts, were written, either by the parties themſelves, or by one of the witneſſes, or by a domeſtic ſecretary of one of the parties, whom they called a *notary*, but who was no public perſon as among us.

The contract, when finiſhed, was carried to the magiſtrate, who gave it a public authority by receiving it *inter acta*, into the number of acts under his juriſdiction; giving each of the parties a copy thereof, tranſcribed by his clerks or domeſtic regiſters, and ſealed with his ſeal. Which practice paſſed into France, where it obtained a long time.

CONTRACTILE force, that property or power inherent in certain bodies, whereby, when extended, they are enabled to draw themſelves up again to their former dimenſions.

CONTRACTION, in phyſics, the diminiſhing the extent or dimenſions of a body, or the cauſing its parts to approach nearer to each other; in which ſenſe it ſtands oppoſed to dilatation or expanſion.

Contraction is frequently uſed, by anatomical writers, to expreſs the ſhrinking up of a fibre, or an aſſemblage of fibres, when extended.

Convulſions and ſpaſms proceed from a preternatural contraction of the fibres of the muſcles of the part convulſed. On the contrary, paralytic diſorders generally proceed from a too great laxneſs of the fibres of the parts affected; or from the want of that degree of contraction neceſſary to perform the natural motion or action of the part. In the firſt, therefore, the animal ſpirits are ſuppoſed to flow, either in too great a quantity, or irregularly; and, in the laſt, the animal ſpirits are either denied a free paſſage into the part affected, or the tenſion of the fibrillæ is ſuppoſed inſufficient to promote the circulation.

Contraction, in grammar, is the reducing of two ſyllables into one, as *can't* for *cannot*, *ſhould'ſt* for *ſhouldeſt*, &c.

CONTRADICTION, a ſpecies of direct oppoſition, wherein one thing is found diametrically oppoſite to another.

CONTRADICTORY propositions, are oppoſites, one of which imports a mere and naked denial of the other.

Seeming contradictories is when the members of a period quite diſagree in appearance and ſound, but perfectly agree and are conſiſtent in ſenſe: thus,

> " Cowards die many times before their death:
> " The valiant never taſte of death but once."
> Shakespeare.

CONTRAFISSURE, in ſurgery, a kind of fracture, or fiſſure, in the cranium, which ſometimes happens on the ſide oppoſite to that which received the blow, or, at leaſt, at ſome diſtance from it.

CONTRAINDICATION, in medicine, is an indication which forbids that to be done which the main ſcope of a diſeaſe points out.

Suppoſe, *e. gr.* in the cure of a diſeaſe a vomit were judged proper; if the patient be ſubject to a vomiting of blood, it is a ſufficient contraindication as to its exhibition.

CONTRARIETY, an oppoſition between two things, which imports their being contrary to one another; and conſiſts in this, that one of the terms implies a negation of the other, either mediately or immediately; ſo that contrariety may be ſaid to be the contraſt, or oppoſition of two things, one of which imports the abſence of the other, as love and hatred.

CONTRAST; oppoſition or diſſimilitude of figures, by which one contributes to the viſibility or effect of the others. See Resemblance.

CONTRAST, in painting and ſculpture, expreſſes an oppoſition or difference of poſition, attitude, &c. of two or more figures, contrived to make variety in a painting, &c. as where, in a groupe of three figures, one is ſhown before, another behind, and another ſideways, they are ſaid to be in contraſt.

The contraſt is not only to be obſerved in the poſition of ſeveral figures, but alſo in that of the ſeveral members of the ſame figure: thus, if the right arm advance fartheſt, the right leg is to be hindermoſt; if the eye be directed one way, the arm to go the contrary way, &c. The contraſt muſt be purſued even in the drapery.

CONTRAST, in architecture, is to avoid the repetition of the ſame thing, in order to pleaſe by variety.

CONTRATE-WHEEL, in watch-work, that next to the crown, the teeth and hoop whereof lie contrary to thoſe of the other wheels, from whence it takes its name. See WATCH-*Making*.

CONTRAVALLATION, or *the Line of* CONTRAVALLATION, in fortification, a trench guarded with a parapet, and uſually cut round about a place by the beſiegers, to ſecure themſelves on that ſide, and to ſtop the ſallies of the garriſon. See FORTIFICATION.

CONTRAVENTION, in law, a man's failing to diſcharge his word, obligation, duty, or the laws or cuſtoms of the place.

CONTRAYERVA, in botany. See DORSTENIA.

CONTRE, in heraldry, an appellation given to ſeveral bearings, on account of their cutting the ſhield contrary and oppoſite ways: thus we meet with contre-bend, contre-chevron, contre-pale, &c. when there are two ordinaries of the ſame nature oppoſite to each other, ſo as colour may be oppoſed to metal, and metal to colour.

CONTRIBUTION, the payment of each perſon's quota of the part he is to bear in ſome impoſition, or common expence. See CONTINGENT, &c.—Contributions are either involuntary, as thoſe of taxes and impoſts; or voluntary, as thoſe of expences for carrying on ſome undertaking for the intereſt of the community.

CONTRIBUTIONS, in a military ſenſe, are impoſitions paid by frontier countries to ſecure themſelves from being plundered, and ruined by the enemy's army. The peaſants till their ground under their faith of contributions, as ſecurely as in time of profound peace.

CONTRITION, in theology, a ſorrow for our ſins, reſulting from the reflection of having offended God, from the ſole conſideration of his goodneſs, without any regard to the puniſhment due to the treſpaſs, and attended with a ſincere reſolution of reforming them. The word is derived from the Latin *conterere*, to break or bruiſe.

CONTROL, is properly a double regiſter kept of acts, iſſues, &c. of the officers or commiſſioners in the revenue, army, &c. in order to perceive the true ſtate thereof, and to certify the truth, and the due keeping of the acts ſubject to the enregiſterment.

CONTROLLER an officer appointed to control or overſee the accounts of other officers; and on occaſion, to certify whether or no things have been controlled or examined.

In Britain there are ſeveral officers of this name: as controller of the king's houſe, controller of the navy, controller of the cuſtoms, controller of the mint, &c.

CONTROLLER of the Hanaper, an officer that attends the lord chancellor daily, in term and in ſeal-time, to take all things ſealed in leathern bags from the clerks of the hanaper, and to take the number and effect thereof, and enter them in a book, with all the duties belonging to the king and other officers for the ſame, and ſo charge the clerk of the hanaper with them.

CONTROLLER of the Houſehold, the ſecond officer under the lord ſteward. The name of his office comes from the French word *contrerouler*. His office is to control the accounts and reckonings of the Green Cloth, of which board he is always a member. He carries, a white ſtaff, and is always one of the privy-council. He has L. 107: 17: 6 a-year wages, and L.1092: 2: 6 board-wages.

CONTROLLER of the Pipe, an officer of the exchequer, that makes out a ſummons twice every year, to levy the farms and debts of the pipe. See PIPE and EXCHEQUER.

CONTROLLERS of the Pells, two officers of the exchequer, who are the chamberlain's clerks, and keep a control of the pell of receipts, and going out.

CONTUMACY, in law, a refuſal to appear in court when legally ſummoned, or the diſobedience to the rules and orders of a court having power to puniſh ſuch offence.

CONTUSION, in medicine and ſurgery, any hurt of the body that is inflicted by a blunt inſtrument. See SURGERY.

CONVALLESCENCE, in medicine, the inſenſible recovery of health; or that ſtate in which, after the cure of a diſorder, the body which has been reduced, has not yet regained its vigour, but begins to reſume its powers. Proper aliments conduce to the re-eſtabliſhment of the languid faculties; but as the tone of the bowels is weakened, the digeſtive faculty is not equal to its office, which is ſhown by light ſweats over the whole body; and the ſmalleſt exceſs in this reſpect is oftentimes the occaſion of dangerous relapſes. A perſon in this ſtate is like a taper relumined, which the leaſt degree of wind is ſufficient to extinguiſh.

CONVALLARIA, or, *LILY of the VALLEY*, in botany, a genus of the monogynia order, belonging to the hexandria claſs of plants; and in the natural method ranking under *Sarmentaceæ*, or 11th order. The corolla is ſexfid; the berry ſpotted and trilocular. The ſpecies are eight, three of which are natives of Britain, *viz.* the maialis, or may-lily; the multiflora, or ſolomon's-ſeal; and the polygonatum, or ſweet-ſmelling ſolomon's-ſeal. They are plants of conſiderable beauty, and may eaſily be propagated by their creeping roots.

CONVENARUM URBS, or *Lugdunum*, (anc. geog.) a town of the Convenae, a people of Gallia Narbonenſis at the foot of the Pyrennees. Its origin was owing to the Sertorian war, Pompey compelling the robbers of the Pyrenees and fugitive ſlaves to ſettle there, (Pliny). It ſtood near the head of the Garonne. Now St Bertrand, in Gaſcony. E. Long. 30′, Lat. 43° 15′.

CONVENTICLE, a diminutive of convent; denoting, properly, a cabal, or ſecret aſſembly, of a part of the monks of a convent, to make a brigue or party in the election of an abbot. From the ill uſe of theſe aſſemblies, the word is come into diſrepute; and now ſtands for any miſchievous, ſeditious, or irregular aſſembly. F. Doucine obſerves, the occidentals always eſteemed the fifth general council an unlawful conventicle.

The term conventicle is ſaid, by ſome, to have been firſt applied in England to the ſchools of Wickliff, and has been ſince uſed to ſignify the religious aſſemblies of all in that country who do not conform to the eſtabliſhed doctrines and worſhip of the church of England.

By 22 Car. II. cap. 1. it is enacted, That if any perſons of the age of 16 years, ſubjects of this kingdom, ſhall be preſent at any conventicle, where there are five or more aſſembled, they ſhall be fined 5 s. for the firſt offence, and 10 s. for the ſecond; and perſons preaching incur a penalty of L. 20. Alſo ſuffering a meeting to be held in a houſe, &c. is liable to L. 20 penalty. Juſtices of peace have power to enter ſuch houſes, and ſeize perſons aſſembled, &c. And if they neglect their duty, they ſhall forfeit L. 100. And if any conſtable, &c. know of ſuch meetings, and do not inform a juſtice of peace, or chief magiſtrate, &c. he ſhall forfeit L. 5. But the 1ſt W. and M. cap 18. ordains, that proteſtant diſſenters ſhall be exempt from penalties: though, if they meet in a houſe with the doors locked, barred, or bolted, ſuch diſſenters ſhall have no benefit from 1 W. and M. Officers of the government, &c. preſent at any conventicle, at which there ſhall be ten perſons, if the royal family be not prayed for in expreſs words, ſhall forfeit L. 40 and be diſabled; (Stat. 10 Anne, cap. 2.)

CONVENTION, a treaty, contract, or agreement between two or more parties.

CONVENTION is alſo a name given in England to an extraordinary aſſembly of parliament, or the eſtates of the realm, held without the king's writ. Of this kind was the convention parliament which reſtored Charles II. This parliament met above a month before his return, and ſat full ſeven months after his reſtoration, and enacted ſeveral laws ſtill in force, which were confirmed by ſtat. 13 Car. II. c. 7. and c. 14. Such alſo was the convention of eſtates in 1688, who, upon the retreat of king James II. came to a concluſion that he had abdicated the throne, and that the right of ſucceſſion devolved to king William and queen Mary; whereupon their aſſembly expired as a convention, and was converted into a parliament.

CONVENTION of Eſtates, in Scotland, was partly of the nature of a parliament; but differing in this, that the former could only lay on taxes, while parliament could both impoſe taxes and make laws.

CONVENTUAL, ſomething belonging to a convent or monaſtery. See MONASTERY, and COENOBITE.

CONVENTUAL is particularly uſed for a religious who actually reſides in a convent; in contradiſtinction to thoſe who are only gueſts, or are entertained there, or in poſſeſſion of benefices depending on the houſe. See MONK.

CONVENTUS JURIDICI, were courts of juſtice eſtabliſhed in the Roman provinces; with a reſort or extent of juriſdiction, circumſcribed and confined within certain limits of diſtrict, whither all who were of the reſort were to repair for juſtice. The unſeaſonable affectation of changing forms of war into forms of civil courts, proved the ruin of Varus and of three legions in Germany, (Florus). *Conventum agere*, is to hold a court of juſtice.

CONVERGING, or CONVERGENT *Lines*, in geometry, are ſuch as continually approach nearer one another, or whoſe diſtances become ſtill leſs and leſs. Theſe are oppoſed to divergent lines, the diſtances of which become continually greater: thoſe lines which converge one way, diverge the other.

CONVERGING Rays, in optics, thoſe rays that, iſſuing from divers points of an object, incline towards another, till at laſt they meet and croſs, and then become diverging rays.

CONVERSATION, or DISCOURSE, ſignifies an interlocution between two, or among more perſons; with this diſtinction, that converſation is uſed for any general intercourſe of ſentiments whatever, whereas a diſcourſe means a converſation limited to ſome particular ſubject.

There is no part, perhaps, of ſocial life which affords more real ſatisfaction than thoſe hours which one paſſes in rational and unreſerved converſation. That converſation, however, may anſwer the ends for which it was deſigned, the parties who are to join in it muſt come together with a determined reſolution to pleaſe, and to be pleaſed.

In the conduct of it, be not eager to interrupt others, or uneaſy at being yourſelf interrupted; ſince you ſpeak either to amuſe or inſtruct the company, or to receive thoſe benefits from it. Give all, therefore, leave to ſpeak in turn. Hear with patience, and anſwer with preciſion. Inattention is ill manners; it ſhows contempt; and contempt is never forgiven.

Trouble not the company with your own private concerns, as you do not love to be troubled with thoſe of others. Yours are as little to them as theirs are to you. You will need no other rule whereby to judge of this matter.

Contrive, but with dexterity and propriety, that each perſon may have an opportunity of diſcourſing on the ſubject with which he is beſt acquainted. He will be pleaſed, and you will be informed. By obſerving this rule, every one has it in his power to aſſiſt in rendering converſation agreeable; ſince, though he may not chooſe, or be qualified, to ſay much himſelf, he can propoſe queſtions to thoſe who are able to anſwer them.

Avoid ſtories, unleſs ſhort, pointed, and quite *a-propos*. He who deals in them, ſays Swift, muſt either have a very large ſtock, or a good memory, or muſt often change his company. Some have a ſet of them ſtrung together like onions; they take poſſeſſion of the converſation by an early introduction of one, and then you may have the whole rope; and there is an end of every thing elſe, perhaps, for that meeting, though you may have heard all twenty times before.

Talk often, but not long. The talent of haranguing

ing private company is inſupportable. Senators and barriſters are apt to be guilty of this fault; and members who never harangue in the houſe, will often do it out of the houſe. If the majority of the company be naturally ſilent, or cautious, the converſation will flag, unleſs it be often renewed by one among them who can ſtart new ſubjects. Forbear, however, if poſſible, to broach a ſecond before the firſt is out, leſt your ſtock ſhould not laſt, and you ſhould be obliged to come back to the old barrel. There are thoſe who will repeatedly croſs upon and break into the converſation with a freſh topic, till they have touched upon all, and exhauſted none. Economy here is neceſſary for moſt people.

Laugh not at your own wit and humour; leave that to the company.

When the converſation is flowing in a ſerious and uſeful channel, never interrupt it by an ill-timed jeſt. The ſtream is ſcattered, and cannot be again collected.

Diſcourſe not in a whiſper, or half-voice, to your next neighbour. It is ill-breeding, and, in ſome degree, a fraud; converſation-ſtock being, as one has well obſerved, a joint and common property.

In reflections on abſent people, go no farther than you would go if they were preſent. "I reſolve (ſays biſhop Beveridge) never to ſpeak of man's virtues to his face, nor of his faults behind his back:" ---A golden rule! the obſervation of which would, at one ſtroke, baniſh flattery and defamation from the earth.

CONVERSE, in mathematics. One propoſition is called the *converſe* of another, when, after a concluſion is drawn from ſomething ſuppoſed in the converſe propoſition, that concluſion is ſuppoſed; and then, that which in the other was ſuppoſed, is now drawn as a concluſion from it: thus, when two ſides of a triangle are equal, the angles under theſe ſides are equal; and, on the converſe, if theſe angles are equal, the two ſides are equal.

CONVERSION, in a moral ſenſe, implies a repentance for a temper and conduct unworthy our nature, and unbecoming our obligations to its Author, and a reſolution to act a wiſer and a better part for the future.

CONVERSION, in war, a military motion, whereby the front of a battalion is turned where the flank was, in caſe the battalion is attaked in the flank.

CONVERSION of Equations, the ſame with reduction of equations by multiplication. See ALGERBA.

CONVERT, a perſon who has undergone a converſion.

CONVERT is chiefly uſed in reſpect of changes from one religion, or religious ſect, to another. Converts with relation to the religion turned to, are denominated *apoſtates* with regard to that they have relinquiſhed.

The Jews formerly converted to Chriſtianity in England, were called *converſos*. Henry III. built them a houſe in London, and allowed them a competent ſubſiſtence for their lives; which houſe was called *domus converſorum*. But the number afterwards increaſing, they grew a burden to the crown; upon which they were diſtributed among the monaſteries: and after the expulſion of the Jews under Edward. III. the *domus converſorum* was given for keeping of the rolls.

CONVERTS, in a monaſtic ſenſe, are lay-friars, or brothers, admitted for the ſervice of the houſe: without orders, and not allowed to ſing in the choir. Till the eleventh century, the word was uſed for perſons who embraced the monkiſh life at the age of diſcretion; by which they were diſtinguiſhed from thoſe devoted in their childhood by their parents, called *oblati*. But in the eleventh century, when, they began to receive into monaſteries illiterate perſons, incapable of being clerks, and only deſtined for bodily labour, the ſignification of the word was neceſſarily changed. F. Mabillon obſerves, that it was John firſt abbot of Vallambroſa who firſt introduced theſe brother-converts, diſtinguiſhed by their ſtate from the monks of the choir, who were then either clerks or capable of becoming ſo.

CONVEX, an appellation given to the exterior ſurface of gibbous or globular bodies; in oppoſition to the hollow inner ſurface of ſuch bodies, which is called *concave*: thus we ſay, a convex frieze, lens, mirror, ſuperficies, &c.

CONVEXITY, the exterior ſurface of a convex, *i. e.* gibbous and globular thing; in oppoſition to concavity, or the inner ſurface, which is hollow or depreſſed. See CONCAVE.

The word is of a peculiar import in catoptrics and dioptrics; where it is applied to mirrors and lenſes.

A convex mirror repreſents its images ſmaller than the objects; as a concave one repreſents them larger: a convex mirror reflects the rays from it, diverging; and therefore diſperſes and weakens their effect: as a concave one reflects them converging, ſo as they concur in a point, and have their effect increaſed: and by how much the mirror is a portion of a ſmaller ſphere, by ſo much does it diminiſh the objects, and diſperſe the rays the more. See MIRROR.

A convex lens is either convex on both ſides, called a *convexo-convex*; or it is plain an one ſide and convex on the other, called a *plano-convex*; or concave on one ſide and convex on the other, called a *convexo-concave*, or *concavo-convex*, as the one or the other ſurface prevails, *i. e.* as this or that is a portion of a ſmaller ſphere. All convex lenſes inflect the rays of light in their paſſage, *i. e.* ſend them out from their convex ſurface converging, ſo as that they concur in a point or focus. Hence all convex lenſes magnify, *i. e.* repreſent their images larger than their objects; and this the more as they are portions of ſmaller ſpheres.

CONVEYANCE, in law, a deed or inſtrument that paſſes land, &c. from one perſon to another.

CONVICT, in common law, a perſon that is found guilty of an offence by the verdict of a jury. See the following article.

CONVICTION, in law. When a jury has given a verdict upon trial, finding the priſoner guilty, he is ſaid to be *convicted* of the crime whereof he ſtands indicted. See TRIAL.

When the offender is thus convicted, there are two collateral circumſtances that immediately ariſe. 1. On a conviction in general for any felony, the reaſonable expences of proſecution are by ſtatute 25 Geo. II. c. 36. to be allowed the proſecutor out of the county-ſtock, if he petitions the judge for that purpoſe; and by ſtatute 27. Geo. II. c. 3. poor perſons, bound over to give evidence, are likewiſe intitled to be paid their charges, as well without conviction as with it. 2. On a conviction of larceny in particular, the proſecutor ſhall have reſtitution of his goods by virtue of the ſtatute 21 Hen. VIII. c. 11. For by the common law there was no reſtitution of goods upon an indictment; becauſe it is at the ſuit of the king only; and therefore the party was enforced to bring an appeal of robbery, in order to have his goods again. But, it being conſidered that the party proſecuting the offender by indictment, deſerves to the full as much encouragement as he who proſecutes by appeal, this ſtatute was made, which enacts, that if any perſon be convicted of larceny by the evidence of the party robbed, he ſhall have full reſtitution of his money, goods, and chattels, or the value of them out of the offender's goods, if he has any, by a writ to be granted by the juſtices. And the conſtruction of this act having been in great meaſure conformable to the law of appeals, it has therefore in practice ſuperſeded the uſe of appeals of larceny. For inſtance, as formerly upon appeals, ſo now upon indictments of larceny, this writ of reſtitution ſhall reach the goods ſo ſtolen, notwithſtanding the property of them is endeavoured to be altered by ſale in market overt. And though this may ſeem ſomewhat hard upon the buyer, yet the rule of law is, that *ſpoliatus debet ante omnia reſtitui*, eſpecially when he has uſed all the diligence in his power to convict the felon. And, ſince the caſe is reduced to this hard neceſſity, that either the owner or the buyer muſt ſuffer; the law prefers the right of the owner, who has done a meritorious act by purſuing a felon to condign puniſhment, to the right of the buyer, whoſe merit is only negative, that he has been guilty of no unfair tranſaction. And it is now uſual for the court, upon the conviction of a felon, to order, without any writ, immediate reſtitution of ſuch goods as are brought into court, to be made to the ſeveral proſecutors. Or elſe, ſecondly, without ſuch writ of reſtitution, the party may peaceably retake his goods wherever he happens to find them, unleſs a new property be fairly acquired therein. Or, laſtly, if the felon be convicted and pardoned, or be allowed his clergy, the party robbed may bring his action of trover againſt him for his goods, and recover a ſatisfaction in damages. But ſuch action lies not before proſecution; for ſo felonies would be made up and healed: and alſo recaption is unlawful, if it be done with intention to ſmother and compound the larceny; it then becoming the heinous offence of *theft-bote*.

It is not uncommon, when a perſon is convicted of a miſdemeanor, which principally and more immediately affects ſome individual, as a battery, impriſonment, or the like, for the court to permit the defendant to *ſpeak with the proſecutor*, before any judgement is pronounced; and if the proſecutor declares himſelf ſatisfied, to inflict but a trivial puniſhment. This is done to reimburſe the proſecutor his expences, and make him ſome private amends, without the trouble and circuity of a civil action. But it is ſurely a dangerous practice: and, though it may be entruſted to the prudence and diſcretion of the judges in the ſuperior courts of record, it ought never to be allowed in local or inferior juriſdictions, ſuch as the quarter-ſeſſions: where proſecutions for aſſaults are by this means too frequently commenced rather for private lucre than for the great ends of public juſtice. Above all, it ſhould never be ſuffered, where the teſtimony of the proſecutor himſelf is neceſſary to convict the defendant: for by this means the rules of evidence are entirely ſubverted; the proſecutor becomes in effect a plantiff, and yet is ſuffered to bear witneſs for himſelf. Nay, even a voluntary forgiveneſs by the party injured, ought not, in true policy, to intercept the ſtroke of juſtice. “This (ſays an elegant writer who pleads with equal ſtrength for the *certainty*, as for the lenity of puniſhment), may be an act of good nature and humanity, but is contrary to the good of the public. For although a private citizen may diſpenſe with ſatisfaction for his private injury, he cannot remove the neceſſity of public example. The right of puniſhing belongs not to any one individual in particular, but to the ſociety in general, or to the ſovereign who repreſents that ſociety; and a man may renounce his own portion of this right, but he cannot give up that of others.”

Conviction, in theology, expreſſes the firſt degree of repentance, wherein the ſinner becomes ſenſible of his guilt, of the evil nature of ſin, and of the danger of his own ways.

CONVOCATION, an aſſembly of the clergy of England, by their repreſentatives, to conſult of eccleſiaſtical mattters. It is held during the ſeſſion of parliament, and conſiſts of an upper and a lower houſe. In the upper ſit the biſhops, and in the lower the inferior clergy, who are repreſented by their proctors; conſiſting of all the deans and archdeacons, of one proctor for every chapter, and two for the clergy of every dioceſe, in all 143 divines; *viz.* 22 deans, 53 archdeacons, 24 prebendaries, and 44 proctors of the dioceſian clergy. The lower houſe chooſes its prolocutor; whoſe buſineſs it is to take care that the members attend, to collect their debates and votes, and to carry their reſolutions to the upper houſe. The convocation is ſummoned by the king's writ, directed to the archbiſhop of each province, requiring him to ſummon all biſhops, deans, archdeacons, &c.

The power of the convocation is limited by a ſtatute of Henry VIII. They are not to make any canons or eccleſiaſtical laws without the king's licence; nor, when permitted to make any, can they put them in execution, but under ſeveral reſtrictions. They have the examining and cenſuring all heretical and ſchiſmatical books and perſons, &c. but there lies an appeal to the king in chancery, or to his delegates; The clergy in convocation, and their ſervants, have the ſame privileges as members of parliament.

Since the year 1665, when the convocation of the clergy gave up the privilege of taxing themſelves to the houſe of commons, they ſeldom have been allowed to do any buſineſs; and are generally prorogued from time to time till diſſolved, a new one being generally called along with a new parliament. The only equivalent for giving up the privilege of taxing themſelves, was their being allowed to vote at elections for members to the houſe of commons, which they had not before.

CONVOLUTION, a winding motion, proper to the trunks of ſome plants, as the convolvulus, or bindweed; the claſpers of vines, bryony, &c.

CONVOLVULUS, BIND-WEED: A genus of the pentandria order, belonging to the monogynia claſs of plants; and in the natural method ranking under the 29th order, *Campanaceæ*. The corolla is campanulated and plaited; there are two ſtigmata; the capſule is bilocular, and the cells are diſpermous. Of this genus there is a great number of ſpecies, the moſt remarkable of which are the following.

1. The ſepium, or large white bind-weed, is often a troubleſome weed in gardens, when its roots are interwoven with thoſe of trees and ſhrubs, or under hedges, as every ſmall piece of root is apt to grow. It flouriſhes under moiſt hedges, and hath white or purpliſh bloſſoms. 2. The ſcammonia, or Syrian bind-weed, grows naturally in Syria. The roots are thick, run deep into the ground, and are covered with a dark bark. The branches extend on every ſide to the diſtance of 10 or 12 feet; they are ſlender, and trail on the ground, and are garniſhed with narrow, arrow-pointed leaves. The flowers are of a pale yellow, and come out from the ſide of the branches, two ſitting upon each long footſtalk: theſe are ſucceeded by roundiſh ſeed-veſſels, having three cells filled with ſeeds. 3. The purpureus, or convolvulus major, is an annual plant growing naturally in Aſia and America, but has been long cultivated in the Britiſh gardens. If theſe plants are properly ſupported, they will riſe 10 or 12 feet high in warm ſummers. There are three or four laſting varieties: the moſt common hath a purple flower; the others have a white, a red, or a whitiſh-blue flower, which laſt hath white ſeeds. They flower in June, July, and Auguſt, and their ſeeds ripen in autumn. 4. The nil, or blue bind-weed, riſes with a twining ſtalk 8 or 10 feet high, garniſhed with heart-ſhaped leaves, divided into three lobes, which end in ſharp points. Theſe are woolly, and ſtand upon long footſtalks. The flowers alſo come out on long footſtalks, each ſuſtaining two flowers of a very deep blue colour, whence their name of anil or indigo. This is one of the moſt beautiful plants of the genus: it flowers all the latter part of the ſummer: and in good ſeaſons the ſeeds ripen very well in the open air. 5. The battatas, or Spaniſh potatoes, hath eſculent roots, which are annually imported from Spain and Portugal, where they are greatly cultivated for the table; but they are too tender to thrive in the open air in Britain. Their roots are like the common potato, but require much more room: for they ſend out many trailing ſtalks, which extend ſix or eight feet every way; and at their joints ſend out roots which in warm countries grow to be very large bulbs; ſo that from a ſingle root planted 40 or 50 large potatoes are produced. 6. The canarienſis, with ſoft woolly leaves, is a native of the Canaries; but hath long been preſerved in the Britiſh gardens. It hath a ſtrong fibrous root, from whence ariſe ſeveral twining woody ſtalks, which, where they have ſupport, will grow more than 20 feet high, garniſhed with oblong heart-ſhaped leaves, which are ſoft and hairy. The flowers are produced from the wings of the leaves, ſeveral ſtanding upon one footſtalk. They are for the moſt part of a pale blue; but there is a variety with white flowers. They appear in June, July, and Auguſt, and ſometimes ripen ſeeds there. 7. The tricolor, or convolvulus minor, is a native of Portugal; but hath long been cultivated in the gardens of Britain. It is an annual plant, which hath ſeveral thick herbaceous ſtalks growing about two feet long, which do not twine like the other ſorts, but decline toward the ground, upon which many of the lower branches lie proſtrate; they are garniſhed with ſpear-ſhaped leaves, which ſit cloſe to the branches; the footſtalks of the flowers come out juſt above the leaves of the ſame joint, and at the ſame ſide of the ſtalks. They are about two inches long, each ſuſtaining one large open bell-ſhaped flower, which in ſome is of a fine blue colour with a white bottom; in others they are pure white, and ſome are beautifully variegated with both colours. The white flowers are ſucceeded by white ſeeds, and the blue by dark-coloured ſeeds; which difference is pretty conſtant. 8. The ſoldanella, or ſea-bindweed, ſtyled alſo *braſſica marina*, grows naturally on the ſea-beaches in many parts of England, but cannot be long preſerved in gardens. It hath many ſmall white ſtringy roots, which ſpread wide and ſend out ſeveral weak trailing branches. Theſe twine about the neighbouring plants like thoſe of the common bindweed, garniſhed with kidney-ſhaped leaves like thoſe of the leſſer celandine. The flowers are produced on the ſide of the branches at each joint. They are of a reddiſh purple colour, and appear in July. They are ſucceeded by round capſules, having three cells, each containing one black ſeed. 9. The turpethum is a native of the iſland of Ceylon. This hath fleſhy thick roots which ſpread far in the ground, and abound with a milky juice that flows out when the roots are broken or wounded, and ſoon hardens into a reſinous ſubſtance when expoſed to the ſun and air. From the root ſhoot forth many twining branches, which twiſt about each other, or the neighbouring plants, like the common bindweed. They are garniſhed with heart-ſhaped leaves that are ſoft to the touch, like thoſe of the marſhmallow. The flowers are produced at the joints on the ſide of the ſtalks, ſeveral ſtanding together on the ſame footſtalk: they are white, and ſhaped like thoſe of the common great bindweed, and are ſucceeded by round capſules, having three cells containing two ſeeds each. 10. The jalappa, or jalap, uſed in medicine, is a native of Haleppo in Spaniſh America, ſituated between La Vera Cruz and Mexico. It hath a large root of an oval form, which is full of a milky juice; from which come out many herbaceous twining ſtalks riſing eight or ten feet high, garniſhed with variable leaves; ſome of them being heart-ſhaped, others angular, and ſome oblong and pointed. They are ſmooth, and ſtand upon long footſtalks; the flowers are ſhaped like thoſe of the common greater bindweed, each footſtalk ſupporting only one flower.

Culture. The firſt and ſecond ſorts are propagated by ſeeds, which muſt be ſown on a border of light earth. The ſecond ſort muſt have ſome tall ſtakes placed near them for their branches to twine about, otherwiſe they will ſpread on the ground and make a bad appearance. The third ſort is annual, and muſt be propagated by ſeeds ſown on a hot-bed in the ſpring, and towards the end of May they ſhould be planted out in warm borders, and treated in the ſame manner with the former. The fourth ſpecies is ſometimes propagated in Britain. The roots muſt be planted on a hot-bed in the ſpring; and if the plants are covered in bad weather with glaſſes, they will produce flowers and ſome ſmall bulbs from the joints of the ſtalks: but if they are expoſed to the open air, they ſeldom grow to any ſize. The fifth is propagated by laying down the young ſhoots in the ſpring, which generally put out roots in three or four months: they may then be taken from the old plants, and each placed in a ſeparate pot, which is to be ſet in the ſhade till they have taken new root; after which they may be placed with other hardy green-houſe plants till autumn, when they ſhould be removed into the green-houſe, and afterwards treated in the ſame manner as myrtles and other green-houſe plants. The turpeth and jalap are too tender to live in Britain, unleſs they are conſtantly keep in a ſtove. The other ſpecies require no particular directions for their cultivation.

Uſes. The root of the firſt ſort is a very acrid purgative to the human race, but is eaten by hogs in large quantities without any detriment. The inſpiſſated juice of the ſecond ſpecies is uſed in medicine as a ſtrong purgative; as are alſo the roots of the jalappa and turpethum. The ſoldanella has likewiſe been uſed with the ſame intention. Half an ounce of the juice, or a drachm of the powder, is an acrid purge. The leaves applied externally are ſaid to diminiſh dropſical ſwellings of the feet. See SCAMMONY, JALAP, and TURPETH.

CONVOY, in naval affairs, one or more ſhips of war, employed to accompany and protect merchant ſhips, and prevent their being inſulted by pirates, or the enemies of the ſtate in time of war.

CONVOY, in military matters, a body of men that guard any ſupply of men, money, ammunition, or proviſions, conveyed by land into a town, army, or the like, in time of war.

CONUS, a CONE, in botany: a ſpecies of fruit or ſcaly ſeed-veſſel, ſo termed by Tournefort and other botaniſts. Linnæus has ſubſtituted STROBILUS in its place.

CONVULSION, a preternatural and violent contraction of the membranous and muſcular parts of the body. See (the *Index* ſubjoined to) MEDICINE.

CONWAY, a market-town of Caernarvonſhire in North Wales, ſituated near the mouth of a river of the ſame name, 15 miles weſt of St Aſaph. W. Long. 3. 50. N. Lat. 53. 20.

CONYZA, FLEABANE; a genus of the polygamia ſuperflua order, belonging to the ſyngeneſia claſs of plants; and in the natural method ranking under the 49th order, *Compoſitæ*. The pappus is ſimple, the calyx imbricated and roundiſh, the corollulæ of the radius trifid. There are 19 ſpecies, none of which merit any particular deſcription.

CONZA, a town of the kingdom of Naples in Italy, ſituated on the farther principate, on the river Offanto, 50 miles ſouth-eaſt of the city of Naples. E. Long. 16. 0. N. Lat. 41. 0. It is the ſee of an archbiſhop.

COOK (Sir Anthony), deſcended from Sir Thomas Cook lord mayor of London, was born in 1506, and ſuppoſed to have been educated at Cambridge. He was ſo eminent for his learning, piety, and prudence, that the guardians of king Edward VI. appointed him to be his chief inſtructor in learning, and to form his manners. He had four daughters; and being reſolved to have ſons by education, leſt he ſhould have none by birth, he taught his daughters thoſe leſſons by night that he had inſtilled into the prince by day: he was happy in his endeavours, as they proved learned in Greek and Latin, and equally diſtinguiſhed by virtue, piety, and good fortune. Mildred was married to the great lord Burleigh; Ann to Sir Nicholas Bacon, lord keeper of the great ſeal; Eliſabeth to Sir John Ruſſel, ſon and heir of Francis earl of Bedford; and Catharine to Sr Henry Killigrew. He lived in exile during the Marian perſecution; and returning on the acceſſion of queen Elizabeth, ſpent the reſt of his days in peace and honour, dying in 1576.

COOK (Captain James), one of the moſt celebrated navigators ever produced by Britain or any other country, was the ſon of James Cook, ſuppoſed to have been a native of the county of Northumberland. His ſtation was no higher than that of a ſervant in huſbandry, and he was married to a woman in his own ſphere of life at Morton, a village in the North riding of Yorkſhire. From this place they removed to another village, in the ſame riding named *Marton*, where Captain Cook was born on the 27th of October 1728. He was one of nine children, all of whom are now dead except a daughter, who married a fiſherman of Redcar. He received the firſt rudiments of education from the ſchoolmiſtreſs of the village; and afterwards, on his father's removal to Great Ayton, he was put to a day ſchool, at the expence of Mr Skottow, his father's employer, where he was inſtructed in writing and in a few of the firſt rules of arithmetic. Before the age of thirteen he was bound apprentice to Mr W. Sanderſon, a haberdaſher or ſhopkeeper at Straiths, about ten miles from Whitby: but ſome diſagreement taking place between him and his maſter, he indulged his own inclination in binding himſelf apprentice to Meſſrs Walkers of Whitby, who had ſeveral veſſels in the coal trade; and after ſerving a few years longer in the ſituation of a common ſailor, he was at length raiſed to be mate of one of Mr Walker's ſhips. During all this period it is not recollected that he exhibited any thing peculiar either in his abilities or conduct.

Early in the year 1755, when hoſtilities broke out between France and England, Cook entered on board the Eagle of ſixty guns, to which veſſel Sir Hugh Palliſer was ſoon after appointed, who ſoon diſtinguiſhed him as an active and diligent ſeaman; and his promotion was forwarded by a letter of recommendation which was written by Mr Oſbaldeſton, member for Scarborough, at the requeſt of ſeveral neighbours, in Mr Cook's favour. On the 15th of May 1759, he was appointed maſter of the Mercury, which ſoon after ſailed to America, and joined the fleet under Sir Charles Saunders at the memorable ſiege of Quebec. His intereſt with the admiralty appears even then to have been very ſtrong; for on Mr Oſbaldeſton's letter he was appointed maſter of the Grampus ſloop; but the proper maſter having unexpectedly returned to her, the appointment did not take place. Four days after he was made maſter of the Garland; when upon inquiry it was found that he could not join her, as the veſſel had already ſailed; and the next day, May 15th 1759, he was made maſter of the Mercury. On this occaſion he was recommended by Captain Palliſer to a difficult and dangerous ſervice, *viz.* to take the ſoundings of the river St Lawrence, between the iſland of Orleans and the north ſhore, which he performed in the moſt complete manner; and ſoon afterwards he was employed to ſurvey the moſt dangerous parts of the river below Quebec: theſe were his firſt efforts with the pencil. After this expedition he was appointed, on the 22d of September, maſter of the Northumberland, ſtationed at Halifax, where he firſt read Euclid, and applied to aſtronomy and other branches of ſcience. In the year 1762 he was with the Northumberland, aſſiſting at the recapture of Newfoundland; and in the latter end of the ſame year he returned to England, and married, at Barking in Eſſex, Miſs Elizabeth Batts. Early in 1763, when admiral (then Captain) Greaves was appointed governor of Newfoundland, Mr Cook went out with him to ſurvey the coaſts of that iſland. At the end of the ſeaſon he returned to England; but in the beginning of 1764, Sir Hugh Palliſer being appointed governor of Newfoundland and Labradore, Mr Cook accompanied him in the ſame capacity of ſurveyor, and had the Grenville ſchooner to attend him on that buſineſs; in this ſituation he continued till 1767.

While Mr Cook remained on this ſtation, he had an opportunity of exhibiting publicly a ſpecimen of his progreſs in the ſtudy of aſtronomy, by a ſhort paper printed in the 57th volume of the Philoſophical Tranſactions, intitled "An obſervation of an eclipſe of the ſun at the iſland of Newfoundland, Auguſt 5, 1766, with the longitude of the place of obſervation deduced from it." Mr Cook's obſervation was made at one of the Burgeo iſlands near Cape Ray, in N. Lat. 47° 56′ 19″, and by the compariſons of it made by Mr Mitchel with an obſervation of Dr Hornſby at Oxford, it appeared to have been accurately done; and Mr Cook at that time obtained the character of an able aſtronomer.

In the mean time a ſpirit for geographical diſcoveries, which had gradually declined ſince the beginning of the 17th century, began to diſcover itſelf anew. Two voyages of this kind had been performed in the reign of George II. the one under Captain Middleton, the other by Captains Moore and Smyth, with a view to diſcover a northweſt paſſage through Hudſon's Bay to the Eaſt Indies. Two others, under Captains Byron, Wallis, and Carteret, had been undertaken ſoon after the concluſion of the peace in 1763 by order of his preſent Majeſty; and before the return of theſe navigators, who were ordered to ſail round the world, another voyage was reſolved upon for aſtronomical purpoſes. It having been calculated that a tranſit of Venus over the ſun's diſk would happen in 1769, a long memorial to his Majeſty was preſented by the Royal Society; in which they ſet forth the great importance of making proper obſervations on this phenomenon, the regard that had been paid to it by the different courts of Europe, and intreating, among other things, that a veſſel might be fitted out, at the expence of government, for conveying proper perſons to ſome of the Friendly Iſlands, in order to make the neceſſary obſervations. This being complied with on the part of his Majeſty, Alexander Dalrymple, Eſq; an eminent member of the Royal Society, was appointed to take the command of the bark appropriated for the purpoſe. In the execution of the project, however, an unexpected difficulty occurred. Mr Dalrymple, ſenſible of the impoſſibility of guiding a veſſel through unknown and dangerous ſeas without any proper command over the crew, demanded a brevet commiſſion as captain of the veſſel, in the ſame manner as had formerly been granted to Dr Halley in a voyage of diſcovery made by him. This commiſſion Sir Edward Hawke abſolutely refuſed to ſign; declaring, when preſſed upon the ſubject, that he would rather ſuffer his right hand to be cut off than truſt any of his Majeſty's ſhips to a perſon who had not been properly bred to the ſervice: and in this proceeding he ſeemed to be juſtified by the mutinous behaviour of Dr Halley's crew; who, denying the legality of his authority over them, had involved him in a very diſagreeable diſpute, and which was attended with pernicious conſequences. Mr Dalrymple, on the other hand, being equally determined in his refuſal to proceed without the authority in queſtion, there was a neceſſity for finding out ſome perſon of ſcience who might alſo be free from the objection made by Sir Edward Hawke. Mr Cook therefore was propoſed by Mr Stephens; and his recommendation being ſeconded by Sir Hugh Palliſer, he was immediately appointed to direct the expedition; and on this occaſion was promoted to the rank of lieutenant in his Majeſty's ſervice.

Mr Cook's commiſſion as lieutenant was dated May 25, 1768; a veſſel of 370 tons, named the *Endeavour*, was provided for him; and while the neceſſary preparations were making for the voyage, Captain Wallis returned. It having been recommended to this gentleman to fix upon a proper place for making the aſtronomical obſervations, he had accordingly choſen the iſland named by him *George's Iſland*, but ſince known by the name of *Otaheite*; judging alſo that Port Royal harbour in it would afford an eligible ſituation. This propoſal being accepted, directions for the purpoſe were accordingly given to Mr Cook, with whom Mr Charles Green was joined in the aſtronomical part; the latter having been aſſiſtant to Dr Bradley in the Royal Obſervatory at Greenwich, and thus judged to be every way qualified for the office. The lieutenant was likewiſe accompanied by Mr Banks, now Sir Joſeph Banks, Dr Solander, &c. The principal deſign of the voyage was, as has already been hinted, to make obſervations on the tranſit of Venus; but this being done, Mr Cook was directed to make further diſcoveries in the Pacific Ocean; and on the 30th of July 1768 he ſet ſail on his expedition. An account of the voyage, and the diſcoveries made during the time of it, is given in the next article: here it is ſufficient to obſerve, that throughout the whole Mr Cook approved himſelf an able ſeaman; and from his behaviour both to his own people and to the ſavage nations he occaſionally met with, ſhowed a moſt exact regard to the rules both of juſtice and humanity. On his firſt arrival at Otaheite, the following regulations were drawn up for his people, which he took care ſhould be punctually obeyed: 1. To endeavour, by every fair means, to cultivate a friendſhip with the natives, and to treat them with all imaginable humanity. 2. A proper perſon or perſons to be appointed to treat with the natives for proviſions, fruits, &c. and no other perſon belonging to the ſhip to do ſo without leave. 3. Every perſon on ſhore to attend punctually to his duty, and to pay proper attention to his tools or arms; and if loſt through negligence, to have the full value charged againſt his pay, with ſuch farther puniſhment inflicted as occaſion might require. 4. The ſame penalty to be inflicted on every one who ſhould embezzle, trade with, or offer to trade with, any part of the ſhips ſtores; and, 5. No iron to be given in exchange for any thing but proviſions. His rigid adherence to theſe rules was manifeſted in ſeveral inſtances, particularly by ſeverely puniſhing the ſhip's butcher, who had threatened the life of a woman, wife to one of the chiefs of the iſland, for refuſing a ſtone hatchet on the terms he propoſed. On erecting their obſervatory, in order to go through the aſtronomical operations, an accident happened which had like to have diſconcerted the whole ſcheme. This was the loſs of their quadrant, which had been ſtolen by ſome of the natives; but, chiefly through the exertions of Mr Banks, it was recovered, and the obſervations made accordingly. Scarce was this accompliſhed, however, before another theft of the natives demanded the moſt ſerious conſideration of the commander. Some of them taking advantage of the attention of the officers being otherwiſe engaged, took the opportunity of breaking into one of the ſtore-rooms, and ſtealing from thence a bag of ſpike nails of no leſs than an hundred weight. This was a moſt important affair; for as thoſe nails were of great eſtimation among the Indians, the poſſeſſion of ſuch quantity muſt undoubtedly have much leſſened their value, and thus rendered proviſions of every kind greatly dearer on the iſland than before. One of the thieves therefore being diſcovered, was puniſhed with 200 laſhes: notwithſtanding which he obſtinately refuſed to diſcover any of his accomplices. Repeated thefts committed afterwards required all the wiſdom and reſolution of Mr Cook to conduct himſelf in a proper manner. After due conſideration, he judged it to be a matter of importance to put an end to theſe practices at once, by doing ſomething which might engage the natives themſelves to prevent them for their common intereſt. This, however, he was not at preſent able to accompliſh; nor indeed did it ſeem poſſible to prevent them without uſing fire-arms, which from motives of humanity he ſtill determined to avoid. At laſt, after a ſtay of three months, when preparing to take his leave, the moſt diſagreeable adventure took place that he had hitherto met with. This was the deſertion of two of his people, who having married young women of the country, determined to take up their reſidence in it. Mr Cook was now obliged to ſeize ſome of the chiefs, and to inform them that they could not obtain their liberty unleſs the deſerters were recovered. This at laſt produced the deſired effect; the deſerters were given up, and Mr Cook ſet ſail, along with Tupia (who had formerly been the prime miniſter to Oberea, a princeſs of the iſland) and a boy of 12 years of age, both of whom were deſirous of accompanying him to England.

While Mr Cook proceeded to viſit others of the South Sea Iſlands, Tupia occaſionally ſerved as an interpreter. On his arrival in New Zealand, Mr Cook found the people extremely hoſtile and inſolent. At their very firſt meeting, one of the natives having threatened to dart his lance into the boat, was ſhot dead. Another, having carried off Mr Green's hanger, was fired at with ſmall ſhot, and upon his ſtill refuſing to reſtore it, was fired at with ball and killed. This, however, produced very little effect on the reſt, who offered to make an attack upon them, till ſeveral muſkets were fired with ſmall ſhot, which wounded three or four more. Next day the commander, having determined to force ſome of the natives on board in order to conciliate their affections by kind treatment, directed his men to follow two canoes whom he perceived under way before him. One made her eſcape, but the other, not obſerving the boats in purſuit, was overtaken; on which the ſavages plied their oars ſo briſkly, that the ſhip's boats were not able to keep up with them. Tupia, whoſe language the New Zealanders underſtood, called to them to return, with aſſurances that no hurt ſhould be done them; but they continued their flight without minding him. A muſket was then fired over their heads with a view to intimidate them, but upon this they prepared to fight; and on the coming up of the boats began the attack with ſo much vigour, that the lieutenant's people were obliged to fire upon them with ball, by which four out of ſeven that were in the boat were killed, and the other three jumped into the water, and were taken on board.

This part of Mr Cook's conduct ſeems inconſiſtent with that humanity for which he was in general ſo eminently diſtinguiſhed; he was aware of the cenſure, and makes the following apology. "Theſe people certainly did not deſerve death for not chooſing to confide in my promiſes, or not conſenting to come on board my boat, even if they had apprehended no danger: but the nature of my ſervice required me to obtain a knowledge of their country, which I could no otherwiſe obtain but by forcing into it in an hoſtile manner, or gaining admiſſion through the confidence and good will of the people. I had already tried the power of preſents without effect; and I was now prompted by my deſire to avoid farther hoſtilities, to attempt to get ſome of them on board; the only method we had left of convincing them that we intended them no harm, and had it in our power to contribute to their gratification and convenience. Thus far my intentions certainly were not criminal; and tho' in the conteſt, which I had not the leaſt reaſon to expect, our victory might have been complete without ſo great an expence of life; yet in ſuch ſituations, when the command to fire has once been given, no man can pretend to reſtrain its exceſs, or preſcribe its effect."

Notwithſtanding the diſaſter juſt mentioned, to which the three New Zealanders, who were taken on board, had been witneſſes, they were ſoon conciliated, and began to ſing with a degree of taſte that ſurpriſed the Engliſh gentlemen. They were boys, the oldeſt about 19 and the youngeſt about 11; but no kindneſs which could be ſhown them was in any degree effectual to bring about a reconcilation with the reſt. On the contrary, having perceived the ſhip in ſome diſtreſs, they inſtantly ſhowed a diſpoſition to make an attack; and from this they were only prevented by the firing of a four-pounder charged with grape ſhot. Even this did not produce any permanent effect; another attack was determined upon, and would undoubtedly have been made, had not Tupia informed them, that if they perſiſted in the attempt, the arms of their adverſaries, like thunder, would deſtroy every one of them. This was enforced by the fire of another four-pounder with grape ſhot, which ſpreading wide in the water, terrified them to ſuch a degree that they began to paddle away as faſt as poſſible. Notwithſtanding this, however, ſome intercourſe began to take place; but in every inſtance the New Zealanders manifeſted their hoſtility and treachery in ſuch a manner as ſhowed that they were not to be gained by fair means. At laſt an attempt to carry off Tayeto, Tupia's boy, rendered it abſolutely neceſſary to fire upon them in order to reſcue him from certain deſtruction, ſome of the ſavages having got him into a canoe, where they held him down by violence. In conſequence of this one of the ſavages was killed on the ſpot, and ſeveral more wounded, by the diſcharge of muſkets from the boats; Tayeto recovered his liberty, jumped into the water, and ſwam to the ſhip. Some partial intercourſe again took place; but ſtill it appeared that the innate rancour of theſe ſavages was neither to be ſubdued by fair means nor foul; and it was only by the powerful arguments of cannon and muſketry that they could be kept from attempting to do miſchief.

From the account of this voyage publiſhed by Dr Hawkeſworth, indeed, it appears that a conſiderable number of ſavages periſhed in a manner ſimilar to that abovementioned, and they ſeem to have manifeſted a more hoſtile behaviour than afterwards: on thoſe melancholy occaſions, however, it is obſerved to the honour of Mr Cook, that his humanity was eminently conſpicuous beyond that of the common people, who all along ſhowed as much inclination to deſtroy the Indians as a ſportſman does to kill the game he purſues.

While Mr Cook coaſted the iſlands of New Zealand, he was ſometimes in the moſt imminent danger of being ſhipwrecked. In the latitude of 35° ſouth, and in the midſt of ſummer in that climate, he met with ſuch a gale of wind as he ſcarce ever experienced before; ſo that he was no leſs than three weeks in getting ten leagues to the weſtward, and two more before he could get 30 leagues farther. Fortunately, however, they were all this time a conſiderable way from land, otherwiſe it is probable that the ſtorm muſt have proved fatal.

Mr Cook having ſpent ſix months in circumnavigating and fully exploring the iſlands of New Zealand, he ſailed from thence on the 31ſt of March 1770. It muſt be obſerved, however, that the extreme hoſtility manifeſted by the inhabitants in that part of the iſland where he firſt arrived, was not univerſally diffuſed, but that a friendly intercourſe was for a long time maintained with thoſe about Queen Charlotte's Sound. From New Zealand he proceeded to New Holland, and on the 28th of April came in ſight of Botany Bay. Here all their endeavours to induce the natives to have any intercourſe with them proved ineffectual, tho' happily there was no blood ſpilt in any quarrel.

During their navigation round New Holland, the coaſts of which are full of dangerous rocks and ſhoals, our navigators were brought into a more perilous ſituation than ever; and from which the eſcape was ſo extraordinary, that it deſerves a particular relation. This happened on the 10th of June 1770, as they purſued their courſe from Trinity Bay, and nearly in the latitude aſſigned to the iſlands diſcovered by Quiros. At that time they had the advantage of a fine breeze and a clear moonlight; and in ſtanding off from ſix till near nine o'clock, the ſhip had deepened her water from 14 to 21 fathoms; but while the navigators were at ſupper, it ſuddenly ſhoaled to 12, 10, and 8 fathoms, in the ſpace of a few minutes. Every thing was then ready for putting the ſhip about, when they ſuddenly got into deep water again, and continued in 20 and 21 fathoms for ſome time, ſo that the gentlemen went to bed in perfect ſecurity. A little before eleven, however, the water ſhoaled at once from 20 to 17 fathoms; and before the lead could be heaved again, the ſhip ſtruck, and remained immoveable, excepting as far as ſhe was heaved up and down and daſhed againſt the rocks by the ſurge. The alarm was now univerſal, and not indeed without the greateſt reaſon. It appeared that the veſſel had been lifted over the ledge of a rock, and lay in a hollow within it, where there were in ſome places from three to four fathoms water, and in others ſcarce as many feet: the ſheathing boards were disjoined, and floating round the ſhip in great numbers; and at laſt the falſe keel alſo was deſtroyed, while the rock kept grating her bottom with ſuch force as to be heard in the fore ſtore-room. It was now neceſſary to lighten the ſhip as much as poſſible; and this was done with all expedition to the amount of more than 50 tons. In the morning of the 11th of June they diſcovered the land at about eight leagues diſtance, without any iſland between, on which they could have been ſent aſhore in the event of the ſhip going to pieces, that ſo they might have been carried to the main land by turns. To add to their diſtreſs, the ſhip drew ſo much water, that it could ſcarce be kept under by three pumps. Laſtly, it appeared, that even the riſing of the tide, on which they had ultimately depended for relief, was inſufficient to anſwer the purpoſe, as the day-tide fell conſiderably ſhort of that in the night-time. Having therefore lightened the ſhip ſtill further, by throwing out every thing that could poſſibly be ſpared, they waited with patience for the next tide; when, after incredible exertion, the ſhip righted, and they got her over the ledge of the rock into deep water. By continual labour, however, the men were at laſt ſo much exhauſted, that they could not ſtand to the pumps more than five or ſix minutes at a time; after which they threw themſelves flat on the deck, though a ſtream of water between three and four inches deep ran over it; and in this ſituation they lay till others, exhauſted as well as themſelves, took their places, on which they ſtarted up again, and renewed their exertions. In this dreadful extremity Mr Monkhouſe, a midſhipman, propoſed the expedient of fothering the ſhip, as it is called, by which means he ſaid he had ſeen a merchant ſhip brought from Virginia to London after ſhe had ſprung a leak that admitted more than four feet water in an hour. The expedient being approved of, it was put into execution in the following manner. He took a lower ſtudding-ſail, and having mixed a large quantity of oakum and wool together, ſtitched them down by handfuls as lightly as poſſible; the whole being afterwards ſpread over with the dung of the ſheep and other filth. The ſail was then hauled under the ſhip's bottom by means of ropes which kept it extended. When it came under the leak, the wool and oakum, with part of the ſail, were forced inwards by the preſſure of the water, which thus prevented its own ingreſs in ſuch an effectual manner, that one pump, inſtead of three, was now ſufficient to keep it under. Thus they got the ſhip into a convenient port on the coaſt of New Holland, where there was an opportunity of fully repairing her defects. Here they diſcovered that their preſervation had not been owing entirely to the expedient abovementioned; for one of the holes was in a great meaſure filled up by a piece of rock which had broken off and ſtuck in it; and this hole was ſo large, that had it not been filled up in the manner juſt mentioned, they muſt undoubtedly have periſhed notwithſtanding all the aſſiſtance that could have been derived from the pumps.

The dangers they ſuſtained in navigating this coaſt were innumerable, inſomuch that for very near three months they were obliged to have a man conſtantly in the chains heaving the lead. They were always entangled among rocks and ſhoals, which could not have failed to deſtroy a leſs experienced navigator; and even Mr Cook, with all his ſagacity, could not ſometimes have extricated himſelf, had it not been for the favourable interpoſition of ſome natural events, which no human penetration could foreſee or have the leaſt dependence upon. Of this we ſhall only give the following inſtance. Having at laſt, as they thought, got ſafely over the vaſt reefs of ſunk rocks with which the coaſt of New Holland is ſurrounded, they flattered themſelves that all danger was paſſed, and the vaſt ſwell of the water convinced them that they were now in the open ocean. The remembrance of former dangers, however, induced them frequently to take the precaution of ſounding; notwithſtanding which, in the latitude of about 14½° S. they found themſelves one morning only about a mile diſtant from the moſt hideous breakers, though the ſea all around was unfathomable. Their ſituation was rendered the more dreadful by its being a dead calm, at the ſame time that they were carried towards the rock with ſuch rapidity, that by the time they had got the ſhip's head turned by means of the boats, ſhe was ſcarcely 100 yards diſtant from it. Their only reſource then was to tow the ſhip, if poſſible, by means of the boats and pinnace, out of a ſituation ſo very perilous; but all their efforts would have been unſucceſsful, had not a breeze of wind ſprung up, which, though too light to have been noticed at any other time, was found to ſecond their efforts ſo effectually, that the ſhip began to move perceptibly from the reef in an oblique direction: during the time that this breeze laſted, which was not more than ten minutes, they had made a conſiderable way. A dead calm ſucceeding, they began to loſe ground, and in a little time were driven within 200 yards of the rocks: but fortunately the breeze returned, and laſted ten minutes more; during which time a ſmall opening was perceived in the reef at the diſtance of about a quarter of a mile. The mate being ſent out to examine this opening, reported that it was not more than the length of the ſhip in breadth, but that there was ſmooth water within. On this it was determined to puſh into it by all means. The attempt failed of ſucceſs; as juſt when they had brought the ſhip with great labour to the mouth of the opening, they found a current ſetting out from it by reaſon of the tide now beginning to ebb. But though their hopes were diſappointed in getting through the opening, they were, by the current ſetting out from it, driven in a very ſhort time to the diſtance of a quarter of a mile from the rocks; and by dint of towing and other exertions, they were got by noon to the diſtance of two miles. This temporary deliverance, however, afforded but ſmall proſpect of being ultimately relieved. They had ſtill no other expectation than of being forced back into their former ſituation by the return of the tide; but happily they now perceived another opening about a mile to the weſtward. Mr Hicks the lieutenant being ſent to examine this opening, returned with an account of its being narrow and hazardous, but capable of being paſſed. To this place therefore the ſhip was directed by every poſſible means; and a light breeze happening to ſpring up, they fortunately reached it, and were inſtantly hurried through with great rapidity by the current of the returning tide; which, had it not been for this opening, would undoubtedly have daſhed them to pieces againſt the rocks.

From the time they quitted the coaſt of New Holland till their arrival at Batavia in the iſland of Java, our navigators met with no other danger but what is common in ſea-voyages. They were obliged to ſtay for ſome time at this place to repair their damages; and on viewing the condition of the ſhip, found they had more reaſon than ever to admire the manner in which they had been preſerved. Both the falſe-keel and main-keel were greatly injured; great part of the ſheathing was torn off; ſeveral of the planks were much damaged, and among theſe there were two, and half of another, which for ſix feet in length were not above the eighth part of an inch in thickneſs, beſides being penetrated with worms quite to the timbers. Here the crew were exceſſively annoyed by ſickneſs, which obliged them to remain much longer than they would otherwiſe have done: and it is worthy of notice, that every one of the crew was ill excepting the ſail-maker, an old man between 70 and 80 years of age, and who was drunk every night. Poor Tupia, with his boy Tayetto, fell ſacrifices to the unhealthineſs of the climate, as well as the ſurgeon, three ſeamen, and Mr Green's ſervant. Nor did the evil ſtop here; for on their ſetting out from Batavia, the ſeeds of diſeaſe which had been received there broke out in the moſt violent and fatal manner, inſomuch that in the courſe of about ſix weeks there died one of Mr Banks's aſſiſtants, by name Mr Sporing, Mr Parkingſon his natural hiſtory painter, Mr Green the aſtronomer, the boatſwain, carpenter, and mate; Mr Monkhouſe the midſhipman, the corporal of the marines, two of the carpenter's crew, and nine ſeamen. Even the jolly old ſail-maker could now hold out no longer; but whether his death might not in ſome meaſure be attributed to his being leſs plentifully ſupplied with liquors than formerly, might have deſerved inquiry. Theſe unfortunate events probably made a conſiderable impreſſion on Mr Cook's mind; and perhaps induced him to direct his attention to thoſe methods of preſerving the health of ſeamen which he afterwards put in execution with ſo much ſucceſs. After touching at St Helena, they continued their voyage for England, where they arrived on the 11th of June 1771; and on the 29th of Auguſt the ſame year, his Majeſty teſtified his approbation of Mr Cook's conduct by appointing him a captain in the navy. On this occaſion Mr Cook wiſhed to have been advanced to the rank of poſt-captain, which, though not more profitable than the other, is more honourable; but this being inconſiſtent with the rules of preferment in the navy, the earl of Sandwich, at that time at the head of the admiralty, could not agree to it.

Captain Cook was not allowed to remain long inactive. The idea of a ſouthern continent had long been entertained, and Mr Dalrymple had renewed the attention of the public towards the queſtion, by his hiſtorical collection of voyages to the Pacific Ocean, publiſhed in two quarto volumes, one in 1770, the other in 1771. To determine the matter finally, Captain Cook was again ſent out: and the object of this voyage was not merely to ſettle the queſtion juſt mentioned, but to extend the geography of the globe to its utmoſt limits. That the undertaking might be carried on with the greater advantage, it was determined to employ two ſhips, on the choice and equipment of which the utmoſt attention was beſtowed. The ſucceſsful voyage which had already been made in the Endeavour, ſuggeſted the idea of that ſhip being a proper model for the two which were to be ſent out; and the opinion of Lord Sanwich concurring with the general idea, two veſſels, conſtructed by the ſame perſon who had built the Endeavour, were purchaſed for the voyage. Theſe were about 14 or 16 months old at the time they were purchaſed; and in the opinion of Captain Cook, were as fit for the purpoſe as if they had been but newly built. The larger of the two, of 462 tons burden, was named the Reſolution; the ſmaller, of 336 tons, had the name of the Adventure; the complement of men on board the former, of which Captain Cook was commander, being 112; on the latter, commanded by Mr Tobias Furneaux, 81. In their equipment, every article that could be ſuppoſed neceſſary, however much out of the common line, was procured, and every circumſtance that could be ſuppoſed to contribute to the ſucceſs of the voyage was attended to in the moſt ſcrupulous manner. Beſides the uſual ſtores and proviſions, all of which were of the beſt kinds, the ſhips were furniſhed with malt, ſour-krout, ſalted cabbage, portable ſoup, ſalop, muſtard, marmalade of carrots, beer, and inſpiſſated wort. Mr Hodges, an excellent landſcape painter, was engaged to make drawings and paintings of ſuch objects as required them. Mr John Reinhold Forſter, with his ſon, were both engaged, in order to explore and collect the natural hiſtory of the countries through which they paſſed; and laſtly, that nothing might be wanting to render the voyage as complete as poſſible, Mr William Wales and Mr William Bayley were engaged by the board of longitude to make celeſtial obſervations. They were furniſhed with the beſt inſtruments of every kind, and among the reſt with four time-pieces; three conſtructed by Mr Arnold, and one by Mr Kendal on Mr Harriſon's principles.

At Plymouth Captain Cook received his inſtructions; which were not only to ſail round the globe, but to ſail round it in high ſouthern latitudes, and to make ſuch traverſes as might finally reſolve the queſtion concerning the ſouthern continent. In purſuance of theſe inſtructions he ſet ſail on the 13th of July 1772, and on the 29th of the ſame month reached the Madeiras. As he proceeded afterwards in his voyage, he made three puncheons of beer from the inſpiſſated wort carried out along with him, and found it excellently to anſwer the purpoſe, provided the material could have been kept without fermentation in its inſpiſſated ſtate; but as this was found impoſſible, the expedient ſeems to have failed. In this voyage, however, the Captain uſed with the greateſt ſucceſs ſuch methods as appeared likely to contribute to the preſervation of the health of his men. In rainy weather, he took care that the ſhip ſhould be aired and dried by means of fires made between the decks, the damp places were ſmoked, and the people were ordered to air their bedding, and waſh and dry their clothes, whenever an opportunity offered. Thus he reached the Cape of Good Hope without having a ſingle man ſick. Having left it, and kept on his courſe to the ſouthward, he ſoon began to meet with cold and ſtormy weather, by which he loſt almoſt the whole of his live ſtock of ſheep, hogs, and geeſe. The bad effects of this ſtormy weather upon the men were guarded againſt by an addition to their clothing, and giving them a dram on particular occaſions. On the ſixth of December, being in the latitude of 50° 40′, he fell in with iſlands of ice, and continued among them in various latitudes till the 17th of January 1773; when he ſet ſail for new Zealand, which he reached on the 27th.

The reception of our navigator by the new Zealanders was now much more friendly than in the former voyage, ſo that there were no conteſts with the natives; nor did Captain Cook obſerve any one of thoſe whom he had ſeen before, neither was there the ſmalleſt remembrance of former hoſtilities. Having ſtaid in this country till the 7th of June, our navigators ſet ſail for Otaheite; but during the voyage the crews of both ſhips were attacked by the ſcurvy. Thoſe of the Adventure were in a very ſickly ſtate; the cook was dead, and 20 of her beſt men incapable of duty. On board the reſolution matters were much better; and the only reaſon that could be conjectured for the difference was, that the people of the Adventure had been in an habit of body more inclined to the ſcurvy than thoſe of the Reſolution, and had eat fewer vegetables. Here it was obſerved, that the averſion of ſeamen to a change of diet is ſo great, that it can only be overcome by the ſteady and perſevering example of a commander. While he remained at New Zealand, the Captain had diſcovered a tree which greatly reſembled the American black ſpruce. Perſuaded, therefore, that it would be attended with effects equally ſalutary on the health of the people, he employed them in brewing beer from it. This was done while they continued at Duſky bay, in order to ſupply the want of vegetables, which were not to be procured there; but on removing to Queen Charlotte's Sound, they were more fortunate. Captain Cook himſelf went to look out for antiſcorbutic vegetables; and returned in a very ſhort time with a boat-load of ſcurvy-graſs, celery, &c. Theſe were boiled with the peas and wheat; and though ſome of the people diſliked them at firſt, they ſoon became ſo ſenſible of their good effects, that they cheerfully followed the example of the reſt; and the freedom of the crew from the ſcurvy and other diſtempers was by every one attributed to the New Zealand ſpruce beer and vegetables. From this time forward the Captain had ſcarce occaſion to give orders for gathering vegetables when they came to any land.

During this voyage Captain Cook experienced another narrow eſcape from ſhipwreck. Being becalmed at the diſtance of half a league from a reef of rocks near Oſnaburg iſland, it was found neceſſary to order out the boats to tow off the ſhips; but this was found impoſſible. The calm continuing, and the ſituation of our navigators becoming every moment more dangerous, the Captain attempted to get through an opening in the reef which he had judged practicable: but on approaching it, found that there was not ſufficient depth of water; at the ſame time that the draught of the tide through it forced the ſhip thither in a manner ſcarce to be reſiſted. One of the warping machines, with about 400 fathoms of rope, was then ordered out, but did not produce any effect. They were within two cables length of the breakers, and no bottom could be found for caſting anchor. Having no other reſource, however, they did drop an anchor; but before it took hold, the Reſolution was in leſs than three fathoms of water, and ſtruck at every fall of the ſea, which broke violently cloſe under her ſtern, threatening deſtruction to every one on board. At laſt the tide ceaſing to act in the ſame direction, the boats were ordered to try to tow off the veſſel; in which being aſſiſted by the land-breeze, which fortunately ſprung up at that inſtant, they with much labour ſucceeded.

Having ſpent a conſiderable time in the South Sea iſlands, Captain Cook returned to New Zealand, and from thence ſet ſail for the ſouthern part of the continent of America. Here he explored all the iſlands in the neighbourhood, and then returned to England, where he arrived in ſafety on the 30th of July 1774, having been abſent three years and 18 days; and in all that time loſt only one man, who died of a conſumption probably begun before he ſet out on the voyage.

The reception our navigator now met with was ſuited to his merit. He was immediately raiſed to the rank of poſt-captain, and ſoon after unanimouſly elected a member of the Royal Society; from whom he received the prize of the gold medal for the beſt experimental paper that had appeared throughout the year. It was the cuſtom of Sir John Pringle, at the delivery of this medal, annually to make an elaborate diſcourſe, containing the hiſtory of that part of ſcience for which the medal was given; and as the ſubject of Captain Cook's paper (the means of preſerving the health of ſeamen) was analogous to the profeſſion of Sir John Pringle himſelf as a phyſician, he had the greater opportunity of diſplaying his eloquence on the occaſion. The ſpeech he made was in the higheſt degree honourable to Captain Cook. He remarked, that the Society had never more meritoriouſly beſtowed the medal than on the perſon who now received it. "If (ſays he) Rome decreed the civic crown to him who ſaved the life of a ſingle citizen, what wreaths are due to the man who, having himſelf ſaved many, perpetuates in your Tranſactions the means by which Britain may now, on the moſt diſtant voyages, preſerve numbers of her intrepid ſons, her mariners; who, braving every danger, have ſo liberally contribued to the fame, to the opulence, and to the maritime empire of the country?" Theſe honourable teſtimonies of the public regard, however, Captain Cook did not receive, being already embarked on another voyage, from which he never returned.

The third voyage of this celebrated navigator was not undertaken by any expreſs command of his Majeſty. Captain Cook had already done ſo much, that it was thought but reaſonable he ſhould now ſpend the remainder of his life in quiet; and in order to enable him to do this in the more comfortable manner, beſides his rank of poſt-captain in the navy, he was alſo made a captain in Greenwich. Still, however, there were ſome points in the ſcience of geography which had very much engaged the attention of the public, and were indeed of ſuch importance as to become a national concern. Theſe were to diſcover the connection between Aſia and America, and to determine whether there was not a poſſibility of ſhortening the paſſage to the Eaſt Indies by ſailing round the northern parts of the continents of Europe and Aſia. Many attempts, indeed, had already been made by various navigators of different nations; but all of them had failed, and, what was worſe, had left the point ſtill undetermined. An act of parliament had been paſſed in 1745, by which a reward of L.20,000 was held out to the ſhips of any of his Majeſty's ſubjects for accompliſhing this important voyage, but without mentioning any thing of thoſe belonging to his Majeſty; and this reward was further confined to the finding out of the north-weſt paſſage to the Eaſt Indies through Hudſon's Bay. In the year 1776, however, both the errors juſt mentioned were corrected. It was now enacted, "That if any ſhip belonging to any of his Majeſty's ſubjects, or to his Majeſty, ſhall find out, and ſail through, any paſſage by ſea between the Atlantic and Pacific Oceans, in any direction or parallel of the northern hemiſphere, to the northward of the 52d degree of northern latitude; the owners of ſuch ſhips, if belonging to any of his Majeſty's ſubjects, or the commanders, officers, and ſeamen, of ſuch ſhip belonging to his Majeſty, ſhall receive, as a reward for ſuch diſcovery, the ſum of L.20,000.

It was not, as has already been hinted, now deemed proper to ſolicit Captain Cook to undergo freſh dangers by undertaking a voyage of this kind; nevertheleſs, as he was univerſally looked upon to be the fitteſt perſon in the kingdom for the purpoſe, the eyes of every perſon were tacitly fixed upon him: he was conſulted on every thing relating to it, and ſolicited to name the perſon whom he judged moſt proper to conduct it. To determine this point, Captain Cook, Sir Hugh Palliſer, and Mr Stephens, were invited to the houſe of Lord Sandwich to dinner; where, beſides the conſideration of the proper officer for conducting the expedition, many things were ſaid concerning the nature of the deſign. They enlarged upon its grandeur and dignity, its conſequences to navigation and ſcience, and the completeneſs it would give to the whole ſyſtem of diſcoveries; until at laſt Captain Cook was ſo much inflamed by the repreſentation of the importance of the voyage, that he ſtarted up, and declared that he would conduct it himſelf. This was what the parties preſent had deſired, and probably expected; his offer was therefore inſtantly laid before the king, and Captain Cook appointed commander of the Expedition by the 10th of February 1776. At the ſame time it was agreed, that on his return from the voyage he ſhould be reſtored to his place at Greenwich; and if no vacancy occurred during the interval, the officer who ſucceeded him was to reſign in his favour. The inſtructions he now received were, that he ſhould attempt the high latitudes between the continents of Aſia and America, and if poſſible return to England along the northern coaſts of Aſia and Europe. This was moſt probably the reſult of the Captain's own deliberations, and what had been ſuggeſted by him to Lord Sandwich and other people in power. He was particularly deſired to ſail firſt into the Pacific Ocean thro' the chain of newly diſcovered iſlands which he had lately viſited. After having croſſed the equator, and paſſed into the northern parts of the ocean juſt mentioned, he was then to hold ſuch a courſe as might tend to ſettle many intereſting points of geography, and produce ſome intermediate diſcoveries, before he arrived at the main ſcene of operation. With regard to this principal object, he was ordered, immediately on his arrival on the coaſt of New Albion, to proceed northward as far as the latitude of 65 degrees, without loſing any time in exploring creeks or rivers previous to his arrival in that latitude: and for his further encouragement, the act of 1745, offering a premium for the diſcovery of the paſſage, was amended in the manner abovementioned. That nothing might be wanting which could promote the ſucceſs of the grand expedition, Lieutenant Pickerſgill was ſent out, in 1776, with directions to explore the coaſts of Baffin's Bay; and the next year Lieutenant Young was commiſſioned not only to examine the weſtern parts of that bay, but to endeavour to find a paſſage on that ſide from the Atlantic to the Pacific Ocean. Nothing, however, was performed by either of theſe gentlemen which in the leaſt could promote Captain Cook's ſucceſs. Two veſſels were provided as in the former voyage, *viz.* the Reſolution and the Diſcovery; the command of the former being given to Captain Cook, and of the latter to Captain Charles Clerke. The only thing in which the appointment of the Diſcovery differed from that of the Reſolution was, that the former had no marine officer on board. Every degree of attention was beſtowed, as in the former voyage, upon the proper victualling and other neceſſaries for the two ſhips; and that the inhabitants of thoſe countries which our navigator intended to viſit might derive ſome permanent benefit from the intercourſe they had with him, it was determined to ſend abroad a breed of domeſtic animals, and likewiſe a quantity of uſeful ſeeds, to be left in proper places. With this view, a bull, two cows with their calves, and ſeveral ſheep, with hay and corn for their ſubſiſtence, were taken on board; and it was likewiſe purpoſed to take in others at the Cape of Good Hope. A large aſſortment of iron tools and trinkets was alſo ſent out; and, in ſhort, every thing that could be judged proper either to conciliate the good will of the natives or to prove ſerviceable to them, was provided for the voyage, as well as every convenience for the ſhips companies. In the former voyage Captain Cook had brought along with him a native of one of the South Sea iſlands, named *Omai*, who reſided in England during the interval between the ſecond and third voyages, and was now happy at getting an opportunity of returning to his own country. Though he could by no means complain of the entertainment he had met with in England, the idea of returning home loaded with treaſure, which might enable him to make a figure among his countrymen, ſoon overcame all uneaſy ſenſations which the leaving of his Engliſh friends might excite. His majeſty had taken care to furniſh him with every thing that could poſſibly be of uſe when he came to his native country; and he had beſides received ſeveral valuable preſents from Lord Sandwich, Sir Joſeph Banks, and ſeveral ladies and gentlemen of his acquaintance; ſo that nothing was omitted which could poſſibly be done to convey, by his means, to the inhabitants of the South Sea iſlands an idea of the Britiſh power and greatneſs.

Every thing being prepared for the voyage, our navigator ſet ſail from the Nore on the 25th of June 1776; but by reaſon of ſome delay in receiving his inſtructions, did not leave Plymouth till the 12th of July. He had not been long at ſea before he began his operations for preſerving the health of his people; which were found equally efficacious in this as in the former voyage. Finding his ſtock of provender for the animals on board likely to run ſhort, he touched at Teneriffe, in order to procure a ſupply, having judged that to be a more proper place than Madeira for the purpoſe. On ſailing from thence he ran a great riſk of running upon ſome ſunk rocks on the iſland of Bonaviſta; but in this, as well as on other occaſions of danger, he behaved with the ſame judgement, coolneſs, and preſence of mind, that diſtinguiſhed him throughout the whole courſe of his life. On the 12th of Auguſt he arrived before Port Praya, in one of the Cape de Verde iſlands named *St Jago*, but not finding it neceſſary to go in there, he continued his voyage to the ſouthward. The weather now becoming gloomy and rainy, required a continuance of the methods he had already practiſed for preſerving the health of his people; and, as formerly, they were attended with the greateſt ſucceſs. In this voyage, the effect of theſe precautions was the more remarkable, as at this time the ſeams of the veſſel were opened to ſuch a degree as to admit the rain, ſo that ſcarce any perſon on board could lie dry in his bed; and all the officers in the gun-room were driven out of their cabins by the water which came through the ſides. Such was the humanity of the commander, however, that while the ſhips continued at ſea, he would not truſt the workmen over their ſides to repair the defects, though caulkers were employed in the inſide as ſoon as ſettled weather returned. On the 1ſt of September our navigators croſſed the equator, and on the 18th of October anchored in Table Bay at the Cape of Good Hope. Here they met with a violent tempeſt, the effects of which were felt both on ſea and land. It laſted three days, and the Reſolution was the only ſhip in the bay that rode out the ſtorm without dragging her anchors. On the ſhore the tents and obſervatory were deſtroyed, and the aſtronomical quadrant narrowly eſcaped irreparable damage. The Diſcovery, which had been ſome time later in ſailing from England, was driven off the coaſt, and did not arrive till the 10th of November.

While they remained in this place, a diſaſter happened which threatened the loſs of moſt of their live ſtock. The bull and two cows had been put aſhore to graze among other cattle: but captain Cook had been adviſed to keep the ſheep, 16 in number, near the tents, where they were penned in every night. Some dogs having got in among them in the night-time, killed four, and diſperſed the reſt. Six of them were recovered the next day, but the two rams and two of the fineſt ewes in the flock were miſſing. The captain applied to Baron Flettenburgh the governor; but all his endeavours were unſucceſsful, until he employed ſome of the meaneſt and loweſt of the people, fellows whoſe character was, that for a ducatoon they would cut their maſters throat, burn the houſe over his head, and bury him and his whole family in aſhes. This is mentioned as an inſtance how far the boaſted policy of the Dutch government at the Cape of Good Hope falls ſhort of its alledged perfection. After all, two of the fineſt ewes in the flock were miſſing, and never could be recovered. The captain, therefore, to repair the loſs, and to make an addition to his original ſtock, purchaſed two young bulls, two ſtone horſes, two mares, two heifers, two rams, ſeveral ewes and goats, with ſome rabbits and poultry; when, having finiſhed all his buſineſs, he ſet ſail on the 30th of November, though it was not till the 3d of December that he got clear of land. Soon after his putting to ſea, he had the miſfortune to loſe ſeveral of the goats, eſpecially the males, together with ſome ſheep; and it was with the utmoſt difficulty that the reſt of the cattle were preſerved, by reaſon of the ſhip toſſing and tumbling about in a very heavy ſea. Having explored ſome deſolate iſlands in the ſouthern ſeas, Captain Cook ſet ſail for New Zealand. During this part of the voyage, our navigators were involved in ſo thick a fog, that, according to the authors of Captain Cook's life, "they ſailed 300 leagues *in the dark*." The firſt land they afterwards reached was New Holland; where, having remained till the 30th of January 1777, they ſet ſail for New Zealand, and on the 12th of February they anchored in Queen Charlotte's Sound. Here the people were ſhy and timorous, on account of their having formerly deſtroyed 10 of Captain Furneaux's people who had been ſent aſhore to gather vegetables. The cauſe of the quarrel could not be known, as none of the party were left alive to tell the news. Lieutenant Burney, who went aſhore in queſt of them, found only ſome fragments of their bodies; from which it appeared that they had been killed and eaten by the ſavages. It was not the intention of Captain Cook, at this diſtance of time to reſent the injury; he even refuſed to put to death a chief named *Kahoora*, who as he was informed by the natives themſelves had killed Mr Rowe the commander of the party. He was, however, particularly careful that no opportunity ſhould now be given the ſavages of committing ſuch an action with impunity; and with this view a boat was never ſent on ſhore without being well armed, and the men under the command of ſuch officers as could be depended upon. The New Zealanders were no ſooner aſſured of Captain Cook's pacific diſpoſition, than they threw aſide their fears and ſuſpicions, and entered into a commercial intercourſe with the people. It would have been the leſs excuſable in Captain Cook to have revenged at this time the maſſacre of Mr Rowe's party, as he was aſſured that the quarrel originated from ſome petty thefts of the ſavages, which were too haſtily reſented on the part of the Britiſh; and had it not been for this, no miſchief would have happened.

On the 25th of February our navigator left New Zealand, taking with him, at the requeſt of Omai two boys, the eldeſt about 18 and the youngeſt about 10. Theſe were ſoon cured of their paſſion for travelling, being both violently ſea-ſick: but as it was then too late to repent, they expreſſed their grief in loud and almoſt continual lamentation; and this in a kind of ſong which ſeemed to conſiſt of the praiſes of their native country, whence they were now to be ſeparated for ever. By degrees, however, the ſea-ſickneſs abated, their lamentations became leſs frequent, and at laſt ceaſed entirely; their native country was forgotten, and they appeared to be as firmly attached to their new friends the Engliſh as if they had been born among them.

So much time was now ſpent in ſailing up and down in the Pacific Ocean, where ſeveral new iſlands were diſcovered, that Captain Cook judged it impoſſible to accompliſh any thing for this year in the high northern latitudes; for which reaſon he determined to bear away for the Friendly Iſlands, in order to ſupply himſelf with thoſe neceſſaries which he had found impoſſible to be got at any of the iſlands which he had juſt diſcovered. In his run thither ſeveral new iſlands were viſited; and in proſecuting theſe diſcoveries our navigator once more narrowly eſcaped being ſhipwrecked. The danger at this time aroſe from a low ſandy iſland, which the Reſolution was very near running upon. From this ſhe was only ſaved by the circumſtance of all the men having been accidently called upon deck to put the veſſel about, and moſt of them being at their ſtations when the danger was diſcovered. Soon after this both ſhips ſtruck upon ſome ſunk coral rocks, but happily were got off without damage.

After a ſtay of between two and three months, Captain Cook took leave of the Friendly Iſlands on the 13th of July 1777; and on the 12th of Auguſt reached Otaheite, where he introduced Omai to his country people, and whoſe reception by them is particularly related under the next article. Here the Captain found the people of Otaheite ready to engage in a war with thoſe of Eimeo; but though ſtrongly ſolicited by the former to aſſiſt them in an expedition againſt their enemies, he refuſed to take any concern in the affair, alleging, by a way of excuſe, that the people of Eimeo had never offended him. This ſeemed to ſatisfy moſt of the chiefs: but one, named *Towha*, was ſo much diſpleaſed, that Captain Cook could never regain his favour. He even threatened, that as ſoon as the Captain ſhould be gone, he would make war upon Otoo, one of the princes of theſe iſlands whom he knew to be in ſtrict friendſhip with him; but from this he was deterred by the Captain's threatening to return and chaſtiſe him if he made any ſuch attempt. As a mark of Otoo's friendſhip, he gave our navigator a canoe, which he deſired him to carry to the king of Britain, having nothing elſe, as he ſaid, worth his acceptance.

From Otaheite Captain Cook proceeded to Eimeo where, on account of ſome thefts committed by the natives he was obliged to commence hoſtilites, by burning a number of their war canoes and even ſome houſes. Theſe tranſactions gave him much concern: and the more that he had been ſo much ſolicited to make war on theſe people by his friends at Otaheite, to whoſe entreaties he had refuſed to liſten. From Eimeo he proceeded to Huaheine, where he ſaw Omai finally ſettled, and left with him the two New Zealand youths already mentioned. The youngeſt of theſe was ſo much attached to the Engliſh, that it was neceſſary to carry him out of the ſhip and put him aſhore by force. During his ſtay on this iſland, the Captain was obliged to puniſh a thief with greater ſeverity than he had ever done before, viz. by cauſing his head and beard to be ſhaved, and his ears cut off. Some other diſagreeable tranſactions took place, particlarly the deſertion of two of his people, who were not recovered without the greateſt difficulty. In the courſe of his exertions for their recovery, he found it neceſſary to detain the ſon, daughter, and ſon-in-law, of the chief of an iſland named Otaha. This had almoſt produced very ſerious conſeqnences, the natives having formed a plot for carrying off Captain Cook himſelf, as well as Captain Clerke and Mr Gore. With regard to the commander, they were diſappointed by his own caution and vigilance; but Meſſrs Clerke and Gore were in particular danger; and it was only owing to the circumſtance of one of them having a piſtol in his hand, as they walked together on ſhore, that they were not ſeized.

Having left the Society Iſlands, and diſcovered a new group, which, in honour of his patron the Earl of Sandwich, our commander named the *Sandwich Iſles* he ſet out on the 2d of January 1778 on his voyage northward. In this he was very ſucceſsful, aſcertaining the vicinity of the continents of Aſia and America, which had never been done, or but very imperfectly, before. From theſe deſolate regions he returned to the iſland of Oonalaſhka; whence having refitted and taken in proviſions, he returned to the ſouthward, and on the 26th of November reached the Sandwich Iſlands, where he diſcovered a new one named *Mowee*, and on the 30th of the ſame month another of much larger extent, named *O-why-hee*. Seven weeks were ſpent in exploring the coaſts of this iſland; and during all this time he continued to have the moſt friendly intercourſe with the people, who however, appeared to be much more numerous and powerful than thoſe of any iſland our navigators had yet touched at. Several of the chiefs and principal people had attached themſelves greatly to the commander, and in general the people appeared to be much more honeſt in their diſpoſitions than any whom he had ever viſited. But by the time he had finiſhed his circumnavigation of the Iſland, and caſt anchor in a bay called *Karakakooa*, matters were greatly altered. An Univerſal diſpoſition to theft and plunder had now taken place; and in this it was evident that the common people were encouraged by their chiefs, who ſhared the booty with them. Still, however, no hoſtilities were commenced; the greateſt honours were paid to the commander; and, on his going aſhore he was received with ceremonies little ſhort of adoration. A vaſt quantity of hogs and other proviſions were procured for the ſhips; and on the 4th of February 1779, they left the iſland, not without moſt mganificent preſents from the chiefs and ſuch as they had never before received in any part of the world. Unluckily they met with a ſtorm on the ſixth and ſeventh of the ſame month; during which the Reſolution ſprung the head of her foremaſt in ſuch a manner that they were obliged to return to Karakakooa bay to have it repaired. As they returned, Captain Cook had an opportunity of ſhowing his humanity to the people by the relief he afforded to ſome of their canoes which had ſuffered in the ſtorm. The ſame friendly intercourſe which had formerly been held with the natives now commenced, and Captain Cook was treated with the uſual honours; but on the 13th of this month it was unhappily broken off on the following account. One of the natives being detected in ſtealing the tongs from the armourer's forge in the Diſcovery, was diſmiſſed with a pretty ſevere flogging; but this example was ſo far from being attended with any good effect, that in the afternoon another, having ſnatched up the tongs and a chiſſel, jumped over board with them and ſwam for the ſhore. The maſter and midſhipman were inſtantly diſpatched in purſuit of him; but he eſcaped on board a canoe, which paddled away ſo quickly that the cutter could not come near it. A chief named Pareah, who was at this time on board the Reſolution, underſtanding what had happened, promiſed to go aſhore and get back the ſtolen goods; but before this could be done the thief had made his eſcape into the country. Captain Cook, who was at that time aſhore, had endeavoured to intercept the canoe when it landed, but was led out of the way by ſome of the natives who pretended to be his guides. The tongs and chiſſel, however, were brought back to the maſter as he advanced to the landing place; but he being now joined by ſome of the reſt of the people in the pinnance could not be ſatisfied with the recovery of the ſtolen goods, but inſiſted upon having the thief, or the canoe which carried him, by way of repriſal. On his preparing to launch this laſt into the water, he was interrupted by Pareah, who inſiſted that it was his property, and that he ſhould not take it away. As the officer paid no regard to his remonſtrances, Pareah, who ſeems to have been a very ſtrong man, ſeized him, pinioned his arms behind, and held him faſt by the hair of the head. On this one of the ſailors ſtruck the chief with an oar, on which, quitting the officer, he inſtantly ſnatched the oar out of the man's hand, and broke it in two acroſs his knee. The Indians then attacked the ſailors with ſtones, and ſoon drove them to their boats, to which they were forced to ſwim, as they lay at ſome diſtance from the ſhore. The officers who could not ſwim retired to a ſmall rock, where they were cloſely purſued by the Indians;

and here the maſter narrowly eſcaped with his life, till Pareah returned and obliged the Indians to give over their attacks. The gentlemen, ſenſible that Pareah's preſence alone could protect them, entreated him to remain with them till they could be brought off in the boats. On his refuſal, the maſter ſet out to the place where the obſervatories had been erected, for farther aſſiſtance; but Pareah, who met him, and ſuſpected his errand, obliged him to return. In the mean time the multitude had began to break in pieces the pinnace, after having taken every thing out of her that was looſe: on the return of Pareah, however, they were again diſperſed, and ſome of the oars reſtored, after which the gentlemen were glad to get off in ſafety. Before they reached the ſhip Pareah overtook them in a canoe, and delivered the midſhipman's cap which had been taken from him in the ſcuffle; he alſo joined noſes with them in token of friendſhip, and deſired to know whether Captain Cook would kill him on account of what had happened. They aſſured him that he would not, and made ſigns of reconciliation on their part. On this he left them, and paddled over to the town of Kavaroah; and that was the laſt time that he was ſeen by the Engliſh. In the night-time the ſentinels were much alarmed by ſhrill and melancholy ſounds from the adjacent villages, which they took to be the lamentations of the women. Next day it was found that the large cutter of the Diſcovery had been carried off in the night-time; on which Captain Cook ordered the launch and ſmall cutter to go under the command of the ſecond lieutenant, and to ly off the eaſt point of the bay in order to intercept all the canoes that might attempt to get out, and if neceſſary to fire upon them. The third lieutenant of the Reſolution was diſpatched to the weſtern part of the bay on the ſame ſervice; while the maſter was ſent in purſuit of a large double canoe already under ſail, and making the beſt of her way out of the harbour. He ſoon came up with her, and by firing a few ſhots, obliged her to run on ſhore, and the Indians to leave her. This was the canoe belonging to a chief named *Omea*, whoſe perſon was reckoned equally ſacred with that of the king, and to the neglect of ſecuring him we may attribute the ſucceeding diſaſter. Captain Cook now formed the reſolution of going in perſon to ſeize the king himſelf in his capital of Kavaroah; and as there was reaſon to ſuppoſe that he had fled, it was his deſign to ſecure the large canoes, which on that account he cauſed to be hauled up on the beach. With this view he left the ſhip about ſeven o'clock in the morning of Sunday the 14th of February, being attended by the lieutenant of marines, a ſerjeant, corporal, and ſeven private men. The crew of the pinnace, under the command of Mr Roberts, were alſo armed; and as they rowed towards the ſhore, the captain ordered the launch to leave her ſtation at the oppoſite point of the bay, in order to aſſiſt his own boat. Having landed with the mariners at the upper end of the town, the Indians flocked round him, and proſtrated themſelves before him. No ſign of hoſtility, nor even much alarm, appeared; the king's ſons waited on the commander as ſoon as he ſent for them, and by their means he was introduced to the king, who readily conſented to go on board; but in a little time the Indians began to arm themſelves with long ſpears, clubs, and daggers, and to put on thick mats which they uſe as defenſive armour. This hoſtile appearance was greatly augmented by an unlucky piece of news which was juſt now brought by a canoe, *viz*. That one of the Indian chiefs had been killed by the people in the Diſcovery's boats. On this the women, who had hitherto ſat on the beach converſing familiarly, and taking their breakfaſts, removed, and a confuſed murmur ran through the crowd. An old prieſt now appeared with a cocoa-nut in his hand, which he held out as a preſent to Captain Cook, ſinging all the while, and making a moſt troubleſome noiſe as if he meant to divert the attention of the Captain and his people from obſerving the motions of the Indians, who were now every where putting on their armour. Captain Cook beginning to think his ſituation dangerous, ordered the lieutenant of the marines to march towards the ſhore, as he himſelf did, having all the while hold of the king's hand, who very readily accompanied him, attended by his wife, two ſons, and ſeveral chiefs. The Indians made a lane for them to paſs; and as the diſtance they had to go was only about 50 or 60 yards, and the boats lay at no more than five or ſix yards diſtance from land, there was not the leaſt apprehenſion of the cataſtrophe which enſued. The king's youngeſt ſon Keowa went on board the pinnace without the leaſt heſitation, and the king was about to follow, when his wife threw her arms about his neck, and, with the aſſiſtance of two chiefs, forced him to ſit down. The Captain might now have ſafely got aboard, but did not immediately relinquiſh the deſign of taking the king along with him. Finding at laſt, however, that this could not be accompliſhed without a great deal of bloodſhed, he was on the point of giving orders for the people to reimbark, when one of the Indians threw a ſtone at him. This inſult was returned by the Captain, who had a double barrelled piece, by a diſcharge of ſmall ſhot from one of the barrels. This had little effect, as the man had a thick mat before him; and as he now brandiſhed his ſpear, the Captain knocked him down with his muſket. The king's ſon, Keowa, ſtill remained in the pinnace, and the detaining him would have been a great check upon the Indians; but unlucklily Mr Roberts, who commanded the pinnace, ſet him aſhore at his own requeſt ſoon after the firſt fire. In the mean time another Indian was obſerved in the act of brandiſhing his ſpear at the commander; who thereupon was obliged to fire upon him in his own defence. Miſſing his aim, however, he killed one cloſe by his ſide; upon which the ſerjeant obſerving that he had miſſed the man he aimed at, received orders to fire alſo, which he did, and killed him on the ſpot. This repreſſed the foremoſt of the Indians, and made them fall back in a body; but they were urged on again by thoſe behind, and diſcharged a volley of ſtones among the marines, who immediately returned it by a general diſcharge of their muſkets; and this was inſtantly followed by a fire from the boats. Captain Cook expreſſed his aſtoniſhment at their firing, waved his hand to them to ceaſe, and called to the people in the boats to come nearer to receive the marines. This order was obeyed by Mr Roberts; but the lieutenant who commanded the launch, inſtead of coming nearer, put off to a greater diſtance: and by this prepoſterous conduct deprived the unfortunate commander of the only chance he had for his life: for now the Indians, exaſperated by the fire of the marines, ruſhed in upon them and drove them into the water, leaving the Captain alone upon the rock. A fire indeed was kept up by both boats; but the one was too far off, and the other crowded with the marines, ſo that they could not direct their fire with proper effect. Captain Cook was then obſerved making for the pinnace, carrying his muſket under his arm, and holding his other hand on the back-part of his head to guard it from the ſtones. An Indian was ſeen following him, but with marks of fear, as he ſtopped once or twice ſeemingly undetermined to proceed. At laſt he ſtruck the Captain on the back of the head with a club, and then precipitately retreated. The latter ſtaggered a few paces, and then fell on his hand and one knee, and dropped his muſket. Before he could recover himſelf, another Indian ſtabbed him with a dagger in the neck, though ſtill without putting an end to his life. He then fell into a pool of water knee-deep, where others crowded upon him; but ſtill he ſtruggled violently with them, got up his head, and looked towards the pinnace as if ſoliciting aſſiſtance. The boat was not above five or ſix yards diſtance; but ſuch was the confuſed and crowded ſtate of the crew, that no aſſiſtance could be given him. The Indians then got him under again, but in deeper water, though he ſtill continued to ſtruggle, and once more got his head up; but being quite ſpent, he turned towards the rock as if to ſupport himſelf by it, when a ſavage ſtruck him with a club, which probably put an end to his life, as he was never ſeen to ſtruggle any more. The ſavages hauled his lifeleſs body up on the rocks, and uſed it in the moſt barbarous manner, ſnatching the daggers out of one anothers hands, in order to have the pleaſure of mangling it. If any thing could add to the misfortune of this celebrated navigator's death, it was, that even his mangled remains were not ſaved from the hands of the barbarians. The lieutenant already mentioned, who, by his removing to a diſtance when he ought to have come on ſhore, ſeemed to have been the occaſion of his death, returned on board without making any attempt to recover his body; though it appeared from the teſtimonies of four or five midſhipmen who arrived ſoon after at the fatal ſpot, that the beach was almoſt deſerted by the Indians, they having at laſt yielded to the continual fire from the boats. The officer alleged in his own excuſe for removing at firſt from the ſhore, that he miſtook the ſignals; but be this as it will, the complaints againſt him were ſo many and ſo great, that Captain Clerke was obliged publicly to take notice of them, and to take the depoſitions of his accuſers in writing.—Theſe papers, however, were not found, and it is ſuppoſed that the Captain's bad ſtate of health had induced him to deſtroy them. After all we are informed, that, in the opinion of Captain Philips, who commanded the marines, it is very doubtful whether any effectual relief could have been given to the commander, even if no miſtake had been committed on the part of the lieutenant. The author of all the miſchief was Pareah, the chief already mentioned, who had employed people to ſteal the boat in the night-time. The king was entirely innocent both of the theft and the murder of Captain Cook; but the latter was perpetrated by ſome chiefs who were his near relations. The chief who firſt ſtruck him with a club was named *Karimans raha*, and he who ſtabbed him with the dagger was called *Nooah*. The latter, Mr Samwell, from whoſe narrative this account is taken obſerves, was ſtout and tall, had a fierce look and demeanor, and united in his perſon the two properties of ſtrength and agility more than he had ever obſerved in any other perſon.—Both of them were held in great eſtimation by their countrymen on account of the hand they had in his death.

By reaſon of the barbarous diſpoſition of the Indians, it was found impoſſible to recover Captain Cook's body after the firſt opportunity already mentioned was loſt. By dint of threats and negociations, however, ſome of the principal parts were procured with great difficulty; by which means the navigators were enabled to perform the laſt offices to their much reſpected commander. Theſe being put into a coffin, and the ſervice read over them, were committed to the deep with the uſual military honours on the 21ſt of February 1779. Soon after his death a letter was iſſued by M. de Sartine, ſecretary to the marine department of France, and ſent to all the commanders of French ſhips, importing, that Captain Cook ſhould be treated as the commander of a neutral and allied power; and that all captains of armed veſſels who might meet with him, ſhould make him acquainted with the king's orders, but at the ſame time let him know, that, on his part, he muſt refrain from hoſtilities. This humane and generous proceeding, with regard to France, originated from M. Turgot; but the thought ſeems firſt to have ſtruck Dr Franklin. Thus much at leaſt is certain, that the doctor, while ambaſſador from the United States, wrote a circular letter to the American naval commanders ſomething to the purport of that already mentioned. The Spaniards, however, acted in a very different manner, having given orders to ſeize Captain Cook if an opportunity of doing it ſhould occur, from a fooliſh idea that the knowledge of the weſtern coaſt of America, or of a northern paſſage into the Pacific Ocean, might be attended with conſequences prejudicial to their dominions in that quarter of the globe.

Captain Cook was a man of plain addreſs and appearance, but well looked, and upwards of ſix feet high. His head was ſmall, and he wore his hair, which was brown, tied behind. His face was full of expreſſion; his noſe exceedingly well ſhaped; his eyes, which were ſmall and of a brown caſt, were quick and piercing; his eye-brows prominent, which gave his countenance altogether an air of auſterity. Notwithſtanding this, it was impoſſible for any one to excel him in humanity, as is evident from the whole tenor of his behavour both to his own people and the many ſavage nations with whom he had occaſion to interfere. This amiable property diſcovered itſelf even in the final cataſtrophe of his life; his utmoſt care being directed to the preſervation of his people, and the procuring them a ſafe retreat to their boats. And it cannot be enough lamented, that he who took ſo much care of others, ſhould have periſhed in ſuch a miſerable manner for want of being properly ſupported by them. The perſeverance with which he purſued every object which happened to be pointed out as his duty was unequalled. Nothing ever could divert him from what he had once undertaken; and he perſevered in the midſt of dangers and difficulties which would have diſheartened perſons of very conſiderable ſtrength and firmneſs of mind. For this he was adapted by nature, having a ſtrong conſtitution, inured to labour, and capable of undergoing the greateſt hardſhips. His ſtomach bore without difficulty the coarſeſt and moſt ungrateful food; and he ſubmitted to every kind of ſelf-denial with the greateſt indifference. To this ſtrength of conſtitution he joined an invincible fortitude of mind, of which the circumnavigation of New Holland, and his voyage towards the South Pole, furniſh innumerable inſtances. He was maſter of himſelf on every trying occaſion; and the greater the emergency, the greater always appeared his calmneſs and recollection; ſo that in the moſt dangerous ſituations, after giving proper directions to his people, he could ſleep ſoundly the hours that he had allotted to himſelf. That he poſſeſſed genius in an eminent degree cannot be queſtioned: his invention was ready, and capable not only of ſuggeſting the moſt noble objects of purſuit, but the moſt proper methods of attaining them. His knowledge of his own profeſſion was unequalled; and to this he added a very conſiderable proficiency in other ſciences. In aſtronomy, he became ſo eminent, that he was at length enabled to take the lead in making the aſtronomical obſervations during the courſe of his voyages. In general learning he likewiſe attained to ſuch a proficiency as to be able to expreſs himſelf with clearneſs and propriety; and thus became reſpectable as the narrator, as well as the performer, of great actions. He was an excellent huſband and father, ſincere and ſteady in his friendſhip, and poſſeſſed of a general ſobriety and virtue of character. In converſation he was unaffected and unaſſuming; rather backward in puſhing diſcourſe, but obliging and communicative to thoſe who wiſhed for information; and he was diſtinguiſhed by a ſimplicity of manners almoſt univerſally the attendant of truly great men. With all theſe amiable qualities, the Captain was occaſionally ſubject to an haſtineſs of temper, which has been ſet forth in its utmoſt extent, if not exaggerated by ſome, though but few, who are not his friends: but even theſe, as well as others, when taking a general view of his character, are obliged to acknowledge that he was undoubtedly one of the greateſt men of his age.

Captain Cook is diſtinguiſhed as an author by an account of his ſecond voyage written by himſelf. His firſt voyage, as well as that of ſeveral other navigators, had been recorded by Dr Hawkeſworth; but on the preſent occaſion it was not judged neceſſary to have recourſe to any other than the pen of the author himſelf; and his journal, with a few occaſional alterations, and being divided into chapters, was ſufficient for the purpoſe. The ſtyle is clear, natural, and manly; and it is not improbable that even a pen of more ſtudied elegance could not have made it appear to more advantage. When it appeared, which was not till ſome time after the author had left England, the book was recommended by the accuracy and excellency of its charts, and by a numerous collection of fine engravings done from the original drawings of Mr Hodges.

We cannot conclude this article without taking ſome notice of the honours paid to our celebrated navigator after his death, both by his own countrymen and thoſe of other nations. Perhaps indeed it may be ſaid with juſtice, that foreigners hold his memory in an eſtimation unequalled even in England; a remarkable proof of which occurs in the eulogy upon him by Michael Angelo Gianetti, read in the Florentine academy on the 9th of June 1785, and publiſhed at Florence the ſame year. It is ſaid alſo, that one of the French literary academies propoſed a prize for the beſt eulogium on Captain Cook; and many poetical teſtimonies of his merit appeared in our own language. The Royal Society of London reſolved to teſtify their reſpect for him by a medal, for which purpoſe a voluntary ſubſcription was opened. A gold medal was given to ſuch of the fellows as ſubſcribed 20 guineas, and a ſilver one for thoſe who ſubſcribed ſmaller ſums; and each of the other members received one of bronze. Thoſe who ſubſcribed 20 guineas were, Sir Joſeph Banks, preſident, the Prince of Anſpach, the Duke of Montague, Lord Mulgrave, and Meſſrs Cavendiſh, Peachy, Perrin, Poli, and Shuttleworth. Many deſigns were propoſed on the occaſion; but the following was that which was actually ſtruck. On one ſide was the head of Captain Cook in profile, with this inſcription round it, JAC. COOK OCEANI INVESTIGATOR ACERRIMUS; and on the exergue, REG. SOC. LOND. SOCIO SUO. On the reverſe is a repreſentation of Britannia holding a globe, with this inſcription round her, NIL INTENTATUM NOSTRI LIQUERE; and on the exergue, AUSPICIIS GEORGII III. One of the gold medals ſtruck on this occaſion was preſented to the king, another to the queen, and a third to the prince of Wales. Another was ſent to the French king on account of the protection he had granted to the ſhips; and a ſecond to the empreſs of Ruſſia, in whoſe dominions they had been treated with every expreſſion of friendſhip and kindneſs. Both theſe great perſonages condeſcended to accept of the preſent with marks of ſatisfaction. The French king wrote a handſome letter to the Society, ſigned by himſelf, and underſigned by the Marquis de Vergennes; and the Empreſs of Ruſſia commiſſioned Count Oſterman to ſignify to Mr Fitzherbert the ſenſe ſhe had of the value of the preſent, and that ſhe had cauſed it to be depoſited in the muſeum of the Imperial Academy of Sciences. As a further teſtimony of the pleaſure ſhe derived from it, the empreſs preſented to the Royal Society a large and beautiful gold medal, containing on one ſide the effigies of herſelf, and on the other a repreſentation of the ſtatue of Peter the Great. After the general aſſignment of the medals, which took place in 1784, there being a ſurplus of money ſtill remaining, it was reſolved by the preſident and council, that an additional number of medals ſhould be thrown off, to be diſpoſed of in preſents to Mrs Cook, the Earl of Sandwich, Dr Benjamin Franklin, Dr Cooke provoſt of King's College Cambridge, and Mr Planta. At the ſame time it was agreed that Mr Aubert ſhould be allowed to have a gold medal of Captain Cook on his paying for the gold and the expence of ſtriking it, in conſideration of his intention to preſent it to the King of Poland.

During the two viſits of the ſhips at Kamtſchatka, Colonel Behm, the commandant of that province, had beſtowed, in the moſt liberal manner, every kind of aſſiſtance which it was in his power to beſtow; and ſuch was the ſenſe entertained by the lords of the admiralty of the kindneſs he had ſhowed, that they determined to make him a preſent of a magnificent piece of plate, with an inſcription expreſſive of his humane and generous conduct. The inſcription was drawn up by Dr Cooke, and afterwards ſubmitted to the opinion and correction of ſome gentlemen of the firſt eminence in claſſical taſte.

Sir Hugh Palliſer, who had all along diſplayed an uncommon reſpect and kindneſs for Captain Cook, likewiſe diſplayed his regard for his memory in a moſt eminent manner. On his eſtate in Buckinghamſhire he conſtructed a ſmall building with a pillar, containing the character of Captain Cook, which is given at the end of the introduction to the laſt voyage. This was drawn up by the Honourable Admiral Forbes, admiral of the fleet and general of the marines, to whom Captain Cook was known only by his merit and extraordinary actions.

Amidſt all theſe expreſſions of unavailing praiſe, it was not forgotten to ſhow ſome eſſential ſervice to the widow and family of our celebrated navigator. A memorial for a penſion of L.200 *per annum* was given in to the king from the commiſſioners of the admiralty, and ſigned by the Earl of Sandwich, Mr Butler, the Earl of Liſburne, Mr Penton, Lord Mulgrave, and Mr Mann. His majeſty complied with the requeſt of the memorial, and the grant was paſſed through the uſual forms with all poſſible ſpeed. By this L.200 *per annum* were ſettled on the widow during life; and L.25 a-year on each of her three ſons. After her death the L.200 was to be divided between her children; a fourth was allotted to Captain King, and the remaining fourth to Mr Bligh and the repreſentatives of Captain Clerke.

The laſt honour paid to the memory of Captain Cook was the granting a coat of arms to the family, which was done by patent on the 3d of September 1785; and of this we have the following deſcription. Azure, between the two polar ſtars: Or, a ſphere on the plane of the meridian, north pole elevated, circles of latitude for every ten degrees, and of longitude for every 15; ſhowing the Pacific Ocean between 60° and 240° weſt, bounded on one ſide by America and on the other by Aſia and New Holland; in memory of the diſcoveries made by him in that ocean, ſo very far beyond all former navigators. His track thereon is marked with red lines; and for creſt, in a wreath of the colour is an arm imbowed, veſted in the uniform of a captain of the Royal Navy. In the hand is the Union Jack, on a ſtaff proper. The arm is encircled by a wreath of palm and laurel.

Cook's Diſcoveries. The number of countries diſcovered by Captain Cook, and which had never before been viſited by any European, is very conſiderable; but it was a remarkable property of our celebrated navigator, that, wherever he touched, every thing relative to the place was determined with ſuch accuracy and preciſion, that all former accounts ſeemed to go for nothing, and the diſcovery to belong entirely to Captain Cook. Thus it was not unuſual with him to make diſcoveries in places already well known; and thus his voyages have conveyed a vaſt fund of knowledge perfectly original. Though the accounts of the different places, therefore, at which he touched, are particularly given under their names in the order of the alphabet, we ſhall in this article endeavour to join the whole together in ſuch a manner as to give the reader ſome idea of the benefit which has accrued to ſcience from voyages attended not only with much expence and labour, but even with the loſs of the celebrated navigator's life.

1
Madeira, a volcanic iſland.

When he ſet out in the Endeavour in the year 1768, the firſt place touched at was Madeira. Here Mr Banks and Dr Solander, beſides ſome additions to the ſcience of botany, diſcovered undoubted marks of the iſland having a volcanic origin. On leaving this place they found it neceſſary to touch at Rio de Janeiro for proviſions; and during the run thither the commander had an opportunity of determining the cauſe of the luminous appearance of the ſea.

2
Luminous appearance of the ſea occaſioned by animals.

On the 29th of October they obſerved that the water frequently emitted flaſhes like lightning, though much ſmaller; but ſuch was their frequency, that eight or ten of them were viſible almoſt at the ſame moment. This appearance they found, both at this time and afterwards, to ariſe from a ſmall kind of animal with which the water abounded. While ſtaying at Rio de Janeiro, a melancholy obſervation was made of the prodigious waſte of human lives with which the working of the Portugueſe gold mines was attended, no fewer than 40,000 negroes being annually imported for this purpoſe, none of whom, it ſeems, ſurvive the labour of the year; and our navigator was informed, that in 1766 this number was ſo far ſhort, that they were obliged to draught 20,000 more from the town of Rio itſelf.

3
Vaſt number of negroes deſtroyed by the working the gold mines.

Proceeding from thence to the ſouthern coaſts of America, he had an opportunity of determining a queſtion of great importance to navigation, viz. whether, in ſailing to the Pacific Ocean, it is better to paſs through the ſtraits of Magellan, or to double Cape Horn and ſail through thoſe of Le Maire? From Captain Cook's voyage it appears, contrary to the opinion of former navigators, that the latter is the preferable paſſage. Through this he was only 33 days in coming round the land of Terra del Fuego from the eaſt entrance of the ſtrait of Le Maire till he had advanced about 12 degrees to the weſtward, and three and a half to the northward, of Magellan's ſtraits. During all this time the ſhip ſcarcely received any damage, though if he had paſſed the other way he could not have accompliſhed his paſſage in leſs than three months, beſides immenſe fatigue to his people and damage to the ſhip.

4
Beſt paſſage into the Pacific Ocean through the Straits le Maire.

In theſe ſtormy regions, however, he experienced the ſame inconveniences felt by other navigators; ſuch a ſea being met with off Cape Diego, that the ſhip frequently pitched her bowſprit under water. Here alſo the exceſſive cold and mutability of weather in theſe ſouthern regions was experienced in ſuch a manner as had nearly proved fatal to ſome of the gentlemen who ſailed along with him. Dr Solander, Mr Banks, Mr Monkhouſe the ſurgeon, and Mr Green the aſtronomer, with their attendants and ſervants, ſet out on a botani-

5
Exceſſive ſtorms and cold in the ſouthern regions.

cal expedition while the ſhip lay at anchor in the bay of Good Succeſs. It was then the middle of ſummer, and the morning on which they ſet out was as mild and warm as it uſually is in the month of May in England: but having aſcended a mountain for the purpoſe of botanizing, they were ſupriſed by ſuch ſtorms of ſnow and hail that they could not get back that night. Dr Solander, who warned them of their danger, that people when about to periſh with cold were ſeized with a violent inclination to ſleep, was the firſt who ſeemed likely to fall a victim to it; and it was not in the power of his companions to keep him from ſitting down for that purpoſe. He was awaked in a few minutes; but during this ſhort interval his feet had become ſo much diminiſhed by the contraction of the veſſels, that his ſhoes fell off from them when he was again made to riſe. Even theſe dreary regions, however, are not without inhabitants, whom our voyagers juſtly concluded to be the loweſt of the human ſpecies. 6 Miſerable ſtate of the natives. Indeed, conſidering the little convenience they have, it is wonderful how they can reſiſt the ſeverity of the climate, for they are almoſt without clothing; they dwell in miſerable hovels, which admit both the wind and ſnow or rain; and they have not any utenſil for dreſſing their food. Nevertheleſs, theſe miſerable creatures, as they appeared to our navigators, ſeemed to have no wiſh to poſſeſs more than they enjoyed; and they were abſolutely indifferent about every thing that was offered them, except large beads which they would take as ornaments. Hence Dr Hawkeſworth, who wrote the account of the voyage, concludes, that theſe people may be on a level with ourſelves with reſpect to the real happineſs they enjoy.

7 Iſlands diſcovered between Cape Horn and Otaheite. On the 26th of January 1769 our navigators left Cape Horn; and from that time to the firſt of March, during which they run no leſs than 660 leagues, met with no current by which the ſhip was affected. Hence it is probable, that during all this time they had never been near any land, the currents of the ocean being uſually met with in the neighbourhood of iſlands. Several iſlands, however, were diſcovered before they reached Otaheite, on which they beſtowed the names of Lagoon Iſland, Thrum-cap, Bow Iſland, the Groups, Bird Iſland, and Chain iſland. All theſe ſeemed to be inhabited, and were covered with a moſt delightful verdure; which appeared to the greater advantage, as our navigators had for a long time ſeen no land but the dreary hills and waſtes of Terra del Fuego. 8 Tranſit of Venus obſerved. Having arrived at Otaheite, they ſet about obſerving the tranſit of Venus over the ſun, which indeed was the main purpoſe for which the voyage had been undertaken. The anxiety which they underwent when the time of the expected phenomenon approached may eaſily be imagined, as the whole depended on the circumſtance of a clear ſky, which though more readily to be expected in that climate than one more to the northward, was ſtill a matter of uncertainty. In conſequence of ſome hints which had been given by the Earl of Morton, Captain Cook determined to ſend out two parties to different places to make the obſervations; by which means there would be a chance of ſucceſs, even if thoſe at Otaheite ſhould fail. For this purpoſe he ſent Mr Gore in the long boat to Eimeo, a neighbouring iſland, along with Mr Monkhouſe, Mr Banks, and Mr Sporing, who were furniſhed with proper inſtruments by Mr Green the aſtronomer. Meſſrs Hicks, Clerke, Pickerſgill, and Saunders, were ſent in the pinnace to a convenient ſpot to the eaſtward of the main obſervatory, where they were likewiſe ordered to make obſervations with ſuch inſtruments as they had. The day on which the tranſit happened was the 3d of June 1769, when they had the ſatisfaction to ſee the ſun riſe without a cloud; and as the weather continued equally clear, throughout the day, there was the beſt opportunity of making the obſervations in a proper manner. All of them ſaw an atmoſphere or duſky cloud round the planet, which diſturbed their obſervation, and probably cauſed them to differ from each other more conſiderably than they would otherwiſe have done. According to Mr Green, the times of ingreſs and egreſs of the planet were as follow:

Morning	h.	min.	ſec.
Firſt external contact, - -	9	25	42
Firſt internal contract, or total immerſion,	9	44	4
Afternoon			
Second internal contact, -	3	14	8
Second external contact, or end of the tranſit, - - -	3	32	10

From theſe obſervations the latitude of the obſervatory was found to be 17° 29′ 15″ S. and the longitude 149° 32′ 30″ W. of Greenwich. Several curious remarks were made both on the country itſelf and on the inhabitants. [8] Otaheite a volcanic iſland. Mr Banks, in an excurſion up the country, diſcovered many traces of volcanic fire; the ſtones, like thoſe of Madeira, had evidently the appearance of being burnt, and the very clay on the hills had the ſame appearance. 9 Account of the natives. The natives, though addicted to thieving, appeared in general harmleſs and friendly, and very ready to ſupply the ſhip with neceſſaries in exchange for ſuch things as they wanted. The articles on which they ſet the greateſt value were hatchets, axes, large nails, ſpikes, looking glaſſes, and beads. They were alſo fond of fine linen, whether white or printed; but an axe of the value of half a crown would buy more proviſions than a piece of cloth of the value of 20 ſhillings. They are very fickle and inattentive; ſo that it was not poſſible to engage them to pay any regard to the worſhip of the Deity which they ſaw performed before them; nor would they attend to any explanation of it that was given them. They are not, however, deſtitute of a religion of their own; and are particularly careful of the repoſitories of the dead, which they will not allow to be violated on any account. Of this Captain Cook had an inſtance, when ſome of his people offered to take down an incloſure of one of theſe repoſitories. They were violently oppoſed by the natives, who ſent a meſſenger to acquaint them they would never ſuffer any ſuch thing; and the only inſult that was ever offered to an Engliſhman by the people of this iſland was on a ſimilar account. From Otaheite our navigators carried with them Tupia, formerly high-prieſt of the country and prime miniſter to Queen Oberea. From his practice it appeared that the prieſts of Otaheite, as well as elſewhere, take care to place themſelves a ſtep nearer the Deity than the common people, and to uſe the deceptions too frequently put in practice by ſuch mediators. While on board the Endeavour, he frequently prayed to his god *Tane*; for a wind; and according to his own account never failed of ſucceſs. This, however, he took care to enſure; for he never began his prayers till he perceived the breeze already on the water, and ſo near that it muſt reach the ſhip before they could well be ended. It was obſerved likewiſe of the people of Otaheite, that they had their bards or minſtrels, who went about the country with muſical inſtruments. The band whom they ſaw at this time conſiſted of two players on flutes and three drummers; the latter accompanying the flutes with their voices. Their ſongs were made extempore, and the Engliſh themſelves were generally the ſubject.

From Otaheite our navigators ſailed towards a neighbouring iſland named *Tethuroa*; but finding it ſmall, low, and without any ſettled inhabitants, the Captain choſe rather to direct his courſe towards Huaheine and Ulietea, which he was informed were well inhabited. Theſe had never been viſited by any European ſhip; but the inhabitants, though peaceable and friendly, were very ſlow and cautious in trading, ſo that the Captain was obliged to bring out his hatchets to market; a commodity which he had hoped might have been concealed from thoſe who had never ſeen an European ſhip before. On his arrival at Ulietea he found, by the diſcourſe of Tupia, that the inhabitants of a neighbouring iſland named *Bolabola* were of ſuch a martial diſpoſition as to be the terror of thoſe of Huaheine, Ulietea, and others, inſomuch that he apprehended great danger to our navigators ſhould they touch at an iſland which the Bolabola men had lately conquered. This, however, had ſo little effect upon Captain Cook, that he not only landed on the iſland already mentioned, but took poſſeſſion, in his Majeſty's name, of Bolabola itſelf, together with Ulietea, Huaheine, and another named Otaha, which were all viſible at once.

10
Wretched appearance of the king of Bolabola.

During their ſtay here they paid a viſit to Opoony, the formidable monarch of Bolabola; whom, to their ſurpriſe, they found a feeble wretch, withered and decrepid, half blind with age, and ſo ſtupid that he ſeemed ſcarce to be poſſeſſed of a common degree of underſtanding.

11
Society Iſlands diſcovered.

About theſe iſlands they ſpent ſix weeks, beſtowing upon them the name of the *Society Iſles*, on account of their being ſo near to each other. They are ſix in number, Ulietea, Huaheine, Bolabola, Otaha, Tubai, and Maurna. The ſmaller ones in their neighbourhood are Tethuroa, Eimeo, Tapoamanao, Oatara, Opururu, Tamou, Toahoatu, and Whennuaia.

12
Oheteroa iſland diſcovered.

Leaving the Society Iſlands, which are ſituated between Lat. 16. 10. and 16. 55. S. and between 150. 57. and 152. W. from the meridian of Greenwich, they fell in with the iſland of Oheteroa, ſituated in S. Lat. 22. 27. and W. Long. 150. 47.; but this was found to be deſtitute of any harbour or ſafe anchorage, and the diſpoſition of the inhabitants ſo hoſtile that they could not by any means be conciliated, ſo that no attempts were made to land. From Tupia Captain Cook learned that there were ſeveral iſlands in the neighbourhood, which our navigator conjectured to be Boſcawen and Keppel's Iſlands, diſcovered by Captain Wallis; but without ſpending more time in exploring theſe, he ſet ſail to the ſouthward in ſearch of a continent.

13
Comet of 1769 obſerved.

Our voyagers left Oheteroa on the 15th of Auguſt 1769, and on the 30th had a view of the comet which appeared that year; its tail ſubtending on an angle of 42 degrees. This proved a new ſource of apprehenſion to Tupia, who inſtantly cried out, that as ſoon as it was ſeen at Bolabola, the people of that country would attack thoſe of Ulietea, who would undoubtedly be obliged to fly with precipitation to the mountains to ſave their lives. On the 6th of October they diſcovered land, which from its ſize, and the enormous mountains obſervable on it, was ſuppoſed by the gentlemen on board to be part of *Terra Auſtralis incognita*; but on farther examination it was found to be part of New Zealand.

14
They arrive at New Zealand.

Here the inhabitants were found to ſpeak a dialect of the language of Otaheite, ſo that they could underſtand Tupia, and he them; yet ſo extremely hoſtile were their diſpoſitions, that not the ſmalleſt intercourſe could be held with them; nor could any thing neceſſary for the ſhips be procured excepting wood: ſo that the name Captain Cook thought proper to beſtow on this part of the country was *Poverty-Bay*. By the natives it is called *Taoneroa*, and lies in S. Lat. 38. 42. and W. Long. 181. 36. During the time of his ſtay in that part of the world the Captain circumnavigated almoſt the whole country of New Zealand, which he found to conſiſt of two iſlands ſeparated from each other by a narrow ſtrait, which, from its diſcoverer, has obtained the name of *Cook's Strait*. In ſome places the diſpoſition of the inhabitants was as favourable as could be wiſhed; ſo that Dr Solander, Mr Banks, and other gentlemen, had an opportunity of exploring the country in ſome degree, with a view to diſcover its natural productions.

15
Rock of an extraordinary ſhape.

In one of theſe excurſions, as they paſſed through a valley, the hills on each ſide of which were very ſteep, they were ſuddenly ſtruck with the ſight of a very extraordinary natural curioſity. It was a rock perforated through its whole ſubſtance, ſo as to form a rude but ſtupendous arch or cavern, opening directly to the ſea. This aperture was 75 feet long, 27 broad, and 45 in height, commanded a view of the bay and the hills on the other ſide, which were ſeen through it; and opening at once on the view, produced an effect far ſuperior to any of the contrivances of art.

16
Natural products of the country.

On that part of the coaſt, which, from having obſerved a tranſit of Mercury, they named *Mercury Bay*, oyſters were found in ſuch plenty, that they might have loaded not only their boats but even their ſhip with them. They were about the ſame ſize with thoſe met with in this country; and on account of their being found in ſuch plenty, and likewiſe that the adjacent country abounds with conveniences, Captain Cook was at great pains to point out the ſituation of the place. By his obſervations, the latitude of Mercury Bay is 36° 48′ 28″ S.

Leaving this bay our commander proceeded to explore other parts of the country, which by their account ſeems to abound with rivers. Two large ones were met with in Mercury Bay; one of which, from the abundance of oyſters found at its mouth, was called *Oyſter river*; the other they named *Mangrove river*, from the number of mangrove trees growing there. A third, which they called *Thames*, was met with in that part called the Bay of iſlands, up which they ſailed 14 miles. Its banks were every where adorned with lofty trees, which they had likewiſe obſerved in other parts of the country. They were too heavy for maſts, but would make the fineſt planks imaginable; and as they reſembled the pitch pine, the timber of which is lightened by tapping, the carpenter was of opinion that they might thus be rendered more proper for maſts than any European timber. One of theſe trees meaſured 19 feet 8 inches in circumference at the height of ſix feet from the ground, and was no leſs than 89, with very little taper, to the branches, ſo that the lieutenant ſuppoſed it muſt contain 356 feet of ſolid timber. In Queen Charlotte's Sound, the country was little other than one vaſt foreſt, with plenty of excellent water; and the coaſt abounding with fiſh. As the ſhip lay at the diſtance of only a quarter of a mile from the ſhore, they were agreeably entertained with the ſinging of an infinite number of ſmall birds, which formed a melody greatly ſuperior to any thing they had ever heard before. The muſic of theſe little choriſters ſeemed to be like ſmall bells, moſt exquiſitely tuned, though probably the diſtance and intervention of the water had a conſiderable effect in heightening it. They began to ſing about two in the morning, and continued their ſong till ſun-riſe, after which they were ſilent all the day, reſembling in this reſpect the nightingales of our own country.

17 General deſcription of the country.

The time which Capt. Cook ſpent in exploring the coaſts of New Zealand was not leſs than ſix months. By his reſearches it was ſhown to conſiſt of two large iſlands, the moſt northerly of which is called *Eaheinomauwe*, and the moſt ſoutherly *Tovy*, or *Tavai Poenammoo*; though it is not certain whether the whole ſouthern iſland or only a part of it is comprehended under this name. This iſland ſeems to be barren and mountainous, but *Eaheinomauwe* has a much better appearance; and it was univerſally believed by the gentlemen on board, that all kinds of European grain, as well as garden plants and fruit, would flouriſh in the greateſt abundance and perfection; and from the vegetables found here it was concluded that the winters are not more ſevere than thoſe of England, and it was known by experience, that the ſummer was not hotter, though the heat was more equal than in this country. Here are no quadrupeds except dogs and rats; and the latter are ſo ſcarce, that they eſcaped the notice of many on board. The birds are not numerous, and the gannet is the only one of the European kind that was obſerved. The inſects are equally ſcarce; but the ſea makes abundant recompence for this ſcarcity of land animals; every creek ſwarms with fiſh, equally delicious with thoſe in this country, The foreſts are of vaſt extent, and filled with excellent timber trees, the largeſt, ſtraighteſt, and cleaneſt that Mr Cook had ever ſeen. There is here one plant which anſwers the purpoſes of both hemp and flax, and excels all other of the kind that has been met with in other parts of the world.

18 Proper place for ſettling a colony there.

If the ſettling of New Zealand therefore ſhould ever be deemed on object worthy of the attention of Great Britain, Captain Cook was of opinion, that the beſt place for eſtabliſhing a colony would be either on the banks of the Thames or in the Bay of Iſlands; each of theſe places having the advantage of an excellent harbour. Settlements might be extended, and a communication made with the inland parts of the country by means of the river; and veſſels eaſily conſtructed of the excellent timber with which the country every where abounds.

19 Account of the inhabitants.

The inhabitants of New Zealand are in a very barbarous ſtate, and have a degree of ferocity unknown to the inhabitants of the South-Sea iſlands, though they ſeem to have the ſame origin. During their reſidence there, our navigators had the moſt convincing evidences of their being cannibals, and accuſtomed to devour the bodies of their ſlain enemies. Notwithſtanding theſe barbarous practices, however, they ſeemed to enjoy a ſtate of uninterrupted health. In all the viſits made to their towns, none was ever perceived who had the leaſt bodily complaint, not even the ſlighteſt eruption on the ſkin. This extraordinary degree of health was likewiſe manifeſted by the eaſe with which their wounds were healed without the ſmalleſt application, as well as by the number of old men with which the iſland abounded. Many of theſe, by the loſs of their hair and teeth, ſeemed to be extremely old, but none of them were decrepid; and though inferior in ſtrength to the young men, they came not behind them in the leaſt with regard to cheerfulneſs and vivacity. The univerſal and only drink of the New Zealanders is water.

Our navigator had now explored three-fourths of that part of the globe where the ſouthern continent was ſuppoſed to lie, without being able to find it; and his voyage had demonſtrated, that the lands ſeen by former navigators could not have been parts of ſuch a continent, though, as he had never proceeded farther to the ſouthward than 40 degrees, the arguments for it were not as yet entirely overthrown.

20 Diſcoveries at New Holland.

Mr Cook, however, did not at this time proceed farther in the ſearch of ſuch a continent, but ſailed from New Zealand to the coaſts of New Holland, where he anchored in Botany Bay on the 20th of April. Here he found a few ſavage inhabitants more barbarous and degenerate than any that had yet been obſerved. Their language was harſh and diſſonant, totally unintelligible even to Tupia; they appeared to have little curioſity, and ſet no value upon any preſent that could be made them. The moſt remarkable circumſtance in this country ſeems to be its extreme ſcarcity of water; not a ſingle ſtream of any conſequence having ever been obſerved by any navigator. Some were of opinion indeed, that Moreton's Bay, in S. Lat. 26. 56. and W. Long. 206. 28. opens into a river; though the only reaſon they had for this opinion was, that the ſea looked paler in that part than uſual, and the land at the bottom part of the bay could not be ſeen. At this time, however, the matter could not be determined by experiment, on account of the wind being contrary. The ſcarcity of water here is the more ſurpriſing, on account of the vaſt extent of the country, and likewiſe its having abundance of tolerable high hills.

21 Magnetic needle ſurpriſingly affected.

In this iſland there were found many curious plants and animals; and it was found, that in ſeveral places the magnetical needle was affected to ſuch a degree as to vary its poſition even to 30 degrees. At one time it varied no leſs than two points on being removed to the diſtance of only 14 feet. Some of the looſe ſtones being taken up and applied to the needle produced no effect; but Mr Cook was of opinion that the whole phenomenon was to be aſcribed to iron ore in ſome of the mountains, and of which traces had been already met with. This irregularity continued in ſome degree even at ſea; for when the ſhip was cloſe under Cape Upſtart, the variation, 22 Birds neſts of an immenſe ſize.

ation of the needle in the evening of the 4th of June was 9. Eaſt, and next morning only 5. 35.; and this was in like manner accounted for from iron ore, or ſome magnetical matter below the ſurface of the ground. The great iſland has many other ſmall ones round it; ſeveral of which were viſited by our navigators. One of them named *Eagle Iſland,* ſeemed to be inhabited by a monſtrous kind of birds, the neſt of one of which meaſured no leſs than 26 feet in circumference and two feet eight inches in height; and in the Philoſophical Tranſactions, vol. xx. there is an account of one of theſe neſts ſtill larger; but the bird to which it belonged was not ſeen. That which our navigators ſaw was built of ſticks, and lay upon the ground.

23 Vaſt extent of the country.

The country which goes by the name of *New Holland* is by far the largeſt iſland in the world. Its eaſtern part, called *New South Wales,* now firſt explored by Captain Cook, extends upwards of 2000 miles in length, if the coaſt were reduced to a ſtraight line. Though inhabited, as we have already ſaid, by very barbarous ſavages, their number appears to bear no proportion to the extent of their territory. The intercourſe they had with our navigators was ſo ſmall, that they could pick up but a few words of their language. As a Britiſh ſettlement, however, is now made in that country, there is no doubt that much more exact and accurate accounts will ſoon be obtained than even the diligence and attention of Captain Cook could collect on ſuch a tranſient viſit.

24 Separated by ſtraits from New Guinea.

25 Cockles of vaſt ſize, ſea ſcum, &c.

In this voyage our navigator, beſides exploring the eaſtern part of the iſland, which had never been done before, diſcovered that it was ſeparated from the iſland of New Guinea, to which it had formerly been thought to join. The two countries are ſeparated by a ſtrait to which the commander gave the name of *Endeavour Strait.* The north entrance of this lies in S. Lat. 10. 39. and W. Long. 218. 36. the paſſage is formed by the main land and a congeries of iſlands to the north, on which our navigator beſtowed the name of *Prince of Wales's Iſlands.* Theſe are very different both in height and extent; and the Captain was of opinion that ſeveral paſſages might be found out among them. On the coaſt of New Holland oppoſite to New Guinea are found cockles of an immenſe ſize; ſome of them being as much as two men could move, and containing 20 pounds of good meat. In theſe ſeas as well as on the coaſts of Brazil, our navigators found the ſurface of the water covered with a kind of ſcum, called by the ſailors *ſea-ſpawn.* It was examined by Mr Banks and Dr Solander; but they could determine nothing farther than that it was of vegetable origin.

26 Unaccountable method of the natives of letting off fires.

The natives of New Guinea were ſo hoſtile that no diſcoveries of any conſequence could be made They reſembled the New Hollanders in ſtature, and having ſhort cropped hair. Like them too they were abſolutely naked, but ſomewhat leſs black and dirty. They had a ſurpriſing method of letting off a kind of fires, exactly reſembling the flaſhes of fire-arms, but without any exploſion. It was not known in what manner this was done, as they were never near enough to make a particular obſervation. Thoſe who diſcharged them had a ſhort piece of ſtick which they ſwung ſideways from them, upon which there iſſued the fire and ſmoke juſt mentioned. This ſeems to have been intended as a defiance; for they had no effect as offenſive weapons, and others were armed with bows and arrows. The country appeared extremely pleaſant and fertile. The place at which they touched lies in S. Lat. 6. 15,

As the condition of the Endeavour was now very much ſhattered by having ſailed ſo long in theſe dangerous ſeas, the commander determined to make the beſt of his way for Batavia in order to refit. In this voyage he firſt paſſed two unknown iſlands without touching at either of them. They were ſuppoſed to belong to the Aurora iſlands; but if this be the caſe, the latter muſt be laid down at too great a diſtance from New Guinea. The Weaſel Iſles, laid down by former navigators at about 20, or 25 leagues from the coaſt of New Holland, were not ſeen; for which reaſon Mr Cook is of opinion that they are erroneouſly laid down.

27 Aurora Auſtralis.

Paſſing by the iſlands of Timor, Timor-Lavet, Rotta, and Seman, they next arrived at the iſland of Savu, where a ſettlement had lately been made by the Dutch. In this voyage they had the ſatisfaction of obſerving the aurora auſtralis, which here ſeemed to differ in ſome reſpects from that in the northern hemiſphere. It conſiſted of a dull reddiſh light extending about 20 degrees above the horizon; and though it varied at ſome times in extent, it was never leſs than eight or ten degrees. From this general maſs of light there ſometimes iſſued rays of a brighter colour, which vaniſhed and were renewed like thoſe of the aurora borealis, but without any of that tumultuous motion obſerved in the aurora borealis. The body of the light bore S. S. E. from the ſhip, and continued without any diminution of its brightneſs from 10 to 12 at night.

28 Excellent character of the inhabitants of Savu.

The middle part of the iſland of Savu lies in 10° 35′ ſouth, and 237° 30′ weſt longitude, and afforded a moſt beautiful proſpect from the ſhip. The people are remarkable for the purity of their morals, which are ſaid to be irreproachable, even on the principles of Chriſtianity. Though no man is allowed to have more than one wife, inſtances of illicit commerce betwixt the ſexes, are ſcarce known among them. Inſtances of theft are likewiſe very rare; and ſo far are they from revenging a ſuppoſed injury by murder, that when any differences ariſe among them, they are immediately and implicitly referred to the determination of the king. They will not even make it the ſubject of private debate, leſt they ſhould be provoked to reſentment and ill-nature; and the delicacy and cleanlineſs of their perſons are ſaid to be proportionable to the purity of their morals.

29 Good effects of the electrical chains in preſerving from the effects of lightening.

On the arrival of the Endeavour at Batavia, our navigator had an opportunity of obſerving the good effects of the electrical chains applied to ſhips in ſecuring them from the effects of lightening. A dreadful ſtorm of thunder happened one evening, during which the main-maſt of one of the Dutch Eaſt India-men was ſplit and carried away cloſe by the deck, the main top-maſt, and top-gallant-maſt being ſhivered to pieces. This ſhip lay ſo near the Endeavour, that the latter would probably have ſhared the ſame fate, had it not been for the conducting chain which fortunately was juſt put up. The exploſion ſhook her like an earthquake, the chain at the ſame time appearing like a line of fire. The ſtroke ſeemed to have been directed to the Dutch veſſel by an iron ſpindle at the maſt head; which practice our commander diſcommends, but ſtrongly adviſes the uſe of the electrical chain.

30 Death of Tupia.

On their landing at Batavia, Tupia was confined by ſickneſs, ſo that he appeared quite lifeleſs and dejected when put into the boat; but on his arrival at land recovered his ſpirits ſurpriſingly. The ſcene, to him ſo new and extraordinary, ſeemed to produce an effect ſimilar to what is aſcribed to enchantment. His attention was particularly engaged by the various dreſſes of the people; and being informed that at Batavia every one appeared in the dreſs of his own country, he expreſſed a deſire of likewiſe appearing in the garb of Otaheite. Having therefore been furniſhed with South Sea cloth from the ſhip, he equipped himſelf with great quickneſs and dexterity. After the firſt flow of ſpirits had ſubſided, however, he ſoon began to feel the fatal effects of the climate; and his boy Tayeto, whoſe ſpirits had been ſtill more elevated on his arrival, was attacked with an inflammation of the lungs, and in a little time fell a victim to the diſeaſe. Tupia himſelf did not long ſurvive him, and his death was not attributed entirely to the unwholeſomeneſs of the climate. Having been accuſtomed from his infancy to ſubſiſt chiefly upon vegetable food, and particularly on ripe fruit, he had ſoon contracted the diſorders incident to a ſea-life, and could ſcarce have been expected to reach England, even if the unwholeſome climate of Batavia had been out of the queſtion.

31 Prince's Iſland, a proper place for ſhips to touch at.

The Endeavour left Batavia on the 27th of December 1770, and on the 5th of January 1771 reached Prince's Iſland. This place had been formerly much frequented by the India ſhips, but of late entirely deſerted on account of the ſuppoſed bad quality of the water: but this our navigator has diſcovered to be a miſtake; and that though the water near the ſea is brackiſh, it may be had of excellent quality by going a little way up the country. He is of opinion that this iſland is a more proper place for ſhips to touch at than either North Iſland or New Bay, becauſe neither of theſe can afford other refreſhments which may be had at Prince's Iſland.

The reſt of this voyage affords little intereſting matter. The Cape of Good Hope, which was their next ſtage, has been ſo fully deſcribed by former navigators that there was little room for addition. At St Helena the commander made ſome remarks on the rigorous treatment of the ſlaves, which was repreſented as worſe than that of the Dutch either at Batavia or the Cape of Good Hope. In the account of his ſecond voyage, however, this accuſation was retracted.

32 Second voyage.

33 Calms not always to be feared near the equinoctial.

34 Luminous quality of ſea-water further determined.

Captain Cook's ſecond voyage was undertaken in an eſpecial manner to determine finally the queſtion concerning the exiſtence of a ſouthern continent. It commenced in the year 1772; and, as in the former, he proceeded firſt to Madeira. From thence he proceeded to St Jago, one of the Cape de Verde Iſlands; where an opportunity was taken of delineating and giving ſuch a deſcription of Port Praya, and the ſupplies to be there obtained, as might be of uſe to future navigators. On the 8th of September he croſſed the line in 8° weſt longitude, and had the ſatisfaction to meet with good weather, though he had been informed that he had ſailed at an improper time of the year, in conſequence of which he would probably be becalmed. From his account, however, it appears, that though in ſome years ſuch weather may be expected, it is by no means univerſally the caſe. In this part of the ocean he had alſo an opportunity of obſerving the cauſe of the luminous property of ſea-water, which in his former voyage had been attributed to inſects. Mr Forſter being of a different opinion, the matter was again particularly inquired into, but the reſult was entirely conformable to the former determination. Some buckets of water being drawn up from along ſide the ſhip, were found to be filled with thoſe inſects of a globular form, and about the ſize of a ſmall pin's head. No life indeed could be perceived in them; but Mr Forſter was thoroughly convinced of their being living animals when in their proper element.

35 Ice-iſlands.

Proceeding ſouthward in queſt of a continent, they fell in with Ice Iſlands in S. Lat. 50. 40. and two degrees of longitude eaſt from the Cape of Good Hope. One of theſe was ſo much concealed by the hazineſs of the weather, that it could not be ſeen at the diſtance of more than a mile. Captain Cook judged it to be about 50 feet in height, and half a mile in circumference; its ſides riſing in a perpendicular direction, and the ſea breaking againſt them with great violence. Two days after, they paſſed ſix others, ſome of which were two miles in circumference and 60 feet in height; yet ſuch was the ſtrength and violence of the waves that the ſea broke quite over them. On the 14th they were ſtopped by a vaſt field of low ice, of which they could perceive no end. In different parts of this field there were ſeen iſlands or hills of ice like thoſe already deſcribed, and ſome of the people imagined that they ſaw land over them; but upon a narrow examination this was found to be a miſtake. On getting clear of the field of ice they again fell in with looſe iſlands; and as it was a general opinion that theſe are only formed in bays and rivers, our navigators concluded that they could not be at a great diſtance from land. They were now in the latitude of 55° 40′ ſouth; and as they had ſailed for more than 30 leagues along the edge of the ice without finding any opening, the Captain determined to run 30 or 40 leagues farther to the eaſtward, in hopes of then getting to the ſouthward. If in this attempt he met with no land or other impediment, his deſign was to ſtretch behind the ice altogether, and thus determine the matter at once. In a ſhort time, however, it became evident that the field of ice along which they had ſailed ſo long did not join with any land; and the Captain now came to a reſolution of running as far to the weſt as the meridian of Cape Circumciſion. In the proſecution of this deſign he met with a very ſevere ſtorm, which was rendered the more dangerous by the pieces of looſe ice among which they were ſtill entangled, and a vaſt field of which they could not perceive the boundaries, about three miles to the northward. Of this they could not get clear without receiving ſome ſevere ſtrokes; and after all, when they arrived at the place where they ought to have found Cape Circumciſion, it could not be diſcovered; ſo that the Captain concluded that what Bouvet took for land could have been nothing but ice.

During this run the fallacy of the general opinion

36 Ice not always found in the vicinity of land.

had been diſcovered, that the ice with which the polar regions abound has been formed in the vicinity of land. It was found likewiſe, that the water produced from the melting of ice, even though formed in the ocean, was perfectly ſweet and well taſted. Of this circumſtance the Captain took advantage to ſupply himſelf with water; and gave it as his opinion, that it was the moſt expeditious method of watering he had ever known. He had likewiſe an opportunity of detecting another popular error, *viz.* that penguins, albatroſſes, and other birds of that kind, never go far from land. This indeed may be the caſe in open ſeas, but in ſuch as are covered with ice it is very different; for they then inhabit the ice iſlands, and float out with them to ſea at a great diſtance.

37 Irregularity of the magnetic needle.

When in the latitude of 49. 13. S. ſome ſigns of land were perceived; but as the wind did not admit of any ſearch being made in the direction where it was ſuppoſed to lie, the Captain proceeded in his voyage to the eaſtward. A very remarkable alteration in the direction of the needle was now perceived, and which could not be ſuppoſed owing to the vicinity of any magnetic matter, as it happened while the ſhips were far out at ſea. The circumſtance was, that when the ſun was on the ſtarboard ſide of the ſhip the variation was leaſt, but greateſt when on the oppoſite ſide. An aurora auſtralis was again obſerved, which broke out in ſpiral or circular rays, and had a beautiful appearance; but did not ſeem to have any particular direction, being conſpicuous at various times in different parts of the heavens, and diffuſing its light over the whole atmoſphere.

38 Extreme cold of the ſouthern ſeas.

39 Farther account of New Zealand.

The extreme cold and ſtormy weather which now began to take place, determined Captain Cook not to croſs the antarctic circle a ſecond time as he had once deſigned. His obſervations confirmed the accounts of former navigators, that the cold of the ſouthern ſeas is much more intenſe than in equal latitudes in the northern hemiſphere; but at the ſame time it ſhowed that this cold cannot be owing to the vicinity of a continent, as had formerly been imagined. On the contrary, it was now determined beyond diſpute, that if any ſuch continent exiſted in the eaſtern part of the ſouthern ocean, it muſt be confined within the latitude of 60 degrees. No farther diſcoveries therefore being practicable in higher latitudes, as the winter ſeaſon was approaching, the commander ſteered for New Zealand, where he anchored in Duſky Bay on the 25th of March, having been at Sea 117 days without once coming in ſight of land. Here the time was ſpent in procuring proper refreſhments for the people, and exploring the ſea-coaſt and country for the benefit of future navigators. Nor was our commander unmindful of the inhabitants. Here he left the five geeſe which yet remained, chooſing for them a place where there were no people at the time to diſturb them; and as they had there great plenty of food, he had no doubt of their breeding, and in a ſhort time ſpreading over the country. Some days after a piece of ground was cleared by ſetting fire to the topwood, after which it was dug up and ſowed with garden ſeeds. Duſky Bay is ſituated in the weſtern iſland of New Zealand, called *Tavaipoenammoo*, which as has already been ſaid, is leſs fertile than the other. The inland part is full of rugged mountains of a vaſt height; but the ſea-coaſt is covered with trees, among which is the true ſpruce, which was found to be of great uſe. It was remarked that though a vaſt quantity of rain fell during the time of reſidence here, it was not attended with any bad effects on the health of the people; which furniſhes an additional argument of the healthineſs of the place. Duſky Bay is reckoned by Captain Cook to be the moſt proper place in New Zealand for the procuring of refreſhments, though it is attended with ſome diſagreeable circumſtances, particularly being infeſted with great numbers of black ſand-flies, which were troubleſome to an extreme degree. The natives ſeen at Duſky Bay were apparently of the ſame race with thoſe ſeen in other parts of the country, and led a wandering life, without any appearence of being united in the bonds of ſociety or friendſhip.

40 Water ſpouts.

From Duſky Bay the Captain proceeded to Queen Charlotte's Sound, where he met with the Adventure, which had been ſeparated from the Reſolution for above 14 weeks. In his paſſage thither he had an opportunity of obſerving ſix water-ſpouts, one of which paſſed within 50 yards of the Reſolution. It has been a common opinion, that theſe meteors are diſſipated by the firing of a gun, and the Captain was ſorry he had not made the experiment; but he acknowledges, that though he had a gun ready for the purpoſe, and was near enough, his attention was ſo much engaged in viewing them, that he forgot to give the neceſſary orders.

41 Diſcoveries of Captain Furneaux.

Having planted another garden in this part of the country, and left two goats, two breeding ſows and a boar, in as private a ſituation as poſſible, that they might be for ſome time out of the reach of the natives, the Captain ſet ſail for Otaheite. During the long abſence of the Adventure, Captain Furneaux had viſited the coaſt of New Holland, and diſcovered that there was no probability of Van Dieman's land being ſeparated from it by ſtraits: he had likewiſe found additional proofs that the natives of New Zealand were accuſtomed to eat human fleſh. Captain Cook alſo remarked with concern, that the morals of the New Zealanders were by no means mended by the viſit he had formerly paid them. At that time he looked upon the women to be more chaſte than thoſe of moſt of the nations he had viſited; but now they were ready to proſtitute themſelves for a ſpikenail, and the men to force them to ſuch an infamous traffic, whether agreeable to the inclinations of the females or not.

42 New iſlands diſcovered.

In the run from New Zealand to Otaheite, our commander paſſed very near the ſituation aſſigned by Captain Carteret to Pitcairn's iſland, diſcovered by him in 1767, but without being able to find it, though a ſight of it would have been uſeful for correcting its longitude as well as that of others in the neighbourhood; but there was not at preſent any time to ſpend in ſearching for it. Proceeding farther on his voyage, however, he fell in with a cluſter of iſlands ſuppoſed to be the ſame diſcovered by M. Bougainville, and named by him the *Dangerous Archipelaga*. To four of theſe Captain Cook gave the names of *Reſolution, Doubtful, Furneaux,* and *Adventure Iſlands*. Reſolution Iſland is ſituated in S. Lat. 17. 24. W. Long. 141. 39. Doubtful Iſland in S. Lat. 17. 20. W. Long. 141. 38. Furneaux Iſland in S. Lat. 17. 5. W. Long. 143.

143. 16. and Adventure Iſland in S. Lat. 17. 4. and W. Long. 144. 30.

43 Miſtake concerning the women of Otaheite corrected.

No diſcovery of any great conſequence was made at the iſland of Otaheite or thoſe in its neighbourhood, excepting that the Captain had an opportunity of correcting the opinion which till now had prevailed, of the exceſſive diſſoluteneſs and immodeſty of the women of Otaheite; and which had been enlarged upon by Dr Hawkeſworth more than ſeemed to be conſiſtent with decency. The charge, however, according to the accounts of this ſecond voyage, is far from being indiſcriminately true, even of the unmarried females of the lower claſs. Some additions were made to the knowledge of the geography of thoſe iſlands; and from Huaheine Captain Furneaux took on board his ſhip one of the natives of Ulietea named *Omai*, afterwards ſo much ſpoke of in England. Captain Cook at firſt appeared diſſatisfied with his choice of this youth, as being inferior in rank to many others, and having no particular advantage in ſhape, figure, or complexion; however he had afterwards reaſon to be better pleaſed. During the Captain's reſidence at Otaheite, he uſed his utmoſt endeavours to diſcover whether the venereal diſeaſe was endemic among them, or whether it had been imported by Europeans: but in this he could not meet with any perfectly ſatisfactory account; though it was univerſally agreed, that if it had been introduced by Europeans, it muſt have been by the French under M. Bougainville.

44 Harvey's Iſland diſcovered.

Captain Cook having left Ulietea on the 17th of September 1773, directed his courſe weſtward, with an inclination to the ſouth. In this courſe he diſcovered land in S. Lat. 19. 8. and W. Long. 158. 54. to which he gave the name of *Harvey's Iſland.* From thence he proceeded to the iſland of Middleburg, where he was treated in the moſt hoſpitable manner poſſible. To ſuch an exceſs did the people carry their generoſity, that they ſeemed to be more fond of giving away their goods than of receiving any thing for them; inſomuch that many, who had not an opportunity of coming near the boats, threw over the heads of others whole bales of cloth, and then retired without either waiting or aſking for any thing in return. From Middleburg he proceeded to Amſterdam Iſland, where the beauty and cultivation of the iſland afforded the moſt enchanting proſpect. There was not an inch of waſte ground; the roads were no wider than what was abſolutely neceſſary, and the fences not above four inches thick. Even this was not abſolutely loſt; for many of theſe contained uſeful trees or plants.

45 South Sea iſlands generally ſurrounded by coral rocks.

It is obſervable of the iſles of Middleburg and Amſterdam, as well as of moſt others in the South Sea, that they are guarded from the waves by a reef of coral rocks which extend about one hundred fathoms from the ſhore. Thus they are effectually ſecured from the encroachments of the ocean; by which they would probably ſoon be ſwallowed up, as moſt of them are mere points in compariſon of the vaſt quantity of water which ſurrounds them. Here he left a quantity of garden vegetable ſeeds and pulſe, which it was not doubted would be taken care of by the induſtrious inhabitants. In the laſt mentioned iſlands our navigators found no animals but hogs and fowls; the former being of the ſame kind with thoſe uſually ſeen in the other iſlands in the South Sea, but the latter greatly preferable, equalling thoſe of Europe in their ſize, and even preferable in reſpect of the goodneſs of their fleſh.

46 Another viſit to New Zealand.

On the 7th of October Captain Cook left the iſland of Amſterdam, with a deſign to pay another viſit to New Zealand, in order to take in wood and water for his voyage in queſt of a ſouthern continent. The day after he left Amſterdam, he fell in with the iſland of Pilſtart, formerly diſcovered by Taſman, and ſituated in S. Lat. 26', W. Long. 175° 59', 32 leagues diſtant from the eaſt end of Middleburg. On his arrival at New Zealand, he exerted himſelf as much as poſſible to leave a proper aſſortment of vegetables and animals for the benefit of the inhabitants. One of the firſt things he did, therefore, was to make a preſent to a chief, who had come off in a canoe, of a quantity of the moſt uſeful garden ſeeds, ſuch as cabbage, turnips, onions, carrots, parſnips, and yams; together with ſome wheat, French and kidney beans, and peaſe. With the ſame perſon he left alſo two boars, two ſows, four hens, and two cocks. This preſent, however valuable in itſelf, ſeems to have been but indifferently received; for the chief was much better ſatisfied with a ſpikenail half the length of his arm than with all the reſt; notwithſtanding which, he promiſed to take care of the ſeeds, and not to kill any of the animals. On inquiring about thoſe animals left in the country in the former part of his voyage, the Captain was informed, that the boar and one of the ſows had been ſeparated, but not killed. The other he ſaw in good condition, and very tame. The two goats, he was informed, had been killed by a native of the name of Gaubiah. The gardens had met with a better fate; all the articles being in a very flouriſhing condition, though left entirely to nature, excepting the potatoes. Captain Cook, however, ſtill determined to ſupply theſe iſlanders with uſeful animals, put on ſhore a boar, a young ſow, two cocks and two hens, which he made a preſent of to the adjacent inhabitants. Three other ſows and a boar, with two cocks and hens, he ordered to be left in the country without the knowledge of the Indians. They were carried a little way into the woods, and there left with as much food as would ſerve them for 10 or 12 days, in order to prevent them from coming down to the coaſt in queſt of it, and thus being diſcovered.

47 Voyage in queſt of a ſouthern continent.

A ſecond ſeparation with the Adventure had now taken place; notwithſtanding which, Captain Cook ſet out alone with his veſſel in queſt of a ſouthern continent; and ſuch was the confidence put in him by the ſailors, that all of them expreſſed as much ſatisfaction and alacrity as if not only the Adventure, but ever ſo many ſhips had been in company.

On the 26th of November the Captain ſet ſail from New Zealand; and on the 12th of December began to fall in with the ice, but conſiderably farther to the ſouthward than they had met with it in the former part of his voyage; being now in the latitude of 62° 10' S. and 172° W. Long. As they proceeded ſouthward, the number of ice iſlands increaſed prodigiouſly; and in Lat. 67° 31' and W. Long. 142° 54', they all at once got in among ſuch a cluſter of theſe iſlands, that it became a matter of the utmoſt difficulty and danger to keep clear of them. Finding it impoſſible, therefore, to get any farther to the ſouthward at preſent, the

48 Is ſtopped by ice.

the Captain determined to explore a conſiderable tract of ſea to the north of his preſent ſituation, and then again to ſtand to the ſouth. But in this he was ſtill unſucceſsful; no land being diſcovered either in ſailing northward, eaſtward, weſtward, or ſouthward; though he proceeded as far in the laſt direction as 71. 10. S. Lat. and 106. 54. W. It was now impoſſible to proceed; and the opinion of the Captain himſelf, as well as of moſt of the gentlemen on board, was, that the ice by which they were now ſtopped extended as far as the pole. As there was ſtill room, however, in parts of the ocean entirely unexplored, for very large iſlands, our Commander determined not to abandon the purſuit in which he was engaged until there ſhould not be any poſſibility of doing more; and beſides the poſſibility of making new diſcoveries, he was conſcious that many of the iſlands already diſcovered were ſo obſcurely known, that it was of conſequence to pay them a ſecond viſit. With this view he propoſed to go in queſt of Eaſter or Davis's Iſland; the ſituation of which was known with ſo little certainty, that none of the attempts lately made to diſcover it had been ſucceſsful. He next intended to get within the tropic, and then to proceed to the weſt, touching at any iſlands he might meet with, and ſettling their ſituations, until he ſhould arrive at Otaheite, where it was neceſſary for him to make ſome ſtay in order to look for the Adventure. It was part of his deſign alſo to run to the weſtern as far as Terra Auſtral del Eſpiritu Sancto, diſcovered by Quiros, and which M. Bougainville had named *The Great Cyclades*. From this land he propoſed to ſail to the ſouthward, and from thence to the eaſt between the latitude of 50° and 60°. In the execution of this deſign, he determined if poſſible to reach Cape Horn during the enſuing November, when he would have the beſt part of the ſummer before him to explore the ſouthern part of the Atlantic Ocean.

49 Nutritive property of dog's fleſh.

50 Viſits Eaſter Iſland,

In purſuing his courſe to the northward, it had been part of his deſign to find out the land ſaid to have been diſcovered by Juan Fernandez in about the latitude of 38°; but he was ſoon convinced, that if any ſuch land exiſted, it could only be a very ſmall iſland: but the proſecution of the deſign was for ſome little time interrupted by a violent bilious diſorder by which the Captain was attacked. In this, when he began to recover, as there was no freſh meat on board, he was obliged to have recourſe to dog's fleſh; and a favourite animal belonging to Mr Forſter was ſacrificed on the occaſion. The Captain was able to eat not only of the broth made of this, but likewiſe of the fleſh, when his ſtomach could bear nothing elſe. On the 11th of March they arrived at Eaſter Iſland, before which time the Captain was tolerably recovered. Here they made but few diſcoveries farther than determining the ſituation of it to be in S. Lat. 27° 5′ 30″, and W. Long. 109° 46′ 20″. The iſland itſelf was found barren and deſolate, having every appearance of being lately ruined by a volcanic eruption; without either wood, fuel, or freſh water worth taking on board. The inhabitants were few in number; and the women in very ſmall proportion to the men, but remarkable for their lewdneſs. A number of gigantic ſtatues were obſerved, which had alſo been taken notice of by Commodore Roggewein, and the origin of which could not be accounted for.

51 And the Marqueſas.

On leaving Eaſter Iſland, Captain Cook was again attacked by his bilious diſorder; but happily recovered before he reached the Marqueſas, which they did on the 6th and 7th of April. One of theſe, being a new diſcovery, received the name of *Hood's Iſland*, from the young gentleman by whom it was firſt obſerved. Theſe are five in number; ſituated between 9 and 10 degrees of ſouth latitude, and between 138. 47. and 139. 13. of weſt longitude. They were diſcovered by Mendana a Spaniard; and their names are, La Magdalena, St Pedro, La Dominica, Santa Chriſtina, and Hood's Iſland. The inhabitants are, without exception, the fineſt race of people in the South Sea, ſurpaſſing all others in that part of the world in the ſymmetry of their perſons and regularity of their features. Their origin, however, from the affinity of language, was evidently the ſame with that of Otaheite. It was in St Chriſtina that our commander anchored; and he has left particular directions for finding a particular cove in Reſolution Bay in that iſland, which is the moſt convenient for procuring wood and water.

52 Iſland Tiookea.

53 Palliſer's Iſlands.

In the paſſage from the Marqueſas to Otaheite, our navigators paſſed ſeveral low and ſmall iſlands connected together by reefs of coral rocks. One of theſe, named by the inhabitants *Tiookea*, was viſited by Lieutenant Cooper. It was diſcovered and viſited by Captain Byron; and is ſituated in S. Lat. 27. 30. W. Long. 144. 56. The inhabitants are much darker in their complexions, and ſeem to be of a fiercer diſpoſition than thoſe of the neighbouring iſlands. They have the figure of a fiſh marked upon their bodies; a very proper emblem of their profeſſion, deriving their ſubſiſtence almoſt entirely from the ſea. Paſſing by St George's Iſlands, which had been alſo diſcovered and named by Captain Byron, our Commander now diſcovered four others, which he named *Palliſer's Iſlands*. One of theſe is ſituated in S. Lat. 15. 26. and W. Long. 146. 20. another in S. Lat. 15. 27. and W. Long. 146. 3. They were inhabited by people reſembling thoſe of Tiookea, and like them were armed with long pikes. Here our navigator obſerved, that from W. Long. 138° to 148° or 150°, the ſea is ſo full of ſmall low iſlands, that one cannot proceed with too much caution.

54 Arrival at Otaheite.

On his arrival in Otaheite, proviſions were met with in great plenty; and they were now very acceptable, by reaſon of the long time the ſhip had been at ſea without obtaining any conſiderable ſupply. Two goats which had been given by Captain Furneaux to a chief named *Otoo*, appeared to be in a very promiſing ſituation. The female had brought forth two kids, which were almoſt large enough to propagate; and as ſhe was again with kid, there was little doubt that the iſland would ſoon be ſtocked with theſe uſeful animals; though it was otherwiſe with the ſheep, all of which had died except one. On this occaſion, alſo, the Captain furniſhed the natives with cats, of which he gave away twenty; ſo that there was little danger of the ſtock of theſe animals decaying. During his reſidence at this time, he had an opportunity of making ſome computation of the number of inhabitants on the iſland, which he ſuppoſed to be no leſs than 200,000.

Huaheine

55 Huaheine, Ulietea, Howe Iſland, &c. Huaheine and Ulietea Iſlands were next viſited, but without any remarkable occurrence. From the latter our Commander ſet ſail on the 5th of June 1774; and next day came in ſight of Howe Iſland, diſcovered by Captain Wallis, and ſituated in S. Lat. 16. 46. and W. Long. 154. 8. On the 16th a new iſland, named *Palmerſtone Iſland*, was diſcovered in S. Lat. 18. 4. W. Long. 163. 10.; and, four days after, another was obſerved in S. Lat. 19. 1. W. Long. 169. 37. As it was evidently inhabited, the Captain determined to land; but found the people ſo extremely hoſtile, that no intercourſe could be had; nay, he himſelf was in danger of loſing his life by a lance thrown by one of the natives, which paſſed cloſe over his ſhoulder. From the extreme hoſtility of the people of this iſland, it was named by Captain Cook *Savage Iſland*. It is of a round ſhape, pretty high, and has deep water cloſe to the ſhore, but has no good harbour.

56 Roterdam Iſland. Paſſing by a number of ſmall iſlands, Captain Cook next anchored at that of Anamocka or Rotterdam, diſcovered by Taſman. It is ſituated in 20. 15. S. Lat. and 174. 31. W. Long. Its form is triangular, each ſide extending about three and a half or four miles. From the north-weſt to the ſouth it is encompaſſed by a number of ſmall iſlands, ſand banks, and breakers; of which no end can be ſeen from the iſland on the northern ſide, and may poſſibly be as far extended as Amſterdam or Tongataboo. While the Captain remained on this iſland, he learned the names of more than 20 of the adjacent iſles, ſome of which were in ſight between the north-weſt and north-eaſt. Two of theſe, which lie more to the weſtward than the others, are named *Amattafoa* and *Oghao*. They are remarkable for their height; and from a great ſmoke viſible about the middle of Amattafoa, it was ſuppoſed to have a volcano. 57 Suppoſed volcano. The iſland of Rotterdam, Middleburg, or Eaoowe, with Pilſtart, form a group extending about three degrees of longitude and two of latitude. The whole group was named *The Friendly Iſles* by Captain Cook, on account of the friendſhip which ſeemed to ſubſiſt among the inhabitants, and their courteous behaviour to ſtrangers. The people of Rotterdam Iſland are ſimilar to thoſe of Amſterdam; but the iſland is not in ſuch a ſtate of high cultivation as Amſterdam, nor do its fruits come to ſuch perfection. It is alſo inferior in the articles of cloth, matting, &c. which are accounted the wealth of theſe parts.

58 New Hebrides viſited. From Rotterdam iſland our navigator continued his courſe to the weſtward, where he firſt diſcovered a ſmall iſland in S. Lat. 19. 48. W. Long. 178. 2. It was named Turtle Iſland, from the great number of theſe animals found upon it. Sixteen days after he fell in with the cluſter of iſlands named by M. Bougainville the *Great Cyclades*. The firſt iſland on which he landed was Mallicollo, where, though the people were at firſt very hoſtile, they were ſoon conciliated, and a friendly intercourſe took place. The language of theſe people is conſiderably different from that of the other South-ſea iſlands; they are diminutive in their perſons, and of ugly features; their hair black or brown, ſhort and curling, but leſs ſoft than that of the negroes. They had no name for a dog in their language, and had never ſeen the animal; ſo that they were extremely fond of a dog and bitch of which Captain Cook made them a preſent. The harbour in this iſland, in which the ſhip came to anchor, was named Sandwich harbour, and lies on the north-eaſt ſide in S. Lat. 16. 25. 20. E. Long 167. 57. 53. It is very commodious for the carrying on any operations at land, having a good depth of water, and many other advantages.

59 Shepherd's Iſles. The next diſcovery was that of the Group named *Shepherd's Iſles*, in honour of Dr Shepherd, Plumian profeſſor of aſtronomy at Oxford. Numbers more were every day obſerved; of which one peaked rock, named the *Monument*, was uninhabited, being apparently inacceſſible to any other creature but birds. Sandwich iſland is of conſiderable extent, and exhibits a moſt beautiful proſpect. It is ſurrounded with other ſmaller iſlands, the principal of which were named Montague and Hinchinbrook. At Erromango they found the people hoſtile and treacherous; and from a ſkirmiſh they had with them near a promontory on the north-eaſt point of the iſland, it was named *Traitor's Head*. Its ſituation is in S. Lat. 10. 43. E. Long. 169. 28.

60 Tanna Iſland. From Erromango our navigator proceeded to Tanna, an iſland they had formerly diſcovered at a diſtance, and which is ſurrounded by ſome others, three of which are named *Immer*, *Footoona* or *Erronan*, and *Anatom*. At Tanna they ſtaid for ſome time, on account of their wanting ſome quantity of wood. 61 Volcano. A volcano was ſeen about the middle of this iſland, which burned with great violence, particularly in moiſt and wet weather; but notwithſtanding the friendly terms on which they were with the natives, the latter would never allow them to approach this mountain. There were ſome ſpots on the ſea coaſt which emitted an hot and ſulphureous ſmoke; the people alſo expreſſed much uneaſineſs when theſe were approached or meddled with. The port which the ſhip entered in this iſland was named *Reſolution harbour*, and is ſituated in S. Lat. 19. 32, 25. ½ E. Long. 169. 44. 35. It is a ſmall creek three quarters of a mile long, and about half as broad. It is extremely convenient, having plenty of wood and water cloſe to the ſhore. Among the vegetable productions of this iſland, there is reaſon to ſuſpect the nutmeg-tree to be one, a pigeon having been ſhot, in the craw of which was a wild nutmeg. The inhabitants are two diſtinct races of people, and ſpeak two different languages; one that of the Friendly iſlands, the other peculiar to Tanna and thoſe in the neighbourhood. 61 Dexterity of the inhabitants in the uſe of their lances. The people are very expert in the uſe of their weapons; on which Mr Wales makes the following remarks: "I muſt confeſs I have often been led to think the feats which Homer repreſents his heroes as performing with their ſpears a little too much of the marvellous to be admitted in an heroic poem, I mean when confined within the ſtrait ſtays of Ariſtotle; nay, even ſo great an advocate for him as Mr Pope acknowledges them to be ſurpriſing: but ſince I have ſeen what theſe people can do with their wooden ſpears, and them badly pointed, and not of an hard nature, I have not the leaſt exception to any one paſſage in that great poet on this account. But if I ſee fewer exceptions, I can find infinitely more beauties in him, as he has, I think, ſcarcely any action, circumſtance, or deſcription of any kind whatever relating to a ſpear, which I have not ſeen and recogniſed among theſe people; as their whirling motion and whiſtling noiſe as they fly; their

quivering motion in the ground when they fall; their meditating their aim when they were going to throw; and their ſhaking them in their hands as they go along."

The Archipelago, in which Captain Cook had now remained a conſiderable time, is ſituated between 14. 29. and 20.4. S. Lat. and between 166. 41. and 170. 21. E. Long. extending 125 leagues in the direction of N. N. W. ½ W. and S. S. E. ½ E. The principal iſlands are the Peak of the Etoile, Tierra del Eſpiritu Santo, Mallicollo, St Bartholomew, the Iſle of Lepers, Aurora, Whitſuntide Iſle, Ambrym, Paoom Apee, Three Hills, Sandwich, Erromango, Tanna, Immer, and Anatom. They were firſt diſcovered in 1606 by Quiros, who ſuppoſed them to be part of a ſouthern continent; nor were they viſited from that time till the year 1768, when M. Bougainville beſtowed upon them the name of the *Great Cyclades*, as already mentioned. This gentleman, however, beſides landing in the Iſle of Lepers, only diſcovered that the country was not connected, but conſiſted of iſlands. Captain Cook examined the whole in ſuch an accurate manner, aſcertaining the ſituation of many of the iſlands, and diſcovering ſuch numbers of new ones, that he thought he had an undoubted right to impoſe a new name upon them; and therefore called them the *New Hebrides*.

62
New Caledonia diſcovered.

From the New Hebrides Captain Cook ſet ſail for New Zealand, in order to proſecute his voyage in ſearch of a ſouthern continent, but in three days diſcovered a large iſland, which he named *New Caledonia*; and which, next to new Zealand, is the largeſt in the Pacific Ocean. It lies between 19. 30. and 22. 30. S. Lat. and between 163. 37. and 167. 14. E. Long. lying N. W. ½ W. and S. E. ½ E, extending about 87 leagues in that direction, though its breadth does not any where exceed 10 leagues. The natives are ſtrong, active, well made, and ſeem to be a middle race between thoſe of Tanna and the friendly Iſles; and the women were more chaſte than thoſe of the iſlands farther to the eaſtward. The iſland afforded a conſiderable variety of plants for the botaniſts, and ſome excellent timber of the ſpecies of the pitch-pine, for maſts and ſpars. The wood is cloſe-grained, white, and tough; and very fit for the purpoſe. One of the ſmall iſlands ſurrounding the large one was named the *Iſle of Pines*, from the quantity of theſe trees found upon it; and another, from the number and variety of plants it afforded, had the name of *Botany Iſland*. The coaſt, however, was ſo dangerous, that our navigator, having no more time to ſpare, was obliged to leave ſome part of it unexplored, though the extent was determined, as has been already related. Mr Forſter was of opinion, that the language of this people is totally different from that of any of the other South Sea iſlands.

63
Norfolk Iſland.

Proceeding from New Caledonia, our navigator next fell in with an iſland about five leagues in circumference, and of a good height, ſituated in S. Lat. 29. 2. 30. and E. Long. 168, 16.; on which he beſtowed the name of *Norfolk Iſland*. It was entirely unhabited. Various trees and plants common at new Zealand were obſerved here, particularly the flax-plant, which is more luxuriant in this iſland than in any part of New Zealand. The chief produce of this iſland is a kind of ſpruce pine, many of the trees of which are 10 or 12 feet in circumference. The palm-cabbage likewiſe abounds here; and the coaſts are well ſtocked with excellent fiſh. On the 18th of October they arrived at Queen Charlotte's Sound in New Zealand; the ſituation of which was now aſcertained by Mr Wales with the utmoſt accuracy, its latitude being found 41. 5. 56. ½ S. and its longitude 174. 25. 7. ½ E. On examining the gardens which had been made, it was found that they were in a thriving condition, though they had been entirely neglected by the natives. Some of the cocks and hens were ſuppoſed to be ſtill in exience, as a new laid hen's egg was found, though none were ſeen.

64
Arrival at Zealand;

On the 10th of November Captain Cook ſet ſail from New Zealand in ſearch of a ſouthern continent; but having traverſed a vaſt extent of ſea for 17 days, from S. Lat. 43. 0. to 55. 48. he gave up all thoughts of finding any more land in this part of the ocean, and therefore determined to ſteer directly for the weſt entrance of the ſtraits of Magellan, with a deſign of coaſting the ſouthern part of Terra del Fuego quite round Cape Horn to Le Maire's Straits. As the world had hitherto received but very imperfect accounts of this coaſt, he thought a ſurvey of it would be of more advantage to navigation and geography than any thing he could expect to meet with in a higher latitude. On the 17th of December he reached the coaſt of Terra del Fuego, and in three days more anchored in a place to which he gave the name of *Chriſtmas Sound*. The land appeared deſolate beyond any thing he had hitherto experienced. It ſeems to be entirely compoſed of rocky mountains without the leaſt appearance of vegetation. Theſe mountains terminate in horrid precipices, the craggy ſummits of which ſpire up to a vaſt height; ſo that ſcarcely any thing in nature can have a more barren and ſavage aſpect than the whole of the country. In the courſe of his voyage along this coaſt, he could not but obſerve, that at no time had he ever made one of ſuch length where ſo little occured of an intereſting nature. Barren and dreary, however, as the coaſt was, it was not totally deſtitute of accommodations about Chriſtmas Sound. Freſh water and wood for fuel were found about every harbour; and the country every where abounds with fowl, particularly geeſe. A conſiderable number of plants were alſo found upon it, almoſt every ſpecies of which was new to the botaniſts. In paſſing by Cape Horn, it was wiſhed to determine whether it belonged to the land of Terra del Fuego, or to a ſmall iſland ſouth from it; but this was found impracticable on account of the foggy weather and dangerous ſea. Its latitude was now determined to be 55. 58. S. and its longitude 67. 46. W. The coaſt appeared leſs dreary here than on the weſtern ſide of Terra del Fuego; for though the ſummits of ſome of the hills were rocky, the ſides and valleys ſeemed covered with a green turf and wooded in tufts. In paſſing this cape a remark was made by the Captain, that if he were on a voyage round Cape Horn to the weſt, and not in want of wood or water, or any other thing which might make it neceſſary to put into port, he would ſail a conſiderable way to the ſouthward ſo as to be out of the reach of land altogether. By this method he would avoid the currents, whoſe force, he was of opinion, would be broken at

65
At Terra del Fuego.

66
Remarks on a voyage round Cape Horn.

at 10 or 12 leagues diſtance from the ſhore, and farther off would be entirely deſtroyed. The extent of Terra del Fuego, and conſequently of Magellan's Straits, was found to be leſs than what is commonly laid down in maps and charts, and the coaſt, in general, leſs dangerous than has been uſually repreſented; though this muſt undoubtedly have been owing in a great meaſure to the weather, which happened to be remarkably temperate.

67 Surpriſing concord of the animals in theſe parts.

In one of the ſmall iſlands near Staten Land, and which, from their being diſcovered on new year's day, were called *New Year's Iſles*, a remarkable harmony was obſerved among the animals of different ſpecies with which theſe deſolate regions abound. The ſea-lions occupy the greateſt part of the ſea-coaſt; the bears occupy the iſland; the ſhags are poſted in the higheſt cliffs; the penguins in ſuch places as have the beſt acceſs to and from the ſea; and the other birds chooſe more retired places. Occaſionally, however, all theſe animals were ſeen to mix together like domeſtic cattle and poultry in a farm-yard, without one attempting to hurt the other in the leaſt. Even the eagles and vultures were frequently obſerved ſitting together on the hills among the ſhags, while none of the latter, either old or young, appeared to be diſturbed at their preſence. It is probable, therefore, that theſe birds of prey ſubſiſt by feeding on the carcaſes of the animals which die naturally or by various accidents, and which muſt be very numerous from the immenſe quantity exiſting on the iſland.

68 Fartherdiſcoveries in the ſouthern regions.

Our navigator now ſet out in queſt of that extenſive coaſt laid down in Mr Dalrymples's chart, and in which is marked the Gulph of St Sebaſtian; but when he came into the place where it is ſuppoſed to lie, neither land nor any certain ſigns of it could be met with. Some iſlands, however, were diſcovered, particularly Willis's iſland, in S. Lat. 54. 0. W. Long. 38. 23; another named *Bird Iſland* and *South Georgia*, ſituated between 53. 57. and 54. 57. S. Lat. and between 38. 13. and 35. 34. W. Long. All theſe were covered with ſnow and ice to a great height. Not a tree was to be ſeen, not even a ſhrub, nor were there any rivulets or ſtreams of water; the only vegetables to be met with were a coarſe ſtrong bladed graſs, wild burnet, and a kind of moſs. A conſiderable quantity of ſeals and penguins were met with, whoſe fleſh, though very coarſe, was preferred by the ſhip's company, even by Captain Cook himſelf, to the ſalt proviſions, which were now greatly decayed. The moſt ſoutherly land diſcovered by our navigator was that on which he beſtowed the name of *Southern Thule*, and which is ſituated in S. Lat. 59° 13′ 30″, W. Long. 27° 45′. This was ſtill more deſolate than South Georgia, being forſaken even by the ſeals and penguins which abounded on it. Not a ſingle herb of any kind was ſeen upon it, but vaſt high and barren mountains, the tops of ſome of which reached above the clouds; and it may be remarked, that this ſeems to be the only part of the world hitherto diſcovered, entirely unfit for the ſupport of animal life.

69 Of the exiſtence of a ſouthern continent.

Southern Thule was diſcovered on the 31ſt of January 1775; and from this to the 6th of February ſeveral other lands were diſcovered, and named *Cape Briſtol, Cape Montague, Saunder's Iſle, Candlemas Iſles*, and *Sandwich's Land*. With regard to this laſt, Captain Cook was undetermined whether it was a group of iſlands or part of a continent lying near the pole, as after all his diſappointments he ſtill was inclined to think that ſuch a continent has an exiſtence, on account of the vaſt quantity of ice met with in the ſouthern ſeas; and which from its great height appears to be formed in bays and gulphs of the land, and not in the ocean itſelf. The greateſt part of this ſouthern continent, however, if it has any exiſtence, muſt be within the polar circle, where the ſea is ſo incumbered with ice, that the land muſt be inacceſſible. So great is the danger in navigating theſe ſouthern ſeas, that Captain Cook aſſerts, on the moſt probable grounds in the world, that ſuch lands as lie to the ſouthward of his diſcoveries could not be explored; and that no man would ever venture farther than he had done. Thick fogs, ſnow-ſtorms, intenſe cold, and every thing that can render navigation difficult or dangerous, muſt be encountered; all which difficulties are greatly heightened by the inexpreſſible horrid aſpect of the country itſelf. It is a part of the world doomed by nature never once to feel the warmth of the ſun's rays, but be buried in everlaſting ſnow and ice. Whatever ports there may be on the coaſt, they are almoſt entirely covered with frozen ſnow of a vaſt thickneſs. If, however, any of them ſhould be ſo far open as to invite a ſhip into it, ſhe would run the riſk of being fixed there forever, or of coming out in an ice iſland. To this it may be added, that the iſlands and floats on the coaſt, the great falls from the ice-cliffs in the port, or a ſudden ſnow-ſtorm, might be attended with equally fatal effects. For theſe reaſons our commander dedermined to abandon the purſuit of a land whoſe exiſtence was ſo equivocal, but whoſe inutility, if it ſhould be diſcovered, was certain.

70 Voyage in queſt of Bouvet's land.

One thing only remained to complete what he wiſhed to accompliſh, and that was to determine the exiſtence of Bouvet's land. In this inquiry he ſpent 16 days; but having run for 13 of of theſe directly in the latitude aſſigned to that land, and found no appearance of it or of Cape Circumciſion, he concluded that neither of them had any exiſtence, but that the navigators had been deceived by the appearance of ice iſlands. Two days more were ſpent in queſt of ſome land which had been obſerved more to the ſouthward, but with the like bad ſucceſs: after which our commander abandoned all farther thoughts of ſouthern diſcoveries, and prepared for returning to England.

71 Of the iſles of Denia and Marſeveen.

On his way home, however, he determined to direct his courſe in ſuch a manner as to fall in with the iſles of Denia and Marſeveen. Theſe are laid down in Dr Halley's variation chart in the latitude of 41. ½ S. and about 4. 0. E. from the meridian of the Cape of Good Hope. None of theſe iſlands could be found; and therefore our commander having very little time to ſpare either in ſearching for them or attempting to diſprove their exiſtence, made the beſt of his way to the Cape of Good Hope, and from thence to England. In his paſſage thither he viſited the iſles of St Helena, Aſcenſion, and Fernando de Noronha.

72 Of the uſe of diſtilling ſea-water.

An experiment was made on the uſe of the ſtill for procuring freſh water at ſea; the reſult of which was, that though the invention was uſeful upon the whole, yet it would not by any means be adviſable to truſt entirely to it. Provided indeed that there was not a ſcarcity of fuel, and that the coppers were good, as much might thus be procured as would ſupport life; but that no efforts would be ſufficient to procure the quantity neceſſary for the preſervation of health, eſpecially in hot climates. He was likewiſe convinced that nothing contributes more to the health of ſeamen than having plenty of freſh water. His laſt ſtage in this ſecond voyage before his arrival in England was at Fayal, one of the Azores iſlands: and his only deſign in ſtopping here was to give Mr Wales an opportunity of finding the rate of the watches going, that ſo he might be enabled to find the longitude of theſe iſlands with the greater certainty.

73 Third voyage. In our commander's third voyage he touched at the iſland of Teneriffe inſtead of Madeira, looking upon the former to be a better place for procuring refreſhments; and was convinced of the juſtneſs of his conjecture by the facility with which proviſions of all kinds were obtained. 74 Viſits the Iſle of Teneriffe. The air of the country is exceedingly healthy and proper for thoſe ſubject to pulmonary complaints. This was accounted for by a gentleman of the place from the great height of the iſland, by which it was in the power of any perſon to change the temperature of the air as he pleaſed; and he expreſſed his ſurprize that phyſicians, inſtead of ſending their patients to Nice or Liſbon, did not ſend them to Teneriffe. 75 Tea ſhrub. From the ſame gentlemen it was learned, that the tea-ſhrub grows in that iſland as a common weed, which is conſtantly exterminated in large quantities. The Spaniards, however, ſometimes uſe it as tea, and aſcribe to it all the qualities of that brought from the Eaſt Indies. They give it alſo the name of tea, and ſay that it was found in the country when the iſlands were firſt diſcovered. 76 Impregnated lemon. Another botanical curioſity is the fruit called the *impregnated lemon*, which is a perfect and diſtinct lemon incloſed within another, and differing from the outer only in being a little more globular.

77 Prince Edward's Iſlands diſcovered. From Teneriffe Captain Cook proceeded to the Cape of Good Hope, and from thence to the ſouthward, where he fell in with two iſlands, the larger of which is about 15 leagues in circuit, and the ſmaller about nine; their diſtance from one another being about five leagues. The one of theſe iſlands lies in S. Lat. 46. 53. and E. Long. 37. 46; the other in S. Lat. 46. 4. E. Long. 38. 8. As the ſhips paſſed through between them, they could not diſcern either tree or ſhrub upon any of them even with the aſſiſtance of their beſt glaſſes. The ſhore ſeemed to be bold and rocky, their internal parts full of mountains, whoſe ſides and ſummits were covered with ſnow. Theſe two, with four others, which lie from 9 to 12 degrees of longitude more to the eaſt, and nearly in the ſame latitude, had been diſcovered in the year 1772 by Captains Marion du Freſne and Crozet, two French navigators, in their paſſage from the Cape of Good Hope to the Philippines. As no names had been aſſigned to them in a chart of the Southern Ocean communicated to Captain Cook in 1775, the two larger ones were by him diſtinguiſhed by the name of *Prince Edward's Iſlands*, in honour of his Majeſty's fourth ſon: the other four, with a view to commemorate the diſcoveries, were called *Marion's* and *Crozet's Iſlands*.

78 Voyage in queſt of Kerguelen's land. From theſe our commander ſteered to the ſouthward in ſearch of Kerguelen's land, which he had been inſtructed to touch at, in order to diſcover, if poſſible, a good harbour there. In his paſſage to it ſeveral new iſlands were diſcovered; to one which Kerguelen had given the name of the *Iſland of Rendezvous*, Captain Cook, on account of its ſhape, changed it to that of *Bligh's Cap*. It is ſituated in S. Lat. 48. 29. E. Long. 68. 40. and is a high round rock, inacceſſible to all creatures but birds. 79 Deſcription of that iſland. Next day he fell in with Kerguelen's land, at firſt thought to be a part of the ſouthern continent, but afterwards found by Kerguelen himſelf to be an iſland. The extent of it, however, was not determined either by the French navigator or by Captain Cook. The former reckons it at 200 leagues in circumference, but Captain Cook eſtimates it at much leſs. Our navigator could not get any extenſive view of it on account of the foggy weather; but as far as could be diſcovered, it was barren and deſolate, inſomuch that there was neither food nor covering for cattle of any kind, ſo that they would inevitably periſh if any were left. Even the ſea-coaſts were in a great meaſure deſtitute of fiſh; but the ſhore was covered with innumerable multitudes of ſeals, together with penguins and other birds; all of which were ſo void of fear, that any quantity whatever might be killed without any difficulty. Not a ſingle tree nor ſhrub could be ſeen, nor a piece of drift wood on the ſhore; and herbage of every kind was likewiſe very ſcarce. A prodigious quantity of the ſea-weed, called by Sir Joſeph Banks *fucus giganteus*, was found in one of the bays. The whole variety of plants found in this iſland did not exceed 16 or 18 ſpecies. The harbour in which our navigator made his longeſt ſtay on this deſolate coaſt was named *Port Palliſer*, and is ſituated in S. Lat. 49. 3. E. Long. 69. 37. In this voyage our navigator undoubtedly diſplayed ſuperior nautical abilities to thoſe of M. Kerguelen, who in two voyages to the place had never been able to bring his ſhips to anchor on any part of the coaſt.

80 Of Van Diemen's land. From Kerguelen's land our navigator proceeded to the coaſt of New Holland, where he now touched at the ſouthern part called *Van Diemen's land*, where he anchored in Adventure Bay. Here they found plenty of wood and water, with abundance of graſs, coarſe indeed, where they went firſt aſhore, but afterwards much finer and proper for the cattle. Here, as every where elſe, the latitudes and longitudes were ſettled with the greateſt exactneſs. The bottom of Adventure Bay was found to lie in S. Lat. 43° 21′ 6″; E. Long. 147° 29′. The inhabitants viſited them in a friendly manner, but ſeemed as ſtupid and inſenſible as thoſe they had formerly ſeen. They ſeemed to be totally ignorant of the uſe of iron, and ſet no value upon any thing in the ornamental way excepting beads; nor did they ſeem to be acquainted even with the uſe of fiſh hooks. Here they found the ſtories of the ancient fauns and ſatyrs living in hollow trees realized. Some huts covered with bark, and of a moſt wretched conſtruction, were indeed found near the ſhore; but the moſt commodious habitations were afforded by the largeſt trees. Theſe had their trunks hollowed out by fire to the height of ſix or ſeven feet; and there was room enough in one of them for three or four perſons to ſit round a hearth made of clay; and it may juſtly ſeem ſurpriſing, that notwithſtanding the extreme violence offered to the vegetative powers of

the tree by forming this habitation, it ſtill continued to flouriſh in conſequence of one ſide being left entire. The people, notwithſtanding their extreme barbarity, were ſuppoſed to proceed from the ſame ſtock with thoſe of the South Sea Iſlands. As in one of their viſits the natives had ſeized upon two pigs which had been brought aſhore, apparently with an intention to kill them, the commander determined to make them a preſent of theſe animals; though from their exceſſive ſtupidity and inattention there was no probability of their allowing them to propagate, if they had been put directly into their hands. To prevent this, Captain Cook ordered the two they had attempted to ſeize, being a boar and ſow, to be carried about a mile within the head of the bay, and ſaw them left by the ſide of a freſh water rivulet. He was prevented from leaving any other ſpecies by a conſideration of the barbarity of the inhabitants.

81
Viſit to New Zealand.

From New Holland our navigator proceeded to New Zealand, where he arrived on the 12th of February 1777, and anchored in Queen Charlotte's Sound. Here he was deſirous of leaving a further ſupply of animals; but the inhabitants had hitherto ſhown ſuch careleſſneſs about thoſe which had been left, that he durſt not venture to leave any other than two goats, a male and a female with kid, and two hogs, a boar and ſow. He was informed, however, that one chief had ſeveral cocks and hens in his poſſeſſion, ſo that there was ſome probability of theſe animals being allowed to multiply; and as ten or a dozen hogs had at different times been left by Captain Cook, beſides thoſe put on ſhore by Captain Furneaux, it ſeems alſo to be likely that this race of creatures will increaſe either in a wild or domeſtic ſtate, or both. The gardens had ſtill been almoſt totally neglected, and ſome of them deſtroyed. Thoſe which remained, however, produced cabbages, onions, leeks, purſlains, radiſhes, and a few potatoes. Theſe laſt had been brought from the Cape of Good Hope, and were ſo greatly meliorated by the change of ſoil, that with proper cultivation they ſeemed to bid fair for excelling thoſe of moſt other countries.

82
Extraordinary preſervation of ſome of the natives of Otaheite.

Our navigator's next courſe was towards the Iſland of Otaheite; in the run to which he diſcovered the Iſland of Mangea, ſituated in S. Lat. 22. 57. E. Long. 301. 53. From thence he proceeded to Wateoa, where Omai, now on his way home, recognized three of his countrymen, natives of the Society Iſlands, who had arrived here by the following accident. About 12 years before, 20 of the natives of Otaheite had embarked in a canoe, in order to viſit the neighbouring iſland of Ulietea. A violent ſtorm aroſe, which drove them out of their courſe, and they ſuffered incredible hardſhips by famine and fatigue, ſo that the greateſt part of them periſhed. Four men continued hanging by the ſide of the veſſel for four days after it was overſet, when they were at laſt brought within ſight of the people of this iſland. The latter immediately ſent out their canoes, and brought them aſhore, treating them afterwards with ſo much kindneſs, that the three who now ſurvived expreſſed no deſire of returning to their own country, though they had now an opportunity, but choſe rather to remain where they were. This iſland is ſituated in S. Lat. 20. 1. E. Lon. 201. 45. and is about ſix leagues in circumference. The inhabitants are ſaid to be equally amiable in their perſons and diſpoſitions.

83
Palmerſton Iſland a proper place of refreſhment, but without water.

Viſiting a ſmall iſland named *Wenncca-ete*, or *Otakootaia*, ſituated in S. Lat. 19. 15. and E. Long. 201. 37. our commander found it without inhabitants, tho' there were undoubted mark's of its being occaſionally frequented. Harvey's Iſland, which in his former voyage had been deſtitute of inhabitants, was now found to be well peopled; but the inhabitants ſhowed ſuch an hoſtile diſpoſition that no refreſhments could be procured; for which reaſon it was determined to ſteer for the Friendly Iſlands, where there was a certainty of meeting with an abundant ſupply. In his way thither he touched at Palmerſton iſland, from a ſmall iſle near which a ſupply of 1200 cocoa nuts were obtained, beſides abundance of fiſh and birds of various kinds. Had the iſland been capable of furniſhing water, the Captain would have preferred it to any of the inhabited ones for the purpoſe of procuring refreſhments, as they could be had in any quantity without moleſtation from the petulance of the inhabitants. As water at this time happened to be a ſcarce article, our navigator was obliged to ſupply himſelf from the ſhowers which fell, and which afforded as much in an hour as he could procure by diſtillation in a month.

During the time of reſidence at the Friendly Iſlands our navigator viſited one named *Hepaee*, at which no European ſhip had ever touched before. Here he was entertained in a friendly manner, ſupplied with refreſhments, and left ſome uſeful animals; great additions were made to the geography of theſe iſlands, and many curious remarks made on the inhabitants and natural products. It was obſerved by Mr Anderſon, that the people had very proper notions of the immateriality and immortality of the human ſoul, and he thought himſelf authoriſed to aſſert, that they did not worſhip any part of the viſible creation.

84
Reception of Omai at Otaheite.

Paſſing by a ſmall iſland named *Toobouai*, about five or ſix miles in extent, and ſituated in S. Lat. 23. 25. E. Long. 210. 37. our navigator now arrived at Otaheite. Here Omai met with his relations, ſome of whom received him with apparent indifference; but his meeting with an aunt and a ſiſter was marked with expreſſions of the moſt tender regard. It was Huaheine, however, that was deſtined for the place of Omai's final reſidence, and thither the Captain repaired on purpoſe to ſettle him. The affair was conducted with great ſolemnity; and Omai brought with him a ſuitable aſſortment of preſents to the chiefs, went through a great number of religious ceremonies, and made a ſpeech, the ſubject of which had been dictated to him by Captain Cook. The reſult of the negociation was, that a ſpot of ground was aſſigned him, extending about 200 yards along the ſhore of the harbour, with a proportionable part of an adjacent hill. The carpenters of both ſhips were then employed in conſtructing an houſe for him, in which he might ſecure his European commodities. At the ſame time a garden was made for his uſe, in which were planted ſhaddocks, vines, pine-apples, melons, and ſeveral other garden vegetables. Here he met with a brother, ſiſter, and ſiſter-in-law, by whom he was very affectionately received; but it was diſcovered with concern, that none of his relations were able to protect him in caſe of any attack on his perſon

85
He is ſettled at Huaheine.

or property; ſo that there was too much reaſon to fear that he would be plundered immediately on the departure of the Engliſh. To prevent this, if poſſible, Captain Cook adviſed him to conciliate the favour and engage the patronage and protection of ſome of the moſt powerful chiefs by proper preſents; at the ſame time that he himſelf took every opportunity of letting the inhabitants know that it was his intention to return to the iſland again, and if he did not find Omai in the ſame ſtate of ſecurity in which he left him, thoſe by whom he had been injured would certainly feel the weight of his reſentment. About a fortnight after leaving Huaheine, the Captain had a meſſage from Omai; in which he informed him that every thing went well, only that his goat had died in kidding, for which he deſired another might be ſent; and accompanied this requeſt with another for two axes, which were ſent along with a couple of kids, male and female. 86 Remarks on the Society Iſlands. On taking this final leave of the Society Iſlands, Captain Cook obſerves, that it would have been far better for theſe poor people never to have known the ſuperiority of the Europeans in ſuch arts as render life comfortable, than after once being acquainted with it to be again abandoned to their original incapacity of improvement; as, if the intercourſe between them and us ſhould be wholly diſcontinued, they could not be reſtored to that happy ſtate of mediocrity in which they were found. It ſeemed to him that it was become in a manner incumbent on the Europeans to viſit theſe iſlands once in three or four years, in order to ſupply them with thoſe conveniences of which they have taught them the uſe. It is indeed to be apprehended, that by the time the iron tools which were then among them are worn out, they will have forgot the uſe of their own; as in this laſt voyage it was obſerved that the uſe of their former tools was almoſt totally aboliſhed.

87 Chriſtmas Iſland diſcovered. Having left the Society Iſlands, Captain Cook now proceeded to the northward, croſſing the equator on the 22d and 23d of December; and on the 24th diſcovered a low uninhabited iſland about 15 or 20 leagues in circumference. Here the longitude and latitude were exactly determined by means of an eclipſe of the ſun. The weſt ſide of it where the eclipſe was obſerved, lies in N. Lat. 1. 59. E. Long. 202. 30. From the time of its diſcovery it obtained the name of *Chriſtmas Iſland*. Plenty of turtle were found upon it, and the Captain cauſed the ſeeds of the cocoa-nut, yams, and melons, to be planted.

88 Sandwich Iſles. Proceeding ſtill to the northward, our navigator next fell in with five iſlands, to which he gave the general name of *Sandwich Iſles*, in honour of his patron. Their names in the language of the country are Woahoo, Atooi, Oneeheow, Oreehoua, and Tehoora. They are ſituated in the latitude of 21. 30. and 22. 15. North, and between 199. 20. and 201. 30. E. Long. The longitude was deduced from no fewer than 72 ſets of lunar obſervations. The largeſt of theſe iſlands is Atooi, and does not in the leaſt reſemble the other iſlands of the South Sea formerly viſited by our navigator, excepting only that it has hills near the centre, which ſlope gradually towards the ſea-ſide. The only domeſtic animals found upon it were hogs, dogs, and fowls. Captain Cook deſigned to have made the inhabitants of this iſland a preſent of ſome others; but being driven out of it by ſtreſs of weather, he was obliged to land them upon a ſmaller one named *Oneeheow*. They were a he-goat with two females, and a boar and ſow of the Engliſh breed, which is much ſuperior to that of the South-Sea Iſlands. He left alſo the ſeeds of melons, pumpkins, and onions. The ſoil of this iſland ſeemed in general to be poor: it was obſervable that the ground was covered with ſhrubs and plants, ſome of which had a more delicious fragrancy than had been experienced before. The inhabitants of theſe iſlands are much commended, notwithſtanding the horrid cuſtom of eating human fleſh. In every thing manufactured by them there is an ingenuity and neatneſs in an uncommon degree; and the elegant form and poliſh of ſome of their fiſhing-hooks could not be exceeded by an European artiſt, even aſſiſted by all his proper tools. From what was ſeen of their agriculture alſo, it appeared that they were by no means novices in that art, and that the quantity and goodneſs of their vegetable productions might with propriety be attributed as much to their ſkilful culture as to the fertility of the ſoil. The language of the Sandwich Iſles is almoſt identically the ſame with that of Otaheite.

89 American coaſt diſcovered. Proceeding farther to the northward, our navigators diſcovered the coaſt of New Albion on the 7th of March 1778. Its appearance was very different from that of the countries with which they had hitherto been converſant. The land was full of mountains, the tops of which were covered with ſnow; while the valleys between them, and the grounds on the ſea-coaſt, high as well as low, were covered with trees, which formed a beautiful proſpect as of one vaſt foreſt. The place where they landed was ſituated in N. Lat. 44. 33. E. Long. 235. 20. At firſt the natives ſeemed to prefer iron to every other article of commerce; but at laſt they ſhowed ſuch a predilection for braſs, that ſcarcely a bit of it was left in the ſhips except what belonged to the neceſſary inſtruments. It was obſerved alſo, that theſe people were much more tenacious of their property than any of the ſavage nations that had hitherto been met with, inſomuch that they would part neither with wood, water, graſs, nor the moſt trifling article, without a compenſation, and were ſometimes very unreaſonable in their demands; with which, however, the Captain always complied as far as was in his power.

90 Nootka Sound. The place where the Reſolution was now anchored was by our navigator called *St George's Sound*, but he afterwards underſtood that the natives gave it the name of *Nootka*. Its entrance is ſituated in the eaſt corner of Hope Bay, in N. Lat. 49. 33. E. Long. 233. 12. 91 Mildneſs of the climate. The climate, as far as they had an opportunity of obſerving it, was much milder than that on the eaſtern coaſt of the American continent in the ſame parallel of latitude; and it was remarkable that the thermometer, even in the night, never fell lower than 42°, while in the day time it frequently roſe to 60°. The trees met with here are chiefly the Canadian pine, white cypreſs, and ſome other kinds of pine. There ſeemed to be a ſcarcity of birds, which are much haraſſed by the natives, who ornament their clothes with the feathers, and uſe the fleſh for food. 92 Natives acquainted with the uſe of metals. The people are no ſtrangers to the uſe of metals, having iron tools in general uſe among them; and Mr Gore procured two ſilver ſpoons of a conſtruction ſimilar to what may be obſerved in ſome

Flemiſh pictures, from a native who wore them round his neck as an ornament. It is moſt probable that theſe metals have been conveyed to them by the way of Hudſon's Bay and Canada; nor is it improbable that ſome of them may have been introduced from the north-weſtern parts of Mexico.

93 Prince William's Sound.

While Captain Cook ſailed along this coaſt, he kept always at a diſtance from land when the wind blew ſtrongly upon it; whence ſeveral large gaps were left unexplored, particularly between the latitudes of 50° and 55°. The exact ſituation of the ſuppoſed ſtraits of Anian was not aſcertained, though there is not the leaſt doubt, that if he had lived to return by the ſame way in 1779, he would have examined every part with his uſual accuracy. On departing from Nootka Sound, our navigator firſt fell in with an iſland in N. Lat. 59. 49. E. Long. 216. 58. to which he gave the name of *Kay's Iſland*. Several others were diſcovered in the neighbourhood; and the ſhip came to an anchor in an inlet named by the Captain *Prince William's Sound*. Here he had an opportunity of making ſeveral obſervations on the inhabitants, as well as on the nature of the country. From every thing relative to the former, it was concluded, that the inhabitants were of the ſame race with the Eſquimaux or Greenlanders. The animals were much the ſame with thoſe met with at Nootka, and a beautiful ſkin of one animal, which ſeemed to be peculiar to the place, was offered for ſale. Mr Anderſon was inclined to think that it was the ſame to which Mr Pennant has given the name of the *caſan marmot*. The alcedo, or great king's fiſher, was found here, having very fine and bright colours. The humming-bird alſo came frequently, and flew about the ſhip while at anchor; though it is ſcarce to be ſuppoſed that it can live throughout the winter on account of the extreme cold. The water-fowl were in conſiderable plenty; and there is a ſpecies of diver which ſeemed to be peculiar to the place. Almoſt the only kinds of fiſh met with in the place were torſk and halibut. The trees were chiefly the Canadian and ſpruce pine, ſome of which were of a conſiderable height and thickneſs. The Sound is judged by Captain Cook to occupy a degree and a half of latitude and two of longitude, excluſively of its arms and branches, which were not explored. There was every reaſon to believe that the inhabitants had never been viſited by any European veſſel before; but our navigator found them in poſſeſſion not only of iron but of beads, which it is probable are conveyed to them acroſs the continent from Hudſon's Bay.

94 Cook's river.

Soon after leaving Prince William's Sound, our navigators fell in with another inlet, which it was expected would lead either to the northern ſea or to Hudſon's or Baffin's bay; but upon examination it was found to end in a large river. This was traced for 210 miles from the mouth, as high as N. Lat. 61. 30. and promiſes to vie with the moſt conſiderable ones already known, as it lies open by means of its various branches to a very conſiderable inland communication. As no name was given by our commander to this river, it was ordered by Lord Sandwich to be named *Cook's River*. The inhabitants ſeemed to be of the ſame race with thoſe of Prince William's Sound; and like them had glaſs beads and knives, they were alſo clothed in very fine furs; ſo that it ſeemed probable that a valuable fur-trade might be carried on from that country. Several attempts have accordingly been made from the Britiſh ſettlements in the Eaſt Indies to eſtabliſh a traffic of that kind; but little benefit accrued from it except to the proprietors of the firſt veſſel, her cargo having greatly lowered the price of that commodity in the Chineſe market. It muſt be obſerved, that on the weſtern ſide of the American continent, the only valuable ſkins met with are thoſe of the ſea-otter; thoſe of the other animals, eſpecially foxes and martins, being of an inferior quality to ſuch as are met with in other parts.

95 They fall in with the iſlands diſcovered by the Ruſſians.

Proceeding farther to the northward, our navigator now fell in with a race of people who had evidently been viſited by the Ruſſians, and ſeemed to have adopted from them ſome improvements in dreſs, &c. In the proſecution of this part of their voyage, it appeared that they had been providentially conveyed in the dark through a paſſage ſo dangerous, that our commander would not have ventured upon it in the day time. They were now got in among thoſe iſlands which had lately been diſcovered by Captain Beering and other Ruſſian navigators, and came to an anchor in an harbour of Oonalaſhka, ſituated in N. Lat. 53. 55. E. Long. 193. 30. Here it was remarked, that the inhabitants had as yet profited very little by their intercourſe with the Ruſſians; ſo that they did not even dreſs the fiſh they uſed for their food, but devoured them quite raw.

96 A volcano.

From Oonalaſhka our navigator proceeded again towards the continent, which he continued to trace as far as poſſible to the northward. In the latitude of 54. 48. E. Long. 195. 45. N. Lat. is a volcano of the ſhape of a perfect cone, having the crater at the very ſummit. On the coaſt farther to the north the ſoil appears very barren, producing neither tree nor ſhrub, though the lower grounds are not deſtitute of graſs and ſome other plants. To a rocky point of conſiderable height, ſituated in N. Lat. 58. 42. E. Long. 197. 36. our commander gave the name of *Cape Newnham*.

97 Cape Prince of Wales.

98 Vicinity of the continents of Aſia and America.

Here Mr Anderſon, the ſurgeon of the Reſolution, died of a conſumption under which he had laboured for more than twelve months. Soon after he had breathed his laſt, land being ſeen at a diſtance, it was named *Anderſon's Iſland*; and on the 9th of Auguſt the ſhip anchored under a point of the continent, which he named *Cape Prince of Wales*. This is remarkable for being the moſt weſterly point of the American continent hitherto known. It is ſituated in N. Lat. 65. 46. E. Long. 191. 45. It is only 39 miles diſtant from the eaſtern coaſt of Siberia; ſo that our commander had the pleaſure of aſcertaining the vicinity of the two continents to each other, which had only been imperfectly done by the Ruſſian navigators. Setting ſail from this point next day, he ſteered to the weſt and north, when he ſoon fell in with the country of the Tſchutſki, which had been explored by Beering in 1728. Here he had an opportunity of correcting M. Stœhlin's map, who had placed in theſe ſeas an imaginary iſland, on which he beſtowed the name of *Alaſchka*. Being convinced that the land he had now reached was part of the Aſiatic continent, our commander directed his courſe eaſtward, in order to fall in with that of America; and on the 17th reached the latitude of 70. 33. and E. Long. 197. 41. Here

99 The progreſs northward ſtopped by ice.

they began to perceive that brightneſs in the horizon called by mariners the *blink of the ice*; and in 70. 41. they had got quite up to it, ſo that no farther progreſs could be made. Next day they made a ſhift to get as far as 70. 44; but the ice was now as compact as a wall, and about ten or twelve feet in height. Its ſurface was extremely rugged, and farther to the northward appeared much higher. Its ſurface was covered with pools of water; and great numbers of ſea-lions lay upon it, whoſe fleſh they were now glad to uſe as food. Our commander continued to traverſe the Icy Sea till the 29th; but the obſtructions becoming every day greater and greater, it was thought proper to give over all further attempts of finding a paſſage to Europe for that year. He did not, however, omit the inveſtigation of the Aſiatic and American coaſts until he had fully aſcertained the accuracy of Captain Beering's accounts as far as he went, and corrected the errors of M. Stæhlin. Great additions were thus made to the geographical knowledge of this part of the globe, and Mr Coxe obſerves, that "it reflects no ſmall honour upon the Britiſh name, that their great navigator extended his diſcoveries much farther in one expedition, and at ſo great a diſtance from the point of his departure, than the Ruſſians accompliſhed in a long ſeries of years, and in parts belonging or contiguous to their own empire."

100 Arrival at Oonalaſhka.

An end of this celebrated navigator's diſcoveries, however, was now at hand. From Beering's ſtraits he ſailed for Oonalaſhka, where he arrived on the 2d of October, and ſtaid for ſome time in order to repair his ſhips. While the carpenters were employed in this work, one third of the people had permiſſion to go on ſhore by turns, in order to gather berries, with which the iſland abounds, and which, though now beginning to decay, were of great ſervice, in conjunction with the ſpruce-beer, to preſerve the people from the ſcurvy. Such a quantity of fiſh was likewiſe procured, as not only ſerved to ſupply the ſhips for the preſent, but likewiſe allowed a great number to be carried out to ſea; ſo that hence a conſiderable ſaving was made of the proviſions of the ſhips, which was an article of very conſiderable conſequence. On the eighth of the month our commander received a very ſingular preſent from ſome perſons unknown, by the hands of an Oonalaſhka man named *Derramouſhk*. It conſiſted of a rye-loaf, or rather a ſalmon pye in the form of a loaf, and highly ſeaſoned with pepper. This man had the like preſent for Captain Clerke, and each of them was accompanied with a note which none on board could underſtand: a few bottles of rum, with ſome wine and porter, were ſent in exchange; it being ſuppoſed that ſuch a preſent would be more acceptable than any other thing that could be ſpared. Corporal Lediard of the marines, an intelligent man, was at the ſame time directed to accompany Derramouſhk, for the purpoſe of gaining a more ſatisfactory account of the country. On the tenth of the month he returned with three Ruſſian ſeamen or furriers, who, with ſeveral others, reſided at Egoocſhac, where they had a dwelling houſe, ſome ſtore-houſes, and a ſloop about 30 tons burden. One of theſe people was either maſter or mate of the veſſel, and all of them were very ſober and decent in their behaviour. The greateſt difficulty aroſe from the want of an interpreter; for which reaſon the converſation was carried on by ſigns. However, the Captain obtained a ſight of two ſea-charts, both of which he was allowed to copy. One of them included the ſea of Penſhinſk, part of the coaſt of Tartary down to the latitude of 41°; the Kurile Iſlands, and the peninſula of Kamtſchatka. The other comprehended all the diſcoveries that had been made from the time of Captain Beering to the year 1777; but theſe were found to be very trifling. Indeed our navigator was aſſured by all the Ruſſians whom he had occaſion to ſee, that they knew of no other iſlands than thoſe laid down in the charts juſt mentioned, and that none of them had ever ſeen any part of the American continent excepting what lies oppoſite to the country of the Tſchutſki. With regard to the natives of Oonalaſhka, they are to appearance the moſt inoffenſive and peaceable people in the world, not to be in a ſtate of civilization; though perhaps this may be owing in ſome meaſure to the connection they have long had with the Ruſſians. From the affinity obſerved between the language of the Eſquimaux, Greenlanders, and thoſe of Norton's Sound in N. Lat. 64. 55. there is great reaſon to believe that all thoſe nations are of the ſame extraction; and if that be the caſe, there is little reaſon to doubt that a communication by ſea exiſts between the eaſtern and weſtern ſides of the American continent; which, however, may very probably be ſhut up by ice in the winter time, or even for the moſt part throughout the year.

101 Character of the inhabitants.

102 A communication probable betwixt the eaſt and weſt coaſts of America.

103 Conſequences of Captain Cook's diſcoveries.

The return of Captain Cook to the Sandwich Iſlands, with the lamentable cataſtrophe that enſued, have been already related under the former article. We ſhall now briefly enumerate the conſequences of his diſcoveries with reſpect to the advancement of ſcience. Theſe are principally his having overthrown the hypotheſis of a ſouthern continent of immenſe extent, uſually ſpoken of under the name of *Terra auſtralis incognita*; his demonſtration of the impracticability of a northern paſſage either by Aſia or America to the Eaſt Indies; and his having eſtabliſhed a ſure method of preſerving the health of ſeamen through the longeſt ſea-voyages. It is remarked by the biſhop of Carliſle, that one great advantage reſulting from the late ſurveys of the globe, is the refutation of fanciful theories too likely to give birth to impracticable undertakings. The ingenious reveries of ſpeculative philoſophers will now be obliged to ſubmit, perhaps with reluctance, to the ſober dictates of truth and experience; nor is it only by diſcouraging future unprofitable ſearches that the late voyages are likely to be of ſervice to mankind, but likewiſe by leſſening the dangers and diſtreſſes formerly experienced in thoſe ſeas which are within the actual line of commerce and navigation.

The intereſts of ſcience, as well as of commerce, are highly indebted to the labours of our illuſtrious navigator. Before his time almoſt half the ſurface of the globe was involved in obſcurity and confuſion: but now ſuch improvements have been made, that geography has aſſumed a new face, and become in a manner a new ſcience; having attained ſuch completeneſs as to leave only ſome leſs important parts to be explored by future voyagers. Other ſciences beſides geography

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have been advanced at the ſame time. Nautical aſtronomy, which was in its infancy when the late voyages were undertaken, is now brought to much greater perfection; and, during Captain Cook's laſt expedition, many even of the petty officers could take the diſtance of the moon from the ſun or from a ſtar, the moſt delicate of all obſervations, with ſufficient accuracy; and the officers of ſuperior rank would have been aſhamed to have it thought that they did not know how to obſerve for, and compute, the time at ſea; a thing before hardly mentioned among ſeamen. It muſt, however, be remembered, that a great part of the merit in this reſpect is due to the board of longitude. In conſequence of the attention of that board to the important object juſt mentioned, liberal rewards have been given to mathematicians for perfecting the lunar tables and facilitating calculations; and artiſts have been amply encouraged in the conſtruction of watches, and other inſtruments better adapted to the purpoſes of navigation, than any that formerly exiſted.

A vaſt addition of knowledge has been gained with reſpect to the ebbing and flowing of the tides; the direction and force of the currents at ſea; the nature of the polarity of the needle, and the cauſe of its variations. Natural knowledge has been increaſed by experiments on the effects of gravity in different and very diſtant places; and from Captain Cook's having penetrated ſo far into the ſouthern regions, it is now aſcertained, that the phenomenon uſually called the *aurora borealis*, is not peculiar to high northern latitudes, but belongs equally to all cold climates, whether north or ſouth.

No ſcience, however, perhaps ſtands more indebted to theſe voyages than that of botany. At leaſt 1200 new ſpecies of plants have been added to thoſe formerly known; and every other department of natural hiſtory has received large additions. Beſides all this, there have been a vaſt many opportunities of obſerving human nature in its different ſituations. The iſlands viſited in the middle of the Pacific Ocean are inhabited by people, who, as far as could be obſerved, have continued unmixed with any different tribe ſince their firſt ſettlement. Hence a variety of important facts may be collected with reſpect to the attainments and deficiencies of the human race in an uncultivated ſtate, and in certain periods of ſociety. Even the curioſities brought from the newly diſcovered iſlands, and which enrich the Britiſh muſeum and the late Sir Aſhton Lever's (now Mr Parkinſon's) repoſitory, may be conſidered as a valuable acquiſition to Britain, and affording no ſmall fund of inſtruction and entertainment.

There are few inquires more generally intereſting than thoſe which relate to the migrations of the various colonies by which the different parts of the earth have been peopled. It was known in general, that the Aſiatic nation called the *Malayans* poſſeſſed in former times much the greateſt trade of the Indies, and that their ſhips frequented not only all the coaſts of Aſia, but even thoſe of Africa likewiſe, and particularly the large iſland of Madagaſcar; but that from Madagaſcar to the Marqueſas and Eaſter Iſland, that is, nearly from the eaſt ſide of Africa till we approach the weſt coaſt of America, a ſpace including almoſt half the circumference of the globe, the ſame nation of the oriental world ſhould have made their ſettlements, and founded colonies throughout almoſt every intermediate ſtage of this immenſe tract, in iſlands at amazing diſtances from the mother-continent, is an hiſtorical fact that before Captain Cook's voyages could not be known, or at leaſt but very imperfectly. This is proved, not only by a ſimilarity of manners and cuſtoms, but likewiſe by the affinity of language; and the collections of words which have been made from all the widely-diffuſed iſlands and countries viſited by Captain Cook, cannot fail to throw much light on the origin of nations, and the manner in which the earth was at firſt peopled.

Beſides this, information has been derived concerning another family of the earth formerly very much unknown. This was the nation of the Eſquimaux or Greenlanders, who had formerly been known to exiſt only on the north-eaſtern part of the American continent. From Captain Cook's accounts, however, it appears, that theſe people now inhabit alſo the coaſts and iſlands on the weſt ſide of America oppoſite to Kamtſchatka. From theſe accounts it appears alſo, that the people we ſpeak of have extended their migrations to Norton Sound, Oonalaſhka, and Prince William's Sound; that is, nearly to the diſtance of 1500 leagues from their ſtations in Greenland and the coaſt of Labradore. Nor does this curious fact reſt merely on the evidence ariſing from the ſimilitude of manners; for it ſtands confirmed by a table of words, exhibiting ſuch an affinity of language as muſt remove every doubt from the mind of the moſt ſcrupulous inquirer.

From the full confirmation of the vicinity of the two great continents of Aſia and America, it can no longer be ſuppoſed ridiculous to believe, that the latter received its inhabitants from the former; and by the facts recently diſcovered, a degree of further evidence is added to thoſe which might formerly be derived from nature concerning the authenticity of the Moſaic accounts. It is not indeed to be doubted, that the inſpired writings will ſtand the teſt of the moſt rigorous inveſtigation; nor will it ever be found, that true philoſophy and Divine Revelation can militate againſt each other. The rational friends of religion are ſo far from dreading the ſpirit of inquiry, that they wiſh for nothing more than a candid and impartial examination of the ſubject, according to all the lights which the improved reaſon and enlarged ſcience of man can afford.

Another good effect of the voyage of Captain Cook is, that they have excited in other nations a zeal for ſimilar undertakings. By order of the French government, Meſſrs de la Peyrouſe and de Langle ſailed from Breſt in Auguſt 1785, in the frigates Bouſſole and Aſtroloobe, on an enterprize, the purpoſe of which was to improve geography, aſtronomy, natural hiſtory, and philoſophy, and to collect an account of the cuſtoms and manners of different nations. For the more effectual proſecution of the deſign, ſeveral gentlemen were appointed to go out upon the voyage, who were known to excel in different kinds of literature. The officers of the Bouſſole were men of the beſt information and firmeſt reſolution; and the crew contained a number of artificers in various branches of mechanics. Marine watches, &c. were provided, and M. Dagelet the aſtronomer was particularly directed to make obſervations with M. Condamine's invariable pendulum, to

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to determine the differences in gravity, and to aſcertain the true proportion of the equatorial to the polar diameter of the earth. It has likewiſe been made evident, that notwithſtanding all that has been done by Captain Cook, there is ſtill room for a farther inveſtigation of the geography of the northern parts of the world. The object accordingly was taken up by the Empreſs of Ruſſia, who committed the care of the enterpriſe to Captain Billings an Engliſhman in her majeſty's ſervice. We ſhall only make one obſervation more concerning the benefits likely to accrue from the voyages of Captain Cook, and that is relative to the ſettlement in Botany Bay. Whatever may be ſuppoſed to accrue to the nation itſelf from this ſettlement, it muſt undoubtedly give the higheſt ſatisfaction to every friend to humanity to be informed, that thus a number of unhappy wretches will be effectually prevented from returning to their former ſcenes of temptation and guilt, which may open to them the means of induſtrious ſubſiſtence and moral reformation. If the ſettlement be conducted with wiſdom and prudence, indeed it is hard to ſay what beneficial conſequences may be derived from it, or to what height it may ariſe. Rome, the greateſt empire the world ever ſaw, proceeded from an origin little, if at all, ſuperior to Botany Bay. For an account of this ſettlement ſee the article *New-Holland*.

One other object remains only farther to be conſidered with regard to theſe voyages, and that is the advantages which may reſult from them to the diſcovered people. Here, however, it may perhaps be difficult to ſettle matters with preciſion. From the preceding accounts, it muſt be evident that the intentions of Captain Cook were in the higheſt degree benevolent; and if at any time the people were the ſufferers, it muſt have been through their own fault. In one inſtance indeed it might be otherwiſe, and that is with reſpect to the venereal diſeaſe. The evidence in this caſe cannot be altogether ſatisfactory. Mr Samwell, who ſucceeded Mr Anderſon as ſurgeon of the Reſolution, has endeavoured to ſhow, that the natives of the lately explored parts of the world, and eſpecially of the Sandwich iſlands, were not injured by the Engliſh; and it was the conſtant care and ſolicitude of Captain Cook to prevent any infection from being communicated to the people where he came. But whether he was univerſally ſucceſsful in this reſpect or not, it is evident that the late voyages were undertaken with a view exceedingly different from thoſe of former times. The horrid cruelties of the Spaniſh conquerors of America cannot be remembered without concern for the cauſe of religion and human nature; but to undertake expeditions with a deſign of civilizing the world, and meliorating its condition, is certainly a noble object. From the long continued intercourſe betwixt Britain and the South Sea iſlands, there cannot be any doubt that ſome degree of knowledge muſt already have been communicated to them. Their ſtock of ideas muſt naturally be enlarged by the number of uncommon obſervations which have been preſented to them, and new materials furniſhed for the exerciſe of their rational faculties. A conſiderable addition muſt be made to their immediate comfort and enjoyment by the introduction of uſeful animals and vegetables; and if the only benefit they ſhould ever receive from Britain ſhould be the having obtained freſh means of ſubſiſtence, this of itſelf muſt be conſidered as a valuable acquiſition. Greater conſequences, however, may ſoon be expected. The connection formed with theſe people may be conſidered as the firſt ſtep towards their improvement; and thus the bleſſings of civilization may be ſpread among the various tribes of Indians in the Pacific Ocean, which in time may prepare them for holding an honourable place among the nations of the earth.

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104 Account of Captain Clerke's voyage.

As a ſupplement to this account of the diſcoveries made by Captain Cook himſelf, we ſhall here ſubjoin a narrative of the ſubſequent part of the voyage by Captains Clerk, &c. until the return of the ſhips to England. At the time of Captain Cook's death, the great point of a north-weſt paſſage remained in ſome meaſure to be ſtill determined: for though, by the event of the former attempt, it had been rendered highly improbable that they ſhould ſucceed in this, it was ſtill reſolved to try whether or not, at certain ſeaſons of the year, the ice might not be more open than they had hitherto found it. The firſt object that naturally occured, however, was the recovery of Captain Cook's body; for which Mr King was of opinion that ſome vigorous meaſure ought inſtantly to be purſued. His motives for this, beſides the perſonal regard he had for the Captain, were to abate the confidence which muſt be ſuppoſed to enſue on the part of the natives, which would probably incline them to dangerous attempts; and this the more particularly, as they had hitherto diſcovered much leſs fear of the fire-arms than other ſavage nations were accuſtomed to do. Mr Samwell alſo takes notice of the intrepidity of the natives in this reſpect; but aſcribes it, in the firſt inſtance, to ignorance of their effects; and in the next, to a notion, that as the effects of theſe arms were occaſioned by fire, they might be counteracted by water. For this purpoſe they dipped their war mats in water; but finding themſelves equally vulnerable after this method had been purſued, they became more timid and cautious.

105 Methods taken for the recovery of Captain Cook's body.

As matters ſtood at preſent, there was even reaſon to dread the conſequences of a general attack upon the ſhips; and therefore Mr King was the more confirmed in his opinion of the neceſſity of doing ſomething to convince them of the prowefs of their adverſaries. In theſe apprehenſions he was ſeconded by the opinion of the greater part of the officers on board; and nothing ſeemed more likely to encourage the iſlanders to make the attempt than an appearance of being inclined to an accommodation, which they would certainly attribute to weakneſs or fear. Captain Clerke, however, and thoſe who were in favour of conciliatory meaſures, urged, that the miſchief was already irreparable; that the natives, by reaſon of their former friendſhip, had a ſtrong claim to the regard of the Engliſh; and that the more particularly, as the late calamitous accident did not appear to have taken its riſe from any premeditated deſign: they urged alſo the ignorance of the king concerning the theft, and the miſtake of the iſlanders who had armed themſelves on a ſuppoſition that ſome attempt would be made to carry off the king. To all this was added, that the ſhips were in want of refreſhments, particularly water; that the Reſolution's foremaſt would require ſeven or eight days before it could be properly repaired; and as the ſpring was faſt advancing, the ſpeedy proſecution of the voyage to the northward ought now to be the only object; that a vindictive conteſt with the natives might not only juſtify an imputation of needleſs cruelty, but would occaſion great delay in the equipment of the ſhips.

In conſequence of the prevalence of theſe ſentiments lenient meaſures were adopted, though the behaviour of the natives continued to be very inſolent. A great body ſtill kept poſſeſſion of the ſhore; many of whom came off in their canoes within piſtol-ſhot of the ſhips, and provoking the people by every kind of inſult and defiance. A train of negociations for Captain Cook's body took place; in which the natives ſhowed the moſt hoſtile and treacherous diſpoſition, and, as afterwards appeared, had cut the fleſh from the bones and burnt it. A piece of about ten pounds weight was brought by two natives at the hazard of their lives, who gave information that the reſt had been burnt, and that the bones were in the poſſeſſion of the king and ſome of the principal chiefs. Information was given, at the ſame time, that the chiefs were very deſirous of war in order to revenge the death of their countrymen.

106 His remains at laſt obtained.

Thus it appeared that the pacific plan had anſwered no good purpoſe. No ſatisfactory anſwer had been given to the demands made of the bodies of the ſlain; nor was any progreſs made in the great work intended, viz, a reconciliation with the natives; they ſtill remained on ſhore in an hoſtile poſture, as if determined to oppoſe any endeavours that might be made by the people to land; at the ſame time that a landing was become abſolutely neceſſary, in order to complete the ſtock of water. Had this ſpiritleſs conduct been perſiſted in, there is not the leaſt doubt that neither this purpoſe nor any other could have been effected. The inſolence of the natives became every day greater and greater; inſomuch that one of them had the audacity to come within muſket-ſhot of the Reſolution, and, after throwing ſeveral ſtones, waved Captain Cook's hat over his head, while his countrymen on ſhore were exulting and encouraging his audacity. By this inſult the people were ſo highly enraged, that, coming on the quarter-deck in a body, they begged that they might no longer be obliged to put up with ſuch reiterated provocation, but might be allowed to make uſe of the firſt opportunity of revenging the death of their Captain. The neceſſity of more vigorous meaſures, therefore, being now apparent, a few diſcharges of the great guns, with the burning of a village and ſome other acts of ſeverity, at laſt produced the mangled remains of Captain Cook. They were wrapped up in a bundle, in which were found both his hands entire, which were eaſily known by a ſcar in one of them dividing the fore-finger from the thumb the whole length of the metacarpal bone. Along with theſe was the ſkull, but with the ſcalp ſeparated from it, and the bones of the face wanting; the ſcalp, with the ears adhering to it, and the hair cut ſhort; the bones of both the arms, with the ſkin of the fore-arms hanging to them; the bones of the thighs and legs joined together, but without the feet. The ligaments of the joints were obſerved to be entire; the whole ſhowing evident marks of having been in the fire, except the hands, which had the fleſh remaining upon them, and were cut in ſeveral places and crammed with ſalt, moſt probably for the purpoſe of preſerving them. The ſkull was not fractured; but the ſcalp had a cut in the back part of it. The lower jaw and feet were wanting, having been ſeized by different chiefs.

107 Unſucceſsful attempts to make farther diſcoveries.

Having accompliſhed the purpoſes of their ſtay in this place, Captain Clerke ſet ſail from Karakakooa bay in O-why-hee towards Mowee, with a deſign to explore the coaſt of that iſland more fully than had been done, but were unable to accompliſh their purpoſe: nor indeed was it in their power to accompliſh any diſcovery of conſequence among theſe iſlands. The only intelligence worth mentioning which they were able to procure was, that wars had enſued about the property of the goats which were left by Captain Cook on the iſland of Oneehow, as has been already mentioned, and that during the conteſt all theſe poor animals, who had already begun to multiply, were deſtroyed; ſo that the benevolent attempts of our illuſtrious navigator in favour of theſe iſlanders had proved abortive.

108 Their favourable reception at Kamtſchatka.

On quitting the iſland of Oneehow our navigators ſet ſail for another named Modoopapappa, which they were aſſured by the natives lay within five hours ſailing of Tahoora, a ſmall iſland in the neighbourhood of Oneehow. In this they proved unſucceſsful; on which it was determined to ſteer for the coaſt of Kamtſchatka. In the paſſage thither they arrived at that place where de Gama is ſaid to have diſcovered a great extent of land; but of this they could diſcover no appearance. This imaginary continent is ſaid to have been diſcovered by a navigator called *John de Gama*, but who ſeems alſo to have been imaginary, as no perſon can find out either the country where he lived or the time when he made the diſcovery. We are informed by Muller, that the firſt account of it was publiſhed by Texeira in a chart in 1649, who places it between the latitude of 44 and 45 degrees, and about 160° E. Long. and calls it "land ſeen by John de Gama, in a voyage from China to New Spain." By the French geographers it is removed five degrees farther to the eaſt. When they arrived at Kamtſchatka they were entertained in the moſt hoſpitable manner, and furniſhed with every thing that could be procured in that deſart and barren region. "In this wretched extremity of the earth (ſays the narrator of the voyage), beyond conception barbarous and inhoſpitable, out of the reach of civilization, bound and barricadoed with ice, and covered with ſummer ſnow, we experienced the tendereſt feelings of humanity, joined to a nobleneſs of mind and elevation of ſentiment which would have done honour to any clime or nation." From Major Behm, in particular they received ſo many and ſo great obligations, that an handſome acknowledgement was made him by the Royal Society, as has been already obſerved. Even the ſailors were ſo ſtruck with his gratitude, that they voluntarily requeſted that their allowance of grog might be with-held, in order to compliment the garriſon of Bolcheretſk with the ſpirits; ſaying, that they knew brandy was extremely ſcarce in that country, the ſoldiers on ſhore having offered four roubles a bottle for it. The officers, however, would not allow them to ſuffer by their generoſity in this inclement country and ſeaſon of the year (the month of March not being yet expired); but, in room of the ſmall quantity of brandy which Major Behm conſented to accept, ſubſtituted an equal quantity of rum.

It is worth obſerving, that the kindneſs with which the empreſs had ordered the Britiſh navigators to be treated in this part of her dominions were amply rewarded, even with no leſs than the addition of a new kingdom to the Ruſſian empire, which hitherto her arms had not been able to ſubdue. Among the northern Aſiatics none had been able to maintain their independence except the Tſchutſki, who inhabit the north-eaſtern extremity of the continent.

109 Tſchutſki ſubmit to the Empreſs.

No attempt to ſubdue theſe people had been made ſince the year 1750, when the Ruſſian forces had at laſt been obliged to retreat, after having loſt their commanding officer. The Ruſſians afterwards removed their frontier fortreſs from the river Anadyr to the Ingiga, which runs into the northern extremity of the ſea of Okotſk, and gives its name to a gulf to the weſt of the ſea of Penſhinſk. On the day that Captains Clerke and Gore arrived at Bolcharetſk, Major Behm received diſpatches from this fort, acquainting him that a party of the Tſchutſki had been there with voluntary offers of friendſhip and a tribute. That on aſking the reaſon of ſuch an unexpected alteration in their ſentiments they had acquainted his people, that two large Ruſſians boats had viſited them towards the end of the preceding ſummer; that they had been ſhown the greateſt kindneſs by the people who were in them, and had entered into a league of amity with them; and that, in conſequence of this, they came to the Ruſſian fort in order to ſettle a treaty upon terms agreeable to both nations. This incident had occaſioned much ſpeculation, and could never have been underſtood without the aſſiſtance of thoſe who were now preſent; the large *Ruſſian boats* having been in truth no other than the Reſolution and Diſcovery, under Captains Cook and Clerke.

110 Vaſt quantity of fiſh.

About the middle of May the ſnow began to melt very faſt in this unhoſpitable region, and the ſhips being now on their paſſage northward, met with an excellent opportunity of ſupplying themſelves with fiſh. The beach was cleared of ice on the 15th of the month; from which time vaſt quantities came in from every quarter. Major Behm had ordered all the Kamtſchadales to employ themſelves in the ſervice of the Engliſh ſhips; ſo that often they found it impoſſible to take on board the quantities that were ſent. They chiefly conſiſted of herrings, trout, flat fiſh, and cod. Theſe fiſh were here found in ſuch plenty, that once the people of the Diſcovery ſurrounded ſuch an amazing quantity with the ſeine, that they were obliged to throw out a very conſiderable number, leſt the net ſhould have been broken to pieces; and the cargo was ſtill ſo abundant, that, beſides having a ſtock for immediate uſe, they filled as many caſks as they could conveniently ſpare for ſalting; and after ſending on board the Reſolution a tolerable quantity for the ſame purpoſe, they left behind ſeveral buſhels upon the beach

111 Spirituous liquors pernicious in the ſea-ſcurvy.

While they remained in this country an opportunity offered of obſerving the pernicious effects of ſpirituous liquors in producing the ſea-ſcurvy. All the Ruſſian ſoldiers were in a greater or leſſer degree afflicted with that diſorder, ſome of them being in the laſt ſtage of it: and it was particularly obſerved that a ſerjeant, with whom the people had kept up a moſt friendly intercourſe, had, *in the courſe of a few days*, brought upon himſelf the moſt alarming ſcorbutic ſymptoms, by drinking too freely of the liquors with which he had been preſented by the Engliſh. Captain Clerke ſoon relieved them, by putting them under the care of the ſurgeons of the ſhips, and ſupplying them with ſour-krout and malt for ſweet wort. In conſequence of this a ſurpriſing alteration was ſoon obſerved in the figures of moſt of them; and their ſpeedy recovery was principally attributed to the ſweet wort.

112 Eruption of a volcano.

On the 12th of June they began to proceed northward along the coaſt of Kamtſchatka, and three days after had an opportunity of obſerving an eruption of one of the volcanoes of that peninſula. On the 15th, before day light, they were ſurpriſed with a rumbling noiſe like diſtant thunder; and when the day appeared, found the decks and ſides of the ſhips covered near an inch thick with fine duſt like emery. The air was at the ſame time loaded and obſcured with this ſubſtance; and in the neighbourhood of the volcano itſelf, it was ſo thick that the body of the hill could not be diſcovered. The exploſions became more loud at 12 o'clock and during the afternoon, being ſucceeded by ſhowers of cinders, generally of the ſize of peaſe, though ſome were as large as hazzle-nuts. Along with theſe there alſo fell ſome ſmall ſtones which had undergone no alteration from the action of the fire. In the evening there were dreadful claps of thunder with bright flaſhes of lightning, which, with the darkneſs of the ſky, and the ſulphureous ſmell of the air, produced a moſt awful and tremendous effect. The ſhips were at this time about 24 miles diſtant from the volcano; and it appeared that the volcanic ſhower had been carried to a ſtill greater diſtance, as they next day found the bottom of the ſea to conſiſt of ſuch ſmall ſtones as had fallen upon the decks of the ſhips. The mountain was ſtill obſerved to be in a ſtate of eruption on the 18th.

113 Voyage to the northward.

For ſome time Captain Clerke kept the coaſt of Kamtſchatka in view, with a deſign to make an accurate ſurvey of it; but in this he was diſappointed by foggy and ſqually weather; however, he determined the poſition of ſome remarkable promontories, and at laſt finding the ſeaſon too far advanced to accompliſh his deſign, ſet ſail for Beering's Straits, chiefly with a view to aſcertain the ſituation of the projecting points of the coaſt.

On the 3d of July our navigators came in ſight of the iſland of St Lawrence, and another which was ſuppoſed to lie between it and Anderſon's iſland. The latter being entirely unknown to Captain Clerke, he was inclined to have approached it, but was unable to effect his purpoſe. All theſe iſlands, as well as the coaſt of the Tſchutſki on the continent, were covered with ſnow, and had a diſmal appearance.

In the preceding year Captain Cook had determined the ſituation of the Iſlands of St Diomede to be in 65° 48′ latitude; but now being ſomewhat at a loſs to reconcile this with the poſition of the continent, they ſtood for ſome time over to the latter, till fully convinced of the accuracy of the former obſervations. At this time they approached within two or three leagues of the eaſtern cape of Aſia, which is an elevated round head of land extending about five miles from north to ſouth, and forms a peninſula connected with the continent by a narrow iſthmus of low land. It has a bold ſhore, and three lofty detached ſpiral rocks are ſeen off its northern part. It was ſtill encompaſſed with ice, and is covered with ſnow. Here they found a ſtrong current ſetting to the northward, which at noon had occaſioned an error in the computation of the latitude of no leſs than 20 miles. A ſimilar effect had been obſerved the preceding year in paſſing this ſtrait. On ſteering to the north-eaſt the weather cleared up, ſo that they had a view of the eaſtern cape of Aſia, Cape Prince of Wales on the weſtern coaſt of America, with a remarkable peaked hill on the latter, and the two iſlands of St Diomede lying between them. Here they met with great numbers of very ſmall hawks, having a compreſſed bill rather large in proportion to the body; the colour dark brown, or rather black, the breaſt whitiſh, and towards the abdomen of a reddiſh hue.

114
Are ſtopped by the ice.

On the 6th of July at 12 o'clock, the ſhips were in N. Lat. 67. 0. E. Long. 191. 6. when having already paſſed many large pieces of ice, and obſerved that in ſeveral places it adhered to the continent of Aſia, they were ſuddenly ſtopped about three in the afternoon by an extenſive body, which ſtretched towards the weſt. By this their hopes of reaching any higher latitude than what had been attained laſt year were conſiderably diminiſhed; but finding the courſe obſtructed on the Aſiatic ſide, they proceeded to the north-eaſtward, in order to explore the continent of America, between the latitude of 68° and 69°; which had laſt year been found impracticable on account of the foggy weather: but in this alſo they were partly diſappointed; for on the 7th, about ſix in the morning, they met with another large body of ice ſtretching from north-weſt to ſouth-eaſt; but not long afterwards, the horizon becoming clear, they had a view of the American coaſt at the diſtance of about ten leagues, extending from north-eaſt by eaſt to eaſt, and lying between N. Lat. 68° and 68° 20′. As the ice was not very high, the view extended a great way over it, ſo that they could perceive it exhibiting a compact ſolid ſurface, and apparently adhering to the land. Soon after the weather became hazy, ſo that they loſt ſight of the land; and it being impoſſible to get nearer, they continued to ſteer northward cloſe by the ſide of the ice. This courſe was continued till next morning, during which time the ſhips paſſed ſome drift-wood; but the morning following, the wind ſhifting to the north, they were obliged to ſtand to the weſtward. At two in the afternoon they were again cloſe to an immenſe expanſe of ice; which from the maſt-head ſeemed to conſiſt of very large compact bodies, united towards the exterior edge, tho' in the interior parts ſome pieces floated in the water; it extended from weſt ſouth-weſt to north-eaſt by north. There was now a neceſſity for ſteering towards the ſouth, as the ſtrong northerly winds had drifted down ſuch numbers of looſe pieces, that they had encompaſſed the ſhips for ſome time, and it was impoſſible to avoid very ſevere ſtrokes while ſailing among them. Thus, however, they reached the latitude of 69. 12. and E. Long. 188. 5.; but having now ſailed almoſt 40 leagues to the weſt along the edge of the ice without perceiving any opening, Captain Clerke determined to bear away ſouth by eaſt, the only quarter which was clear at preſent, and to wait till the ſeaſon was ſomewhat farther advanced before any further attempts were made. The intermediate time he propoſed to employ in ſurveying the bay of St Lawrence, and the coaſt ſituated to the ſouthward of it; as it muſt be a great ſatisfaction to have an harbour ſo near in caſe of the ſhips receiving any damage from the ice; and the Captain was alſo deſirous of paying another viſit to the Tſchutſki, eſpecially in conſequence of the accounts of them that had been given by Major Behm. In this navigation they killed ſeveral ſea-horſes, and had an opportunity of obſerving the ſtrength of parental affection in thoſe monſtrous animals. On the approach of the boats towards the ice, all of them took their young ones under their fins, and attempted to make their eſcape with them into the ſea. Some, whoſe cubs were killed or wounded, and left floating upon the ſurface of the water, roſe again, and carried them down, ſometimes juſt as they were on the point of being taken into the boat; and could be traced bearing them to a conſiderable diſtance through the water, which was ſtained with their blood. They were afterwards obſerved bringing them at intervals above the ſurface, and again plunging under its ſurface with an horrid bellowing; and one female, whoſe young one had been killed and taken on board, became ſo furious, that ſhe ſtruck her tuſks through the bottom of the cutter.

115
Remarkable affection of the ſea-horſes towards their young.

116
The ſhips finally ſtopped by ice.

Our navigators ſtill found themſelves diſappointed in their attempts. On approaching the coaſt of the Tſchutſki they met with a large and compact body of ice, extending to the north-eaſt, ſouth-weſt, and ſouth-eaſt, as far as the eye could reach; ſo that they were again obliged to ſail back to the northward. Here alſo their courſe was ſoon ſtopped; for, on the 13th, being in N. Lat. 69. 37. and about the middle of the channel between the two continents, they once more fell in with a compact body of ice, of which they could perceive no limit. Captain Clerke therefore determined to make a final attempt on the coaſt of America, the paſſage northward having been found laſt year practicable much farther on that than the Aſiatic ſide. Thus they attained the latitude of 70. 8. at the diſtance, as was ſuppoſed, of 25 leagues from the coaſt of America; and ſome days after got about three minutes farther to the northward, about the diſtance of ſeven or eight leagues from the Icy Cape. This, however, was the utmoſt limit of the voyage to the north-eaſt; and they were ſoon obliged to relinquiſh all hopes of proceeding farther on the American ſide. Another effort was ſtill reſolved on to try the practicability of a north-weſt paſſage; and for this purpoſe our navigators altered their direction on the 21ſt of July, paſſing through a great quantity of looſe ice. About ten at night the main body was diſcovered at a very ſmall diſtance, ſo that they were obliged to proceed to the ſouthward. During this perilous navigation, the Diſcovery, after having almoſt got clear out from the ice, became ſo entangled by ſeveral large pieces, that her progreſs was ſtopped, and ſhe immediately dropped to leeward, falling broadſide foremoſt on the edge of a conſiderable body of ice, on which ſhe ſtruck with violence, there being an open ſea to windward. At length the maſs was either broken or moved ſo far, that the crew had an opportunity of making an effort to eſcape. But unluckily, before the ſhip gathered way ſufficient to be under command, ſhe fell to leeward a ſecond time upon another

117
Dangerous ſituation of the Diſcovery.

other piece of ice; and the ſwell rendering it unſafe to lie to windward, and finding no proſpect of getting clear, they puſhed into a ſmall opening, and made the veſſel faſt to the ice with hooks. Here the Reſolution for ſome time loſt ſight of her conſort, which occaſioned no ſmall uneaſineſs in both veſſels; but at length, on a change of wind, the Diſcovery, ſetting all her ſails, forced a paſſage, though not without loſing a conſiderable part of her ſheathing, and becoming very leaky by reaſon of the blows ſhe had received.

Thus the two veſſels continued to make every effort to penetrate through the immenſe quantities of ice with which thoſe ſeas are filled winter and ſummer, but without ſucceſs. Captain Clerke therefore finding that it was impoſſible either to get to the northward, or even to reach the Aſiatic continent, the ſhips being alſo greatly damaged, determined to proceed ſouthward to the bay of Awatſka, on the Kamtſchadale coaſt, to refit, and afterwards take a ſurvey of the coaſts of Japan before the winter ſhould ſet in.

118
Of the extent of the Aſiatic continent to the northward.

During this navigation, two general concluſions were adopted relative to the extent of the Aſiatic coaſt in oppoſition to the opinion of Mr Muller. One is, that the promontory, called the *Eaſt Cape*, is in reality the moſt eaſterly point of Aſia; and that no part of that quarter of the globe extends farther than the longitude of 190° 22′ E. The other concluſion is, that the latitude of the moſt north-eaſterly point of Aſia does not exceed 70° N. but is rather ſomewhat below it. As the preſent diſcoveries, however, were terminated on the Aſiatic ſide in the 69th degree of latitude, the probable direction of the coaſt afterwards can only be conjectured. The only ſources of knowledge in this caſe are the Ruſſian charts and journals; and theſe in general are ſo defective and contradictory, that the particulars of their real diſcoveries can ſcarce be collected. Hence the Ruſſian geographers are greatly divided in their opinions concerning the extent and figure of the peninſula of the Tſcutſki. Mr Muller, in a map publiſhed in 1754, ſuppoſes it to extend north-eaſt as far as the latitude of 75°, and E. Long. 19°, ending in a round cape which he calls *Tſchukotſkoi Noſs*. To the ſouthward of this cape he ſuppoſes the coaſt to form a bay to the weſt, bounded in the latitude of 67° 18′ by Serdze Kamen, the moſt northerly point obſerved by Beering in his expedition in 1728. A new form is given to the whole peninſula in a map publiſhed by the academy at Peterſburg in 1776. Here its moſt north-eaſterly extremity is placed in N. Lat. 73°, E. Long. 178° 30′; and its moſt eaſterly point in N. Lat. 65°, E. Long. 189° 30′. All the other maps vary between theſe two ſituations; and the only thing in which all of them agree is the poſition of the eaſt cape in N. Lat. 66°. The form of the coaſt, however, is very erroneous in the map publiſhed by the academy, and may be entirely diſregarded. In Mr Muller's map, the northern part of the coaſt has ſome reſemblance to that laid down in Captain Cook's and Clerke's ſurvey, as far as the latter extends; only that Mr Muller does not make it trend ſufficiently to the weſt, but ſuppoſes it to recede only five degrees of longitude between the latitudes of 66° and 69°; whereas it really recedes almoſt ten.

We muſt next examine Mr Muller's authority for ſuppoſing the coaſt to bend round to the north and north-eaſt in ſuch a manner as to form a large promontory.—Mr Coxe, whoſe accurate reſearches into this matter muſt give great weight to his opinion, thinks, that the extremity of the promontory was never doubled by any perſon except Deſhneff and his party; who ſailed, in the year 1648, from the river Kovyma, and are imagined to have got round to the river Anadyr. The account of this voyage, however, gives no geographical delineation of the coaſt, ſo that its figure muſt be determined by other circumſtances; and from theſe it evidently appears, that the Tſchukotſkoi Noſs of Deſhneff is in reality the Eaſt Cape of Captain Cook. Speaking of this Noſs, he ſays, that a perſon, with a favourable wind, may ſail from the iſthmus to the Anadyr in three days and three nights. This agrees entirely with the ſituation of the Eaſt Cape, which is about 120 leagues from the mouth of the river Anadyr; and there being no other iſthmus to the north between that and the latitude of 69°, it ſeems evident, that by this deſcription he certainly means either the Eaſt Cape or ſome other ſituated to the ſouthward of it. In another place he ſays, that oppoſite to the iſthmus there are two iſlands, upon which ſome of the Tſchutſki nation were obſerved, having pieces of the teeth of ſea-horſes fixed in their lips; and this exactly coincides with the two iſlands that lie to the ſouth eaſt of the Eaſt Cape. Our navigators indeed did not obſerve any inhabitants upon theſe iſlands; but it is by no means improbable, that ſome of thoſe from the American coaſt, whom the above deſcription perfectly ſuits, might have accidentally been there at the time, and been miſtaken for a tribe of Tſchutſki.

Other circumſtances, though leſs deciſive than thoſe juſt mentioned, concur in the ſame proof. Deſhneff ſays, that in ſailing from the Kovyma to the Anadyr, a great promontory, which projects far into the ſea, muſt be doubled; and that this promontory extends between north and north-eaſt. From theſe expreſſions, perhaps, Mr Muller was induced to repreſent the country of the Tſchutſki in the form we find in his map; but if he had been acquainted with the poſition of the Eaſt Cape as determined by Captain Cook, and the ſtriking agreement between that and the promontory or iſthmus in the circumſtances abovementioned, it is moſt probable that he would not have deemed theſe expreſſions of ſufficient weight to authoriſe his extending the north-eaſtern extremity of Aſia either as far to the north or to the eaſt as he has done.

Another authority uſed by Mr Muller ſeems to have been the depoſition of the Coſſac Popoff, taken at the Anadirſkoi Oſtrog in 1711. Popoff was ſent by land, in company with ſeveral others, to demand tribute of the independent Tſchutſki tribes, who inhabited the country about the Noſs. In the account of this journey, the diſtance betwixt Anadirſk and Tſchukotſkoi Noſs is repreſented as a journey of ten weeks with loaded rein-deer. From ſuch a vague account, indeed, we can judge but very little; but as the diſtance between the Eaſt Cape and Anadirſk does not exceed 200 leagues, and conſequently might be accompliſhed in the ſpace abovementioned at the rate of 12 or 14 miles a-day, we cannot reckon Popoff's account of its ſituation inconſiſtent with the ſuppoſition of its being the Eaſt Cape. It may likewiſe be obſerved, that Popoff's rout lay along the foot of a rock named *Matkol,* ſituated at the bottom of a ſpacious gulf, which Muller ſuppoſes to have been the bay he lays down between the latitudes of 66° and 72°; and he accordingly places the rock Matkol in the centre of it: but it ſeems more probable, that it might be a part of the gulf of Anadyr, which they would undoubtedly paſs in their journey towards the Eaſt Cape.

But what ſeems to put the matter beyond all doubt, and to prove that the cape which Popoff viſited cannot be to the northward of 69° Lat. is that part of his depoſition which relates to an iſland lying off the Noſs, from whence the oppoſite coaſt might be diſcerned; for as the oppoſite continents, in the latitude of 69°, diverge ſo far as to be upwards of 100 leagues diſtant, it is highly improbable that the Aſiatic coaſt ſhould again trend eaſtward in ſuch a manner as to come almoſt in ſight of that of America. As an additional proof of the poſition in queſtion, we may obſerve, that the Tſchukotſkoi Noſs is conſtantly laid down as dividing the ſea of Kovyma from that of Anadyr; which could not poſſibly be the caſe if any large cape had projected to the north-eaſt in the higher latitudes.

The next queſtion to be determined is, to what degree of latitude the northern coaſt of Aſia extends before it inclines directly weſtward? Captain Cook was always ſtrongly inclined to believe, that the northern coaſt of this continent, from the Indigirka eaſtward, has hitherto been uſually laid down above two degrees to the northward of its true ſituation; for which reaſon, and on the authority of a map that was in his poſſeſſion, as well as from intelligence received at Oonalaſhka, he placed the mouth of the Kovyma in the latitude of 68 degrees. Should he be right in his conjecture, it is probable that the coaſt of Aſia does not any where extend beyond the latitude of 70 degrees before it trends to the weſt; and conſequently our navigators muſt have been only one degree from its northern extremity. This ſeems to be confirmed by the ſilence of the Ruſſian navigators concerning any extent of continent to the northward of Shelatſkoi Noſs; nor do they mention any remarkable promontory, except the Eaſt Cape, between the Anadyr and the Kovyma. Another particular which Deſhneff relates may perhaps be deemed a farther confirmation of this opinion, *viz.* that he met with no obſtruction from ice in ſailing round the north-eaſtern extremity of Aſia; though he adds, that this ſea is not at all times ſo free of it, which indeed appears evidently to be the caſe. That part of the continent which lies between Cape North and the mouth of the Kovyma is about 125 leagues in extent. A third part of this ſpace, from Kovyma eaſtward, was explored in the year 1723 by Feodot Amoſſoff, who informed Mr Muller that its direction was eaſterly. Since that time it has been ſurveyed with ſome accuracy by Shalauroff whoſe chart makes it trend north-eaſt-by-eaſt as far as Shelatſkoi Noſs, which he places at the diſtance of about 43 leagues eaſt of the Kovyma. The ſpace therefore between the Noſs and Cape North, ſomewhat more than 80 leagues, is the only part of the Ruſſian dominions now remaining unexplored. But if the Kovyma be erroneouſly laid down in point of longitude as well as latitude, a ſuppoſition far from being improbable, the extent of the undiſcovered coaſt will be conſiderably diminiſhed. The following are the reaſons why it may be ſuppoſed that the mouth of the Kovyma is placed too far to the weſtward in the Ruſſian charts: 1. Becauſe the accounts that have been given of the navigation of the Frozen Ocean from that river round the north-eaſtern extremity of Aſia to the Gulf of Anadyr, do not agree with the ſuppoſed diſtance between thoſe places. 2. Becauſe the diſtance from the Anadyr to the Kovyma over land is by ſome Ruſſian travellers repreſented as a journey of no very great length, and eaſily performed. 3. Becauſe the coaſt from the Shelatſkoi Noſs of Shalauroff appears to trend directly ſouth-eaſt towards the Eaſt Cape. From all which it may be inferred, with ſome degree of probability, that only 60 miles of the northern Aſiatic coaſt remain to be explored.

119
Impracticability of a north-weſt or north-eaſt paſſage into the Pacific Ocean.

With regard to a north-weſt paſſage from the Atlantic into the Pacific Ocean, it is highly probable that no ſuch thing exiſts to the ſouthward of the 56th degree of latitude. If, in reality, it exiſts any where, it muſt certainly be either through Baffin's Bay, or by the north of Greenland in the weſtern hemiſphere, or in the eaſtern through the frozen ſea to the north of Siberia; ſo that in whichever continent it is ſeated the navigator muſt paſs through Beering's Straits. All that remains now to be conſidered therefore is, the impracticability of penetrating into the Atlantic Ocean through theſe ſtraits. From the voyages of our navigators it appears, that the ſea to the northward of Beering's Straits is more free from ice in Auguſt than in July, and perhaps may be ſtill more ſo in ſome part of September. But after the autumnal equinox, the length of the day diminiſhes ſo faſt that no farther thaw can be expected; and it would be unreaſonable to attribute ſo great an effect to the warmth of the laſt fortnight of September as to imagine it capable of diſperſing the ice from the moſt northern parts of the American coaſt. Even admitting this to be poſſible, it muſt at leaſt be allowed that it would be highly imprudent to endeavour to avoid the Icy Cape, by running to the known parts of Baffin's Bay, a diſtance of about 1260 miles, in ſo ſhort a time as that paſſage can be ſuppoſed to be open. On the ſide of Aſia there appears ſtill leſs probability of ſucceſs, as appears from the teſtimony of the Ruſſian as well as the Engliſh navigators. The voyage of Deſhneff indeed proves the poſſibility of circumnavigating the north-eaſtern extremity of Aſia; but even this affords a very ſlender foundation to hope for any great benefit, as no perſon beſides himſelf appears to have ſucceeded in the attempt, though more than a century and an half has now elapſed ſince the time of his voyage. But even ſuppoſing that, in ſome very favourable ſeaſon, this cape might be doubled, ſtill the Cape of Taimura remains, extending as far as the 78th degree of latitude, and round which none pretend ever to have ſailed.

Theſe arguments ſeem concluſive againſt any expectation of a north-weſt or north-eaſt paſſage to the Eaſt Indies, unleſs on the ſuppoſition of an open ſea very near the polar regions. The probability of getting into the polar ſeas is conſidered under the article Pole; and indeed from what has already been advanced muſt appear very little. Waving this ſubject therefore at preſent, we ſhall return to the remarks made by our navigators during their ſecond voyage.

120 Remarks during the voyage of Captain Clerke towards the Icy Sea.

In this they did little more than confirm what had been obſerved during the firſt; for it never was in their power to approach the continent of Aſia in any higher latitude than 67°, nor that of America in any part, excepting a few leagues, between 68° and 68° 20′, which they had not ſeen before. In both years the ice was met with ſooner on the Aſiatic than the American coaſt; but in 1779 they met with it in lower latitudes than in 1778. As they proceeded northward, the ice was found univerſally more compact and ſolid, though they were aſcertained at the ſame time that the greateſt part of what they met with was moveable. Its height on a medium was eſtimated at eight or ten feet; though ſome of the higheſt might be about 16 or 18. The currents were generally at the rate of one mile in the hour, and more generally ſet from the ſouth-weſt than from any other quarter. Their force, however, was ſo inconſiderable, whatever their direction might be, that no concluſion could poſſibly be drawn from them concerning the exiſtence or nonexiſtence of a northern paſſage. With regard to the temperature of the weather, July was found much colder than Auguſt. In the former, the thermometer was once at 28°, and very frequently at 30°; whereas during the laſt year it was very uncommon in Auguſt to have it as low as the freezing point. High winds were experienced in both ſeaſons, all of which blew from the ſouth-weſt. The air was foggy whenever the weather became calm; but the fogs were obſerved to accompany ſoutherly winds much more than others.

The ſtraits, in the neareſt approach of the continents to each other, in the latitude of 66°, are about 13 leagues over; beyond which they diverge to N. E. by E. and W. N. W.; ſo that in the latitude of 69°, their diſtance from each other is about 300 miles. A great reſemblance is obſerved betwixt the continents on both ſides of the ſtraits. Both are deſtitute of wood; the ſhores are low, with mountains further inland, riſing to a great height. The ſoundings in the mid-way between them were from 29 to 30 fathoms, gradually decreaſing as either continent was approached; with this difference, however, that the water was ſomewhat ſhallower on the coaſt of America than that of Aſia, at an equal diſtance from land. The bottom, towards the middle, was a ſoft ſlimy mud; and near either ſhore was a browniſh ſand intermixed with a few ſhells and ſmall fragments of bones. There was but little tide or current, and what there was came from the weſt.

121 Death of Captain Clerke. See *Clerke*.

Before the ſhips could reach the peninſula of Kamtſchatka, Captain Clerke expired: in conſequence of which the command devolved upon Mr King, Captain Gore being now the ſuperior officer. On the return to Kamtſchatka, Captain Clerke was buried in the ſpot on which a church was to be erected; it having been his own deſire to be interred in the church.

122 Return to Kamtſchatka, with a deſcription of the Bay of Awatſka.

By the time they arrived at this peninſula, the face of the country was greatly improved; the fields being covered with the moſt lively verdure, and every plant in the moſt flouriſhing ſtate. The eruption of the volcano which they had obſerved on their laſt departure from Kamtſchatka, had done little or no damage notwithſtanding its voilence, Several ſtones had fallen about the ſize of a gooſe's egg, but none larger. At this viſit it was obſerved by our navigators, that the complexions of the Ruſſians ſeemed to be much more unhealthy and ſallow that when they ſaw them formerly; and the Ruſſians made the ſame obſervation upon the complexions of their gueſts. As no certain cauſe for this alteration could be perceived, the blame was by both parties laid on the verdure of the country; which, by contraſting itſelf with the colour of the people, made the latter appear to diſadvantage.

Having repaired as well as they could the damages ſuſtained by the ſhips among the ice, our navigators now began to proceed on their voyage ſouthward; but the ſhattered condition of their veſſels, with the little time they had now to ſpare on voyages of diſcovery, after having been ſo long at ſea, now rendered them much leſs ſucceſsful than formerly. Before leaving the peninſula, however, they took care to give ſuch a deſcription of the bay of Awatſka as muſt be of great ſervice to future navigators. This bay lies in 52. 51. N. Lat. and 158. 48. E. Long. in the bight of another bay formed by Cape Gavareea to the ſouth, and Cheeponſkoi Noſs to the north. The latter of theſe bears from the former N. E. by N. and is 32 leagues diſtant. From Cape Gavareea to the entrance of Awatſka bay the coaſt takes a northerly direction, and extends about 11 leagues. It conſiſts of a chain of ragged cliffs and rocks, and in many parts preſents an appearance of bays or inlets; but on a nearer view, low grounds were perceived by which the headlands were connected. From the entrance of Awatſka bay, Cheeponſkoi Noſs bears E. N. E. diſtant 17 leagues. The ſhore on this ſide is flat and low, with hills behind gradually riſing to a conſiderable height. The latitude of Cape Gavareea is 52. 21. By this remarkable difference of the land on both ſides the Cape, navigators may be directed in their courſe towards it from the ſouthward. When they approach it from the northward, Cheeponſkoi Noſs becomes very conſpicuous; it being a high projecting headland, and united to the continent by a large extent of level ground lower than the Noſs; and preſents the ſame appearance whether viewed from the north or ſouth. Should the weather happen to be ſufficiently clear to admit a view of the mountains both on the ſea coaſt and in the neighbourhood, the ſituation of Awatſka bay may be known by the two high ones to the ſouth of it. That neareſt the bay is in the form of a ſugar loaf, the other flat at top and not quite ſo high. Three very conſpicuous mountains appear on the north ſide of the bay; of which that to the weſt appears to be the higheſt; the next, being a volcano, is readily known by the ſmoke which it emits; the third is the moſt northerly, and might properly be called a cluſter of mountains as it preſents ſeveral flat tops to view. When got within the capes, the entrance of the bay of Awatſka to the north is pointed out by a lighthouſe on a perpendicular head-land. Many ſunken rocks lie to the eaſtward of this head land, ſtretching two or three miles into the ſea; and which with a moderate ſea or ſwell will always ſhow themſelves. A ſmall round iſland lies four miles to the ſouth of the entrance, principally compoſed of high pointed rocks, one of which is very remarkable. The entrance into the bay is at firſt about three miles wide, and one and an half in the narroweſt part; the length is four miles in a north-weſt direction. Within the mouth is a noble baſon about 25 miles in circumference; in which are the harbours of Rakoweera to the eaſt, Tareinſka to the weſt, and St Peter and St Paul to the north.

123 Account of the voyage from the time of leaving Kamtſchatka.

On leaving Kamtſchatka, it was unanimouſly judged improper to make any attempt to navigate the ſeas between the continent of Aſia and Japan. Inſtead of this, it was propoſed to ſteer to the eaſtward of that iſland, and in the way thither to ſail along the Kuriles; examining particularly thoſe that are ſituated neareſt to the northern coaſt of Japan, which are ſaid to be conſiderable, and neither ſubject to the Ruſſians nor Japaneſe. In caſe they ſhould have the good fortune to meet with ſome ſecure and commodious harbours in any of theſe iſlands, it was ſuppoſed that they might prove of conſiderable importance, as convenient places of ſhelter for ſubſequent navigators, who might be employed in exploring the ſeas as the means of producing a commercial intercourſe among the adjacent dominions of the two abovementioned empires. The next object was to take a ſurvey of the coaſts of the iſlands of Japan; after which they deſigned to ſail for the coaſt of China as far north as poſſible, and then ſail along it ſouthward to Macao.

In purſuance of this plan, they ſailed along the coaſt of Kamtſchatka, till they came to the ſouthern point called *Cape Lopatka*, whoſe ſituation they determined to be in Lat. 51. 0. E. Long. 156. 45. To the north-weſt they obſerved a very lofty mountain whoſe ſummit was loſt in the clouds; and the ſame inſtant the firſt of the Kurile iſlands, named *Shoomſka*, made its appearance in the direction of weſt, half ſouth. The paſſage betwixt the ſouthern extremity of Cape Lopatka and the iſland of Shoomſka, though only one league in breadth, is extremely dangerous, both on account of the rapidity of the tides, and of the ſunk rocks which lie off the Cape. In the courſe of this voyage, they had occaſion to obſerve, that a violent ſwell from the north-eaſt frequently took place, though the wind had been for ſome time in the weſtern quarter; a circumſtance for which they ſeem to have been altogether unable to account.

The tempeſtuous weather which now occurred, prevented any diſcoveries from being made among the Kurile iſles; however, they again ſailed over the ſpace aſſigned to the land of De Gama, without being able to find it; and from comparing ſeveral accounts of the Ruſſian navigators with one another, it was judged extremely probable, that the land of Jeſo, ſo frequently laid down in former maps, is no other than the moſt ſoutherly of the Kurile Iſles. On coming in view of the coaſt of Japan, they had the mortification to find that they could not approach the land by reaſon of the tempeſtuous weather and bad ſtate of the ſhips; the coaſts of theſe iſlands being extremely dangerous. Paſſing from thence in queſt of the Baſhee Iſlands, they found amazing quantities of pumice-ſtone floating in the ſea; ſo that they ſeemed inclined to believe, with Mr Muller, that if there had formerly been any part of the continent, or large iſland, called the *Land of Jeſo*, it muſt have diſappeared in a volcanic convulſion; which alſo muſt have been the caſe with that called the *Company's Land* and *Staten Iſland*. Though they had not the good fortune to find the Baſhee Iſlands, they diſcovered one in 24. 48. N. Lat. 141. 20. E. Long. which from its appearance, and the ſulphureous ſmell emitted by it, they named *Sulphur Iſland*. After this nothing remarkable occurred till their arrival at Canton in China, where having ſtaid for ſome time in order to put their ſhips in repair, they at laſt ſet ſail for Britain; but through ſtreſs of weather were driven as far north as Stromneſs in Orkney. From thence Captain Gore ſent a diſpatch to the Lords of the Admiralty to inform them of his arrival; and on the 4th of October 1780 the ſhips reached the Nore, after an abſence of 4 years 2 months and 22 days.

COOKERY, the art of preparing and dreſſing victuals for the table: An art, in its ſimpleſt and ordinary modes, ſufficiently familiar to every houſekeeper, and, in its luxurious refinements, too copiouſly detailed in manuals and directories publiſhed for the purpoſe to require any enlargement here, were it even a topic that at all deſerved conſideration in a work of this nature.

COOLERS, in medicine, thoſe remedies which produce an immediate ſenſe of cold, being ſuch as have their parts in leſs motion than thoſe of the organs of feeling; as fruits and all acid liquors. Or they are ſuch as, by a particular viſcidity or groſſneſs of parts, give the animal fluids a greater conſiſtency than they had before, and conſequently retard their motion, having leſs of that inteſtine force on which their heat depends: of this ſort are cucumbers and all ſubſtances producing viſcidity.

COOM, a term applied to the ſoot that gathers over an oven's mouth; alſo for that black, greaſy ſubſtance, which works out of the wheels of carriages.

COOMB, or COMB, *of Corn*, a dry meaſure containing 4 buſhels, or half a quarter.

COOP, in huſbandry, a tumbrel or cart incloſed with boards, and uſed to carry dung, grains, &c.

COOP is alſo the name of a pen, or encloſed place, where lambs, poultry, &c. are ſhut up in order to be fed.

COOPER, a tradeſman who makes caſks, tubs, and barrels, for holding liquors or other commodities. Every cuſtom-houſe and exciſe office in Britain has an officer called *King's cooper*; and every ſhip of burden has a cooper on board.

COOPER (Anthony-Aſhley), firſt earl of Shafteſbury, a moſt able ſtateſman, was the ſon of Sir John Cooper, Bart. of Rockborn in Hampſhire, and was born in 1621. He was elected member for Tewkeſbury at 19 years of age, in the ſhort parliament that met April 13. 1640. He ſeems to have been well affected to the king's ſervice at the beginning of the civil wars; for he repaired to the king at Oxford with offers of aſſiſtance: but prince Maurice breaking articles to a town in Dorſetſhire that he had got to receive him, furniſhed him with a pretence for going over to the parliament, from which he accepted a commiſſion. When Richard Cromwell was depoſed, and the Rump come again into power, they nominated Sir Anthony one of their council of ſtate, and a commiſſioner for managing the army. At that very time he had engaged in a ſecret correſpondence for reſtoring Charles II. and, upon the king's coming over, was ſworn of his privy council. He was one of the commiſſioners for the trial of the regicides; was ſoon after made chancellor of the exchequer, then a commiſſioner of the treaſury; in 1672 was created earl of Shafteſbury; and ſoon after was raiſed to the poſt of lord chancellor. He filled this office with great ability and integrity; and though the ſhort time he was at the helm was in a tempeſtuous ſeaſon, it is doing him juſtice to ſay, nothing could either diſtract or affright him. The great ſeal was taken from him in 1673, 12 months after his receiving it; but, though out of office, he ſtill made a diſtinguiſhed figure in parliament, for it was not in his nature to remain inactive. He drew upon himſelf the implacable hatred of the duke of York, by ſteadily promoting, if not originally inventing, the famous project of an excluſion-bill. When his enemies came into power, he found it neceſſary to conſult his ſafety by retiring into Holland, where he died ſix weeks after his arrival, in 1683. While his great abilities are confeſſed by all, it has been his misfortune to have his hiſtory recorded by his enemies, who ſtudied to render him odious. Butler has given a very ſevere character of him in his Hudibras.

Cooper (Anthony Aſhley), earl of Shafteſbury, was ſon of Anthony earl of Shafteſbury, and grandſon of Anthony firſt earl of Shafteſbury, lord high chancellor of England. He was born in 1671, at Exeter-houſe in London, where his grandfather lived, who from the time of his birth conceived ſo great an affection for him, that he undertook the care of his education; and he made ſo good a progreſs in learning, that he could read with eaſe both the Latin and Greek languages when only 11 years old. In 1683, his father carried him to the ſchool at Wincheſter, where he was often inſulted on his grandfather's account, whoſe memory was odious to the zealots for deſpotic power: he therefore prevailed with his father to conſent to his deſire of going abroad. After three years ſtay abroad, he returned to England in 1689, and was offered a ſeat in parliament in ſome of thoſe boroughs where his family had an intereſt. But this offer he did not now accept, that he might not be interrupted in the courſe of his ſtudies, which he proſecuted five years more with great vigour and ſucceſs; till, on Sir John Trenchard's death, he was elected burgeſs for Pool. Soon after his coming into parliament, he had an opportunity given him of expreſſing that ſpirit of liberty by which he uniformly directed his conduct on all occaſions. It was the bringing in and promoting "the act for regulating trials in caſes of high treaſon." But the fatigues of attending the houſe of commons, in a few years ſo impaired his health, that he was obliged to decline coming again into parliament after the diſſolution in 1698. He then went to Holland, where the converſation of Mr Bayle, Mr le Clerc, and ſeveral other learned and ingenious men, induced him to reſide a twelvemonth. During this time, there was printed at London, in 8vo. an imperfect edition of lord Aſhley's Inquiry concerning Virtue. It had been ſurreptitiouſly taken from a rough draught, ſketched when he was no more than 20 years of age. His lordſhip, who was greatly chagrined at this event, immediately brought up the impreſſion before many books were ſold, and ſet about completing the treatiſe, as it afterwards appeared in the ſecond volume of the Characteriſtics. Soon after lord Aſhley's return to England, he became, by the deceaſe of his father, earl of Shafteſbury. But his own private affairs hindered him from attending the houſe of lords till the ſecond year of his peerage, when he was very earneſt to ſupport king William's meaſures, who was at that time projecting the grand alliance. So much was he in favour with king William, that he had the offer of ſecretary of ſtate; but his declining conſtitution would not allow him to accept it. Though he was diſabled from engaging in buſineſs, the king conſulted him on matters of very high importance; and it is pretty well know that he had the greateſt ſhare in compoſing that celebrated laſt ſpeech of king William, December 31. 1701. On Queen Anne's acceſſion to the throne, he returned to his retired manner of life, being no longer adviſed with concerning the public; and was then removed from the vice-admiralty of Dorſet, which had been in the family for three generations. In 1703, he made a ſecond journey to Holland, and returned to England the year following. The French prophets, ſoon after this, having by their enthuſiaſtic extravagancies made a great noiſe throughout the nation, and, among different opinions, ſome adviſing a proſecution, the lord Shafteſbury apprehended that ſuch meaſures tended rather to inflame than to cure the diſeaſe. This was the origin of his Letter concerning Enthuſiaſm, which he ſent to lord Somers, then preſident of the council; and which, being approved of by that nobleman and other gentlemen to whom it was ſhown, was publiſhed in 1708, tho' without the name of the author, or that of the perſon to whom it was addreſſed. His Moraliſt, a philoſophical Rhapſody, being a recital of certain converſations on natural and moral ſubjects, appeared in Jan. 1709; and in the May following his *Senſus Communis*, an Eſſay upon the Freedom of Wit and Humour, in a letter to a Friend. It was in the ſame year that he entered into the marriage ſtate with Mrs Jane Ewer, the youngeſt daughter of Thomas Ewer, Eſq; of Lee in Hertfordſhire. By this lady, to whom his lordſhip was related, he had an only ſon, Anthony the late Earl of Shafteſbury. In 1710, his Soliloquy, or Advice to an Author, was publiſhed at London in 8vo. While he was thus employing himſelf in literary compoſition, his health declined ſo faſt, that it was recommended to him to ſeek aſſiſtance from a warmer climate. Accordingly, in July 1711, he ſet out for Naples, and purſuing his journey by way of France, was obliged to paſs through the Duke of Berwick's army, which at that time lay encamped near the borders of Piedmont. Here he was entertained by that famous general in the moſt friendly manner, and every aſſiſtance was given him to conduct him in ſafety to the Duke of Savoy's dominions. Our noble author's removal to Italy was of no ſervice to the re-eſtabliſhment of his health; for after having reſided at Naples about a year and a half, he departed this life on the 4th of February, O. S. 1712-13, in the 42d year of his age. The only pieces which he finiſhed after he came to this city, were the Judgment of Hercules, and the Letter concerning Deſign, which laſt was added to that impreſſion of the Characteriſtics which appeared in 1732. It was in 1711 that the firſt edition was publiſhed of all the Characteriſtics together, and in the order in which they now ſtand. But this publication not being entirely to his lordſhip's ſatisfaction, he chiefly employed the latter part of his life in preparing his writings for a more elegant edition; which was given to the world in 1713, ſoon after his deceaſe. The ſeveral prints that were then firſt in-

interſperſed through the volumes were all invented by himſelf, and deſigned under his immediate inſpection; and for this purpoſe he was at the pains of drawing up a moſt accurate ſet of inſtructions, the manuſcript of which is ſtill preſerved in the family. That no miſtakes might be committed, the Earl did not leave to any other hands ſo much as the drudgery of correcting the preſs. In the three volumes of the Characteriſtics of Men, Manners, Opinions, and Times, he completed the whole of his works which he intended for the public eye. Not long before his death he had formed a ſcheme of writing a diſcourſe on painting, ſculpture, and the other arts of deſign, which, if he had lived to have finiſhed it, might have proved a very pleaſing and uſeful work, as he had a fine taſte in ſubjects of that kind: but his premature deceaſe prevented his making any great progreſs in the undertaking. The Earl of Shafteſbury had an eſteem for the works of the beſt Engliſh divines; one remarkable inſtance of which was diſplayed in his writing a Preface to a volume of Dr Whichcot's Sermons, publiſhed in 1698. Copies of theſe ſermons had been taken in ſhort-hand, as they were delivered from the pulpit; and the Earl had ſo high an opinion of them, that he not only introduced them to the world by his Preface, but had them printed under his own particular inſpection. In his Letters to a Young Man at the Univerſity, he ſpeaks of Biſhop Burnet and Dr Hoadly in terms of great applauſe, and has done juſtice to the merits of Tillotſon, Barrow, Chillingworth, and Hammond, as the chief pillars of the church againſt fanaticiſm. But whatever regard his lordſhip might have for ſome of the divines, it was to the writings of antiquity that his admiration was principally directed. Theſe were the conſtant objects of his ſtudy, and from them he formed his ſyſtem of philoſophy, which was of the civil, ſocial, and theiſtic kind.

Of Lord Shafteſbury's character as a writer, different repreſentations have been given. As one of his greateſt admirers may be mentioned Lord Monboddo; who, ſpeaking of his Rhapſodiſt in particular, does not heſitate to pronounce it not only the beſt dialogue in Engliſh, out of all degree of compariſon, but the ſublimeſt philoſophy; and if we will join with it the Inquiry, the completeſt ſyſtem both of morality and theology that we have in our language, and, at the ſame time, of the greateſt beauty and elegance for the ſtyle and compoſition.

Even ſeveral of the authors who have diſtinguiſhed themſelves by their direct oppoſition to many of the ſentiments which occur in the Characteriſtics, have nevertheleſs mixed no ſmall degree of applauſe with their cenſures. "I have again peruſed, with freſh pleaſure and freſh concern (ſays Mr Balguy, in his Letter to a Deiſt), the volumes of Characteriſtics—I heartily wiſh the noble author had been as unprejudiced in writing as I was in reading. If he had, I am perſuaded his readers would have found double pleaſure and double inſtruction. It ſeems to me, that his lordſhip had little or no temptation to purſue any ſingularities of opinion by way of diſtinction. His fine genius would ſufficiently have diſtinguiſhed him from vulgar authors in the high road of truth and good ſenſe; on which account his deviations ſeem the more to be lamented. The purity and politeneſs of his ſtyle, and the delicacy of his ſentiments, are and muſt be acknowledged by all readers of taſte and ſincerity. But nevertheleſs, as his beauties are not eaſy to be overlooked, ſo neither are his blemiſhes. His works appear to be ſtained with ſo many groſs errors, and his fine thoughts are ſo often mingled with abſurdities, that however we may be charmed with the one, we are forced to condemn the other." Mr Balguy hath farther obſerved, with regard to the Inquiry concerning Virtue, which is the immediate object of his animadverſion, that though he cannot agree in every particular contained in it, he finds little more to do than to tell how much he admires it; and that he thinks it indeed, in the main, a performance ſo juſt and exact as to deſerve higher praiſes than he is able to give it.

Dr Brown, in his Eſſay on the Characteriſtics, obſerves, that the Earl of Shafteſbury hath in that performance mingled beauties and blots, faults and excellencies, with a liberal and unſparing hand. At the ſame time, the Doctor applauds that generous ſpirit of freedom which ſhines throughout the whole. Another direct antagoniſt of the Earl of Shafteſbury, Dr Leland, has obſerved, that no impartial man will deny him the praiſe of a fine genius. "The quality of the writer (continues the Doctor), his lively and beautiful imagination, the delicacy of taſte he hath ſhown in many inſtances, and the graces and embelliſhments of his ſtyle, though perhaps ſometimes too affected, have procured him many admirers. To which may be added his refined ſentiments on the beauty and excellency of virtue, and that he hath often ſpoken honourably of a juſt and good Providence, which miniſters and governs the whole in the beſt manner; and hath ſtrongly aſſerted, in oppoſition to Mr Hobbes, the natural difference between good and evil; and that man was originally formed for ſociety, and the exerciſe of mutual kindneſs and benevolence; and not only ſo, but for religion and piety too. Theſe things have very much prejudiced many perſons in his favour, and prepared them for receiving, almoſt implicitly, whatever he hath advanced." Dr Johnſon, as we are informed by Sir John Hawkings, bore no good-will to Lord Shafteſbury; "neither did he ſeem at all to reliſh the cant of the Shafteſburian ſchool, nor inclined to admit the pretenſions of thoſe who profeſſed it, to taſtes and perceptions which are not common to all men; a taſte in morals, in poetry, and proſe writing, in painting, in ſculpture, in muſic, in architecture, and in government! A taſte that cenſured every production, and induced them to reprobate every effort of genius that fell ſhort of their own capricious ſtandard."

Biog, Brit. vol. iv.

The grand point in which our noble author has rendered himſelf juſtly obnoxious to the friends of religion, is his having interſperſed through the Characteriſtics a number of inſinuations that appear to be unfavourable to the cauſe of revelation. There have not, however, been wanting many among his admirers, who have thought that he ought not to be reckoned among the deiſtical writers. The author of Animadverſions upon Dr Brown's three Eſſays on the Characteriſtics obſerves, that it is "imprudent, to ſay no worſe, in ſome ſincere advocates for Chriſtianity, to reject the friendly advice and aſſiſtance of ſo maſterly a writer as the Lord Shafteſbury, and to give him up to the deiſts as a patron of infidelity." But it is matter of fact, and not conſiderations of prudence or imprudence, that muſt determine the queſtion. In ſupport of his Lordſhip's having been a believer in our holy religion, may be alleged, his Preface to Whichcot's Sermons, and his Letters to a Student at the Univerſity: in both which works he conſtantly expreſſes himſelf in ſuch language as ſeems to indicate that he was really a Chriſtian. And with regard to the Letters it may be remarked, that they were written in 1707, 1708, and 1709, not many years before his lordſhip's death. Nevertheleſs, there are in the Characteriſtics ſo many ſceptical paſſages, that he muſt be conſidered as having been a doubter at leaſt, if not an abſolute diſbeliever, with reſpect to revelation. But if he muſt be ranked amongſt the deiſts, we agree with the obſervation of one of his biographers, that he is a very different deiſt from numbers who have appeared in that character; his general principles being much leſs exceptionable.

The ſtyle of Lord Shafteſbury's compoſitions is alſo a point upon which various and contradictory ſentiments have been entertained. But for the fulleſt and moſt judicious criticiſm that has appeared upon that ſubject, we may refer the reader to Dr Blair's Lectures on Rhetoric and Belles Lettres, Vol. I. p. 192, 193, 207, 208, 234, 263, and 396—398.

COOPER (Samuel), a very eminent Engliſh miniature painter, born in 1609, and bred under the care of his uncle John Hoſkins. He derived, however, his principle excellence from a ſtudy of the works of Van Dyck, in whoſe time he lived; inſomuch that he was commonly ſtyled "Van Dyck in little." His pencil was chiefly confined to the head, in which, with all its dependencies, eſpecially the hair, he was inimitable; but if he deſcended lower, his incorrectneſs was notorious. He died in 1672; and his pieces are univerſally admired all over Europe, ſelling for incredible prices.—He had a brother, Alexander, likewiſe a good miniature painter, who became limner to Chriſtina queen of Sweden.

COOPER (Thomas), a pious and learned prelate in the reign of queen Elizabeth, was born at Oxford about the year 1517. He was educated in the ſchool adjoining to Magdalene college, of which he was a choiriſter; where alſo, in 1539, he was elected probationer, and fellow in the following year. About the year 1546, quitting his fellowſhip, he applied himſelf to the ſtudy of phyſic, in 1556 took the degree of bachelor in that faculty, and practiſed as phyſician at Oxford. Being inclined to the Proteſtant religion, probably this was only a prudent ſuſpenſion of his final intentions during the Popiſh reign of queen Mary: for, on the acceſſion of Elizabeth, he reſumed the ſtudy of divinity; became a celebrated preacher, was made dean of Chriſtchurch and vice chancellor of the univerſity, having accumulated the degrees of bachelor and doctor in divinity. In 1569 he was made dean of Glouceſter; and, the year following, biſhop of Lincoln: whence, in 1584, he was tranſlated to the ſee of Wincheſter; in which city he died on the 29th of April 1594, and was buried in the cathedral there, on the ſouth ſide of the choir. The ſeveral writers who have mentioned Dr Cooper, unanimouſly give him the character of an eloquent preacher, a learned divine, and a good man. He had the misfortune while at Oxford to marry a lady whoſe gallantries became notorious: nevertheleſs he would not be divorced from her; knowing that he could not live without a wife, he did not chooſe "to charge his conſcience with the ſcandal of a ſecond marriage."—He wrote, 1. The Epitome of Chronicles from the 17th year after Chriſt to 1540, and thence after to 1560. 2. Theſaurus linguæ Romanæ et Britannicæ. This dictionary, which is an improvement upon Elyot's, was much admired by queen Elizabeth, who thence forward determined to promote the author. 3. A brief expoſition of ſuch chapters of the Old Teſtament as uſually are read in the church, at common prayer, on Sundays throughout the year. 4. An admonition to the people of England. 5. Sermons.

COOPER (John-Gilbert), a polite writer of the preſent age, was born in 1723; and was deſcended from an ancient family in the county of Nottingham, whoſe fortune was injured in the laſt century by their attachment to the principles of monarchy. He reſided at Thurgarton priory in Nottinghamſhire, which was granted by King Henry VIII. to William Cooper, one of his anceſtors. This manſion Mr Cooper inherited from his father, who in 1739 was high-ſheriff of the county; and tranſmitted it to his ſon, who filled the ſame reſpectable office in 1783. After paſſing through Weſtminſter ſchool under Dr John Nicoll, along with the late Lord Albemarle, Lord Buckinghamſhire, Major Johnſon, Mr George Aſhby, and many other eminent and ingenious men, he became in 1743 a Fellow-Commoner of Trinity-college, Cambridge, and reſided there two or three years; but quitted the univerſity on his marrige with Suſanna the daughter of William Wrighte, Eſq; ſon to the Lord Keeper of that name, and Recorder of Leiceſter 1729—1763. In the year 1745 he commenced author by the publication of The Power of Harmony, a poem in 4to; and in 1746 and 1747 he produced ſeveral Eſſays and Poems under the ſignature of Philalethes, in a periodical work called The Muſeum, publiſhed by Mr Dodſley. In the ſame year he came forward as an author, with his name, by a work which received much aſſiſtance from his friend the Reverend John Jackſon of Leiceſter, who communicated ſeveral learned notes, in which he contrived to manifeſt his diſlike to his formidable antagoniſt Mr Warburton. It was intitled The Life of Socrates, collected from the Memorabilia of Xenophon and the Dialogues of Plato, and illuſtrated farther by Ariſtotle, Diodorus Siculus, Cicero, Proclus, Apuleius, Maximus Tyrius, Boëthius, Diogenes Laërtius, Aulus Gellius, and others, 1749, 8vo. In this work Mr Cooper gave evident marks of ſuperior genius; warm, impetuous, and impatient of reſtraint. In 1754, Mr Cooper publiſhed his Letters on Taſte, 8vo; an elegant little volume, on which no ſmall ſhare of his reputation is founded; and in 1755, The Tomb of Shakeſpeare, a Viſion, 4to; a decent performance, but in which there is more of wit and application than of nature or genius. In 1756 he aſſiſted Mr Moore, by writing ſome numbers of The World; and attempted to rouſe the indignation of his countrymen againſt the Heſſians, at that juncture brought over to defend the nation, in a poem called The Genius of Britain, addreſſed to Mr Pitt. In 1758, he publiſhed Epiſtles to the Great, from Ariſtippus in Retirement, 4to; and The Call of Ariſtippus, Epiſtle IV. to Mark Akenſide, M. D. Alſo, A Father's Advice to his Son, in 4to.

In the Annual Regiſter of the ſame year is his Tranſlation of An Epiſtle from the King of Pruſſia to Monſieur Voltaire. In 1759, he publiſhed Ver Vert; or, the Nunnery Parrot; an Heroic Poem, in four cantos; inſcribed to the Abbeſs of D***; tranſlated from the French of Monſieur Greſſet, 4to; reprinted in the firſt volume of Dilly's Repoſitory, 1777; and, in 1764, Poems on ſeveral Subjects, by the Author of the Life of Socrates; with a prefatory Advertiſement by Mr Dodſley. In this little volume were included all the ſeparate poetical pieces which have been already mentioned, excepting Ver Vert, which is a ſprightly compoſition. Mr Cooper died at his father's houſe in May-Fair, after a long and excruciating illneſs ariſing from the ſtone, April 14. 1769.

CO-ORDINATE, ſomething of equal order, rank, or degree, with another.

COOT, in ornithology. See FULICA.

COOTWICH (John), doctor of laws, was born at Utrecht, and ſpent great part of his life in travelling. He publiſhed in Latin, in 1619, an account of his journey from Jeruſalem and from Syria; which is very ſcarce and in high eſteem. Time of his death uncertain.

COPAIBA, or *Balſam of* COPAIBA, a liquid reſinous juice, flowing from inciſions made in the trunk of the copaifera balſamum. See the following article. This juice is clear and tranſparent, of a whitiſh or pale yellowiſh colour, an agreeable ſmell, and a bitteriſh pungent taſte. It is uſually about the conſiſtence of oil, or a little thicker: when long kept, it becomes nearly as thick as honey, retaining its clearneſs; but has not been obſerved to grow dry or ſolid, as moſt of the other reſinous juices do. We ſometimes meet with a thick ſort of balſam of copaiba, which is not at all tranſparent, or much leſs ſo than the foregoing, and generally has a portion of turbid watery liquor at the bottom. This ſort is probably either adultered by the mixture of other ſubſtances, or has been extracted by coction from the bark and branches of the tree: its ſmell and taſte are much leſs pleaſant than thoſe of the genuine balſam. Pure balſam of copaiba diſſolves entirely in rectified ſpirit, eſpecially if the menſtruum be previouſly alkalized: the ſolution has a very fragrant ſmell. Diſtilled with water, it yields a large quantity of a limpid eſſential oil; and in a ſtrong heat, without addition, a blue oil.

The balſam of copaiba is an uſeful corroborating detergent medicine, accompanied with a degree of irritation. It ſtrengthens the nervous ſyſtem, tends to looſen the belly, in large doſes proves purgative, promotes urine, and cleanſes and heals exulcerations in the urinary paſſages, which it is ſuppoſed to perform more effectually than any of the other balſams. Fuller obſerves, that it gives the urine an intenſely bitter taſte, but not a violet ſmell as the turpentines do.

This balſam has been principally celebrated in gleets and the fluor albus, and externally as a vulnerary. The author abovementioned recommends it likewiſe in dyſenteries, in ſcorbutic cachexies, in diſeaſes of the breaſt and lungs, and in an acrimonious or putreſcent ſtate of the juices: he ſays, he has known very dangerous coughs, which manifeſtly threatened a conſumption, cured by the uſe of this balſam alone; and that, notwithſtanding its being hot and bitter, it has good effects even in hectic caſes. Moſt phyſicians ſeem now, however, to conſider balſams and reſins too ſtimulant to be ventured on in phthiſical affections.

The doſe of this medicine rarely exceeds 20 or 30 drops, though ſome direct 60 or more. It may be conveniently taken in the form of elæoſaccharum, or in that of an emulſion, into which it may be reduced by triturating it with almonds, or rather with a thick mucilage of gum-arabic, till they are well incorporated, and then gradually adding a proper quantity of water.

COPAIFERA, in botany: A genus of the monogynia order, belonging to the decandria claſs of plants; and in the natural method ranking under thoſe of which the order is doubtful. There is no calyx; there are four petals; the legumen ovate; one ſeed with an arillus or coat reſembling a berry. We know but of one ſpecies, the balſamum, being that which yields the copaiba balſam mentioned in the preceding article. This trees grow near a village called *Ayapel*, in the province of Antiochi, in the Spaniſh Weſt Indies about ten days journey from Carthagena. There are great numbers of theſe trees in the woods about this village, which grow to the height of 50 or 60 feet. Some of theſe trees do not yield any of the balſam; thoſe which do, are diſtinguiſhed by a ridge which runs along their trunks. Theſe trees are wounded in the centre, and they place calabaſh ſhells, or ſome other veſſels, to the wounded part to receive the balſam, which will all flow out in a ſhort time. One of theſe trees will yield five or ſix gallons of balſam: but tho' they will thrive well after being tapped, yet they never afford any more balſam.

COPAL, improperly called *gum copal*, is a gum of the reſinous kind brought from New Spain, being the concrete juice of a tree * which grows in theſe parts. It comes to us in irregular maſſes, ſome of which are tranſparent, and of different ſhades as to colour, from a light yellow to a deep brown. Some pieces are whitiſh and ſemitranſparent. To the ſmell it is more agreeable than frankincenſe: but hath neither the ſolubility in water common to gums, nor in ſpirit of wine common to reſins, at leaſt in any conſiderable degree. By theſe properties it reſembles amber; which has induced ſome to think it a mineral bitumen reſembling that ſubſtance. In diſtillation it yields an oil, which like mineral petrolea is indiſſoluble in ſpirit of wine. Copal itſelf is ſoluble in the eſſential oils, particularly in that of lavender, but not eaſily in the expreſſed ones. It may, however, be diſſolved in linſeed oil by digeſtion, with a heat very little leſs than is ſufficient to boil or decompoſe the oil. This ſolution, diluted with ſpirit of turpentine, forms a beautiful tranſparent varniſh, which when properly applied, and ſlowly dried, is very hard and durable. This varniſh is applied to ſnuff-boxes, tea-boards, and other utenſils. It preſerves and gives luſtre to paintings, and greatly reſtores the decayed colours of old pictures, by filling up the cracks and rendering the ſurfaces capable of reflecting light more uniformly.

COPARCENARY, the ſhare or quota of a coparcener.

COPARCENERS, (from *con* and *particeps*, "partner;"), or PARCENERS; ſuch as have equal portions in the inheritance of their anceſtor.

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* *Rhus Copallinum.*

Coparceners are ſo either by law or cuſtom. Coparceners by law, are the iſſue female; which, in default of a male heir, come equally to the lands of their anceſtor. Coparceners by cuſtom, are theſe who, by ſome peculiar cuſtom of the country, challenge equal parts in ſuch lands; as in Kent, by the cuſtom of gavelkind. The crown of England is not ſubject to coparcenary.

COPE, an eccleſiaſtical ornament, uſually worn by chanters and ſubchanters, when they officiate in ſolemnity. It reaches from the ſhoulders to the feet. The ancients called it *pluviale*.—The word is alſo uſed for the roof or covering of a houſe, &c.

Cope is alſo the name of an ancient cuſtom or tribute due to the king or lord of the ſoil, out of the lead-mines in ſome part of Derbyſhire, England; of which Manlove ſaith thus:

> Egreſs and regreſs to the king's highway,
> The miners have; and *lot* and *cope* they pay:
> The thirteenth diſh of ore within their mine,
> To the lord, for *lot*, they pay at meaſuring time;
> Sixpence a load for *cope* the lord demands,
> And that is paid to the *burghmaſter's* hands.

This word by doomſday-book, as Mr Hagar hath interpreted it, ſignifies a hill: and *cope* is taken for the ſupreme cover, as the *cope of heaven*.

COPEL. See Cupel.

COPENHAGEN, the capital of the kingdom of Denmark, ſituated on the eaſtern ſhore of the iſland of Zealand, upon a fine bay of the Baltic ſea, not far from the ſtrait called the *Sound*. E. Long. 13. 0. N. Lat. 55. 30.

The preciſe date of the foundation of this city is diſputed; but the moſt probable account is, that it took its riſe from a caſtle built on the ſpot in the year 1168, as a protection againſt the pirates which at that time ſwarmed in the Baltic. The conveniency of the ſituation, and the ſecurity afforded by the caſtle, ſoon induced a number of the inhabitants of Zealand to reſort thither: but it was not diſtinguiſhed by the royal reſidence until 1443, during the reign of Chriſtopher of Bavaria; ſince which period it has been gradually enlarged and beautified, and is become the capital of Denmark.

Copenhagen is the beſt built city of the north; for although Peterſburgh excels it in ſuperb edifices, yet, as it contains no wooden houſes, it does not diſplay that ſtriking contraſt of meanneſs and magnificence, but in general exhibits a more equable and uniform appearance. The town is ſurrounded towards the land with regular ramparts and baſtions, a broad ditch full of water, and a few outworks: its circumference meaſures between four and five miles. The ſtreets are well paved, with a foot-way on each ſide, but too narrow and inconvenient for general uſe. The greateſt part of the buildings are of brick; and a few are of free-ſtone brought from Germany. The houſes of the nobility are in general ſplendid, and conſtructed in the Italian ſtyle of architecture: the palace, which was erected by Chriſtian VI. is a large pile of building; the front is of ſtone, and the wings of brick ſtuccoed; the ſuite of apartments is princely; but the external appearance is more grand than elegant.

The buſy ſpirit of commerce is viſible in this city, which contains about 80,000 inhabitants. The haven is always crowded with merchant ſhips; and the ſtreets are interſected by broad canals, which bring the merchandize cloſe to the warehouſes that line the quays. This city owes its principal beauty to a dreadful fire in 1728, that deſtroyed five churches and 67 ſtreets, which have been ſince rebuilt in the modern ſtyle. The new part of the town, raiſed by the late King Frederic V. is extremely beautiful, ſcarcely inferior to Bath. It conſiſts of an octagon, containing four uniform and elegant buildings of hewn ſtone, and of four broad ſtreets leading to it in oppoſite directions. In the middle of the area ſtands an equeſtrian ſtatue of Frederic V. in bronze, as big as life, which coſt 80,000l. The Royal Muſeum, or Cabinet of Rarities, merits the attention of travellers. This collection, which was begun by Frederic III. is depoſited in eight apartments, and ranged in the following order: animals, ſhells, minerals, paintings, antiquities, medals, dreſſes, arms and implements of the Laplanders.

Part of Copenhagen, which is called *Chriſtianſhafen*, is built upon the Iſle of Amak, which generally attracts the curioſity of foreigners; (ſee Amak). From this place, to which the main city is joined by a bridge, the markets are ſupplied with fowl, beef, mutton, veniſon, corn, and culinary vegetables, which are produced here in the greateſt abundance.

COPERNICAN, in general, ſomething belonging to Copernicus. Hence,

Copernican Syſtem or *Hypotheſis*, that ſyſtem of the world, wherein the ſun is ſuppoſed to reſt in the centre, and the planets, with the earth, to move in ellipſes round him. See Copernicus.

COPERNICUS (Nicolaus), an eminent aſtronomer, was born at Thorn in Pruſſia, Jan. 10. 1472. He was taught the Latin and Greek languages at home; and afterwards ſent to Cracovia, where he ſtudied philoſophy and phyſic. His genius in the mean time was naturally turned to mathematics, which he purſued through all its various branches. He ſet out for Italy when he was 23 years of age; but ſtaid at Bononia ſome time, for the ſake of being with the celebrated aſtronomer of that place, Dominicus Maria; whoſe converſation, however, and company, he affected, not ſo much as a learner, as an aſſiſtant to him in making his obſervations. From thence he paſſed to Rome, where he was no ſooner arrived than he was conſidered as not inferior to the famous Regiomontanus; and acquired in ſhort ſo great a reputation, that he was choſen profeſſor of mathematics, which he taught for a long time with great applauſe. He alſo made ſome aſtronomical obſervations there about the year 1500. Returning to his own country ſome years after, he began to apply his vaſt knowledge in mathematics to correct the ſyſtem of aſtronomy which then prevailed. He ſet himſelf to collect all the books which had been written by philoſophers and aſtronomers, and to examine all the various hypotheſes they had invented for the ſolution of the celeſtial phenomena; to try if a more ſymmetrical order and conſtitution of the parts of the world could not be diſcovered, and a more juſt and exquiſite harmony in its motions eſtabliſhed, than what the aſtronomers of theſe times ſo eaſily admitted. But of all their hypotheſes none pleaſed him ſo well as the Pythagorean, which made the ſun to be the centre of the ſyſtem, and ſuppoſed the earth to move not only round the ſun, but round its own axis alſo. He thought he diſcerned much beautiful order and proportion in this; and that all that embarraſſment and perplexity from epicycles and excentrics, which attended the Ptolemaic hypotheſis, would here be entirely removed.

This ſyſtem, then, he began to conſider, and to write upon, when he was about 35 years of age. He employed himſelf in contemplating the phenomena carefully; in making mathematical calculations; in examining the obſervations of the ancients, and in making new ones of his own; and after more than 20 years chiefly ſpent in this manner, he brought his ſcheme to perfection, and eſtabliſhed that ſyſtem of the world which goes by his name, and is now univerſally received, (ſee Astronomy, n° 22.) His ſyſtem, however, was then looked upon as a moſt dangerous hereſy: for which he was thrown into priſon by Pope Urban VIII. and not ſuffered to come out till he had recanted his opinion; that is, till he had renounced the teſtimony of his ſenſes. He died the 24th of May 1543, in the 70th year of his age.

This extraordinary man had been made canon of Worms by his mother's brother, Lucas Wazelrodius, who was biſhop of that place. He was not only the greateſt of aſtronomers, but a perfect maſter of the Greek and Latin tongues; to all which he joined the greateſt piety and innocence of manners.

Copernicus, the name of an aſtronomical inſtrument invented by Mr Whiſton, to exhibit the motion and phenomena of the planets, both primary and ſecondary. It is built upon the Copernican ſyſtem, and for that reaſon called by his name.

COPHTI, Cophts, or Copti, a name given to the Chriſtians of Egypt, who are of the ſect of Jacobites.

The critics are extremely divided about the origin and orthography of the word; ſome write it Cophti, others Cophtites, Cophtitæ, Copts, &c. Scaliger derives the name from Coptos, an anciently celebrated town of Egypt, the metropolis of the Thebaid. Kircher refutes this opinion, and maintains, that the word originally ſignifies "cut" and "circumſcribed;" and was given theſe people by the Mahometans, by way of reproach, becauſe of their practice of circumciſing: but P. Sollier, another Jeſuit, refutes this opinion. Scaliger afterwards changed his opinion, and derived the word from Αιγυπτος, the ancient name of Egypt, by retrenching the firſt ſyllable: but this opinion, too, P. Sollier diſputes. John de Leo and others ſay, that the Egyptians anciently called their country *Elchibth*, or *Cibth*, from Cibth their firſt king, whence Cophtite, &c. others ſay from Cobtim ſecond king of Egypt. Vanſleb derives the word Copht from Copt ſon of Miſraim, grandſon of Noah. All theſe etymologies P. Sollier rejects, on this principle, that were they true, the Egyptians ought all equally to be called *Cophti*; whereas, in effect, none but the Chriſtians, and among thoſe none but the Jacobites, bear the name, the Melchites not being comprehended under it. Hence he chooſes to derive the word from the name *Jacobite*, retrenching the firſt ſyllable; whence, Cobite, Cobea, Copta, and Cophta.

The Cophts have a patriarch who reſides at Cairo, but he takes his title from Alexandria; he has no archbiſhop under him, but 11 or 12 biſhops. The reſt of the clergy, whether ſecular or regular, is compoſed of the orders of St Anthony, St Paul, and St Macarius, who have each their monaſteries. Beſides the orders of prieſts, deacons, and ſubdeacons, the Cophts have likewiſe archimandrites, the dignity whereof they confer with all the prayers and ceremonies of a ſtrict ordination. This makes a conſiderable difference among the prieſts; and beſides the rank and authority it gives them with regard to the religious, it comprehends the degree and functions of archprieſts. By a cuſtom of 600 years ſtanding, if a prieſt elected biſhop be not already archimandrite, that dignity muſt be conferred on him before epiſcopal ordination. The ſecond perſon among the clergy, after the patriarch, is the titular patriarch of Jeruſalem, who alſo reſides at Cairo, becauſe of the few Cophts at Jeruſalem; he is, in effect, little more than the biſhop of Cairo: only he goes to Jeruſalem every Eaſter, and viſits ſome other places in Paleſtine near Egypt, which own his juriſdiction. To him belongs the government of the Cophtic church, during the vacancy of the patriarchal ſee.

To be elected patriarch, it is neceſſary the perſon have lived all his life in continence: it is he confers the biſhoprics. To be elected biſhop, the perſon muſt be in the celibate; or, if he have been married, it muſt not be above once. The prieſts and inferior miniſters are allowed to be married before ordination; but are not obliged to it, as Ludolphus erroneouſly obſerves. They have a great number of deacons, and even confer the dignity frequently on children. None but the loweſt rank among the people commence eccleſiaſtics; whence ariſes the exceſſive ignorance found among them: yet the reſpect of the laity towards the clergy is very extraordinary. Their office is longer than the Roman office, and never changes in any thing: they have three liturgies, which they vary occaſionally.

The monaſtic life is in great eſteem among the Cophts: to be admitted into it, there is always required the conſent of the biſhop. The religious Cophts make a vow of perpetual chaſtity; renounce the world, and live with great auſterity in deſerts: they are obliged to ſleep in their clothes and their girdle, on a mat ſtretched on the ground; and to proſtrate themſelves every evening 150 times, with their face and breaſt on the ground. They are all, both men and women, of the loweſt claſs of the people; and live on alms. The nunneries are properly hoſpitals; and few enter but widows reduced to beggary.

F. Roderic reduces the errors and opinions of the Cophts to the following heads: 1. That they put away their wives, and eſpouſe others while the firſt are living. 2. That they have ſeven ſacraments; viz. baptiſm, the euchariſt, confirmation, ordination, faith, faſting, and prayer. 3. That they deny the Holy Spirit to proceed from the Son. 4. That they only allow of three œcumenical councils; that of Nice, Conſtantinople, and Epheſus. 5. That they only allow of one nature, will, and operation, in Jeſus Chriſt, after the union of the humanity with the divinity. For their errors in diſcipline, they may be reduced, 1. To the practice of circumciſing their children before baptiſm, which has obtained among them from the 12th century. 2. To their ordaining deacons at five years of age.

3. To their allowing of marriage in the ſecond degree. 4. To their forbearing to eat blood: to which ſome add their belief of a baptiſm by fire, which they confer by applying a hot iron to their forehead or cheeks. —Others palliate theſe errors, and ſhow that many of them are rather abuſes of particular perſons than doctrines of the ſect. This ſeems to be the caſe with regard to their polygamy, eating of blood, marrying in the ſecond degree, and the baptiſm of fire: for circumciſion, it is not practiſed as a ceremony of religion, nor as of any divine appointment, but merely as a cuſtom which they derive from the Iſhmaelites; and which, perhaps, may have had its origin from a view to health and decency in thoſe hot countries.

The Cophts, at different times, have made ſeveral re-unions with the Latins; but always in appearance only, and under ſome neceſſity of their affairs. In the time of Pope Paul IV. a Syrian was diſpatched to Rome from the Patriarch of Alexandria, with letters to that pope; wherein he acknowledged his authority, and promiſed obedience; deſiring a perſon might be diſpatched to Alexandria, to treat about a re-union of his church to that of Rome: purſuant to which, Pius IV. ſucceſſor to Paul, choſe F. Roderic, a Jeſuit, whom he diſpatched in 1561, in quality of apoſtolical nuncio. But the Jeſuit, upon a conference with two Cophts deputed for that purpoſe by the patriarch, was made to know, that the titles of father of fathers, paſtor of paſtors, and maſter of all churches, which the patriarch had beſtowed on the pope in his letters, were no more than mere matters of civility and compliment; and that it was in this manner the patriarch uſed to write to his friends: they added, that ſince the council of Chalcedon, and the eſtabliſhment of ſeveral patriarchs independent of one another, each was chief and maſter of his own church. This was the anſwer the patriarch gave the pope, after he had received a ſum of money remitted to him from Rome, by the hands of the Venetian conſul.

COPHTIC, or Coptic, the language of the Cophts, the ancient language of the Egyptians, mixed with a great deal of Greek, the characters it is written in being all Greek. It has a form and conſtruction peculiar to itſelf: it has no inflections of the nouns or verbs; but expreſſes number, caſe, gender, perſon, mood, tenſe, and poſſeſſive pronouns, by letters and particles prefixed.

F. Kircher is the firſt who publiſhed a grammar and vocabulary of the Cophtic. There is not known any book extant in the Cophtic, except tranſlations of the Holy Scriptures, or of eccleſiaſtical offices; or others that have relation thereto, as dictionaries, &c.

The ancient Cophtic is now no longer found but in books; the language now uſed throughout the country is Arabic. The old Cophtic, which Kircher maintains to be a mother-tongue, and independent of all others, had been much altered by the Greek: for beſides that it has borrowed all its characters from the Greek, with a very little variation, a great number of the words are pure Greek. Voſſius, indeed, aſſerts, that there was no Cophtic language till after Egypt became ſubject to the Arabs. The language, according to him, is a mixture of Greek and Arabic: the very name thereof not being in the world till after the Arabs were maſters of the country. But this, M. Simon obſerves, proves nothing; except that what was anciently called *Egyptian*, has ſince by the Arabs been called *Cophtic*, by a corruption of ſpeech. There are, it is true, Arabic words in the Cophtic; yet this by no means proves but that there was a language before that time, either Cophtic or Egyptian. Pietro de la Valle obſerves, that the Cophts have entirely loſt their ancient tongue; that it is now no longer underſtood among them; that they have nothing extant therein but ſome ſacred books; and that they ſtill ſay maſs in it.

All their other books have been tranſlated into Arabic, which is their vulgar tongue; and this has occaſioned the originals to be loſt: it is added, that they rehearſe the epiſtles and goſpels in the maſs twice; once in Arabic and once in Cophtic. Indeed, if we believe F. Vanſleb, the Cophts ſay the maſs in Arabic, all but the epiſtles and goſpels, which they rehearſe both in that and Cophtic.

Cophtic Bible. See Bible.

Cophtic Liturgies are three; one attributed to Baſil, another to St Gregory, and the third to Cyril: they are tranſlated into Arabic for the uſe of the prieſts and people.

COPIATA, under the weſtern empire, a grave-digger. In the firſt ages of the church there were clerks deſtined for this employment. In the year 357, Conſtantine made a law in favour of the prieſts copiatæ, *i. e.* of thoſe who had the care of interments; whereby he exempts them from the luſtral contribution which all other traders paid. It was under him alſo that they firſt began to be called *copiatæ*, q. d. clerks deſtined for bodily labour, from κοπος, or κοπω, *ſcindo, cædo, ferio,* "I cut, beat," &c. Before that time they were called *decani* and *lecticarii;* perhaps becauſe they were divided by decads or tens, each whereof had a bier or litter for the carriage of the dead bodies. Their place among the clerks was the next in order before the chantors.

COPING *of a wall,* the top or cover of a wall, made ſloping to carry off the water.

Coping over, in carpentry, a ſort of hanging over, not ſquare to its upright, but bevelling on its under ſide till it end in an edge.

COPIST, in diplomatic ſcience, ſignifies a tranſcriber or copier of deeds, books, &c.

COPPA, in law, a cop or cock of graſs, hay, or corn, divided into titheable portions; as the tenth cock, &c. This word in ſtrictneſs denotes the gathering or laying up the corn in cops or heaps, as the method is for barley or oats, &c. not bound up, that it may be the more fairly and juſtly tithed: and in Kent in England they ſtill retain the word, a *cop* or *cap* of hay, ſtraw, &c.

COPPEL. See Cupel.

COPPER, the fineſt of the imperfect metals, called by the alchemiſts *Venus,* on account of its facility of uniting with a great number of different metallic ſubſtances. Its colour, when pure, is pale red, and its ſpecific gravity from 8.7 to 9.3, which depends not only on its degree of purity, but alſo on its condenſation by hammering. The ſpecific gravity of Japan copper is to water as 9000 to 1000; but that of the Swediſh kinds only 8784 or 8843.---The colour, when clean, is very brilliant, but it is extremely liable to tarniſh. It has a diſagreeable ſmell, very perceptible on friction or on being heated: its taſte is ſtiptic and nauſeous, but leſs perceptible than that of iron. Its tenacity, ductility, and hardneſs, are very conſiderable, and its elaſticity ſuperior to that of any other metal except ſteel. From this laſt quality maſſes of the metal emit a loud and laſting ſound when ſtruck; and this more eſpecially when caſt into a proper form, viz. ſuch an one as may make the metal vibrate in the moſt ſimple manner poſſible. Thus, if caſt into the hollow form of a bell, without any cracks or imperfections, an uniform tone will be produced by it; or at leaſt the tones produced by a ſtroke will conſiſt of a ſingle predominant one, and of others that have an agreement with it. When broken by often bending backward and forward, it appears internally of a dull red colour without any brightneſs, and of a fine granulated texture; not ill reſembling, as Cramer obſerves, ſome kinds of earthen ware. It continues malleable in a red heat, and in this ſtate extends much more eaſily than when cold; but has not that valuable quality of iron, by which two pieces cohere together when heated to a great degree. In a heat far below ignition, the ſurface of a piece of poliſhed copper becomes covered with various ranges of priſmatic colours; the red of each order being neareſt to the end which has been moſt heated. Reduced to a fine powder, or even to filings, and thrown acroſs a flame, it produces blue or green colours, whence its uſe in fireworks. It requires a fierce heat to melt it; leſs, according to Mr Wedgewood, than gold or ſilver*, but more according to ſome other metallurgiſts.—It is remarkably impatient of moiſture when in a ſtate of fuſion, and the contact even of a very ſmall quantity of water will cauſe a vaſt maſs of melted metal to be thrown about with incredible violence, to the imminent danger not only of the byſtanders but even of the ſtrongeſt furnaces and buildings. Effects of this kind are ſaid to have been produced by ſo ſlight a cauſe as the workman ſpitting in a furnace full of melted copper.

Copper is found in the bowels of the earth in the following ſtates.

1 Native copper.

I. Native copper, having the red colour, the malleability, and all the other properties of the metal. It is diſtinguiſhed, ſays Mr Fourcroy, into two kinds; copper of the firſt formation, and copper of the ſecond formation or cementation. The copper of the firſt formation is diſperſed in laminæ or fibres, in gangue almoſt always quartzoſe; ſome of its cryſtals reſemble a kind of vegetation, but other ſpecimens are in maſſes or grains. Copper of cementation is commonly in grains or ſuperficial laminæ, on ſtones or on iron: this laſt appears to have been depoſited in waters containing vitriol of copper which has been precipitated by iron. Native copper is found in many places of Europe; particularly in various parts of Scotland, England, and Wales; at St Bell in Lyons; at Norberg in Sweden, and Newſol in Hungary. It it is alſo to be met with in ſeveral parts of America.—Mr Kirwan ſays, it is met with either of its own peculiar colour or blackiſh or grey; and that either in grains or in large ſhapeleſs ſolid lumps; in a foliated, capillary, or arboreſcent form, or cryſtallized in quadrangular pyramids, in or on clay, chiſtus, quartz, fluors zeolytes, &c. He accounts for its origin by ſuppoſing it to have been originally precipitated by iron from waters which held it in ſolution, which is the pureſt ſort: but in many caſes it could not have been produced in that manner; and then this ſort is never very pure, but mixed with gold, ſilver, or iron, or with ſulphur; which laſt combination is called *black copper*.

2 Where found.

Native copper is found in very conſiderable quantities at Cape Lizard in Cornwall: it is formed into threads or branches, and lies in veins of ſome thickneſs, contained in blackiſh ſerpentine mixed with browniſh red, and covered externally with a greeniſh nephrites, partly adherent to it and partly looſe. Native copper, in large lumps, has alſo been found in the ſame rocks: but a more conſiderable quantity is found at Huel Virgin in the ſame county. Here it ſhoots into various branches and in various directions: the pieces ſeem to be formed of ſmall rhomboidal cryſtals interſperſed with quartz, the impreſſions of which are to be ſeen in the copper itſelf; from whence we might conclude that the quartz exiſted before the metal. Some of theſe lumps of native copper have been found in this ſpot that weighed from 20 to 30 pounds; and in the month of March 1785 there were no leſs than 28 millions of pounds of rich copper ore extracted from this mine. At a place called *Catarrach*, contiguous to Huel Virgin, ſome cryſtallized native copper has been found, with the tranſparent vitreous copper ore, to be afterwards mentioned, cryſtallized in octahedrons of a ruby colour; though the latter now begins to be very ſcarce. Near this place alſo a compact native copper is found in lumps of a ſpherical form; the copper either ſtill in its metallic form, or beginning to be transformed into red copper-glaſs, imbedded in decayed granite. Native copper of a tender and moſs-like form, united to vitreous ruby copper ore, cryſtallized in rhombs, is found in the clifts of the mountains compoſed of killas, near Poldry.—An indurated iron-clay has lately been found under the ſurface of the ſea in the Faro iſles, in which there is ſcattered a zeolite with native copper.

3 Different ores mineralized with fixed air.

II. Mineralized by fixed air; of which there are ſeveral varieties. 1. Red copper, or hepatic ore of copper. This is known by its red duſky colour, ſimilar to that of the ſcales beat off from copper by hammering. It is ſeldom met with, and then is generally mixed with native copper and mountain green. Sometimes it is cryſtallized in octahedrons or ſilky fibres, and is called *flowers of copper*. Mr Kirwan ſays, that it is ſometimes met with in a looſe form, and generally called *copper ochre*; but is uſually of a moderate hardneſs, though brittle; ſometimes cryſtallized and tranſparent, either in a capillary form, or in cubes, priſms, or pyramids; it effervesces with acids, and is found in Scotland, England, and Germany. According to Mr Fontana, 100 parts of it contain 73 of copper, 26 of fixed air, and one of water. Mr Kirwan diſtinguiſhes the hepatic ore as being of a brown colour. It "contains a variable proportion of iron or pyrites, and ſometimes ſulphurated copper; and hence affords from 20 to 50 *per cent.* of copper. It is often *irideſcent*" (we ſuppoſe ſhowing the colours of the rainbow). 2. Earthy copper, mountain-green, green chryſocolla or malachite. The laſt, according to Mr Kirwan, looks like

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* See *Chemiſtry*, n° 104.

4 Mountain green.

green jaſper, but leſs hard, and does not ſtrike fire with ſteel, is of a radiated or equable texture, generally of an oval form, and the ſize of an egg, but ſometimes forming capillary filaments. Mutchenbrook fixes its ſpecific gravity from 3.5 to 3.994. It is ſometimes mixed with calcareous earth and gypſum. According to Mr Fontana, 100 parts of the pureſt ſort contain 75 of copper and 25 of aerial acid and water. Mountain green is generally found in a looſe and friable ſtate, rarely cryſtallized and indurated, often mixed with calcareous earth, iron, and ſome arſenic. An hundred parts of the pureſt kind contain 72 of copper, 22 of aerial acid, and 6 of water.

A compact green copper ore, like malachite, mixed with grey copper ore, and likewiſe green velvet-like copper in the form of bunches, are found at Huel Virgin in Cornwall. At Carrarach, in the ſame county, is found alſo an amorphous green copper ore, on a decayed granite; and at St Menan, the ſame is found ſtratified betwixt quartz, and covered with a browniſh iron. Cronſtedt informs us, that both the green and blue colours of copper ores depend on a menſtruum, and therefore may be often edulcorated or waſhed away. In Saalfield they find alſo a ſort of green, ſomewhat indurated, calcareous ſubſtance, containing copper: this, when broken, looks fat, and ſomewhat ſhining; but, upon the whole, it reſembles a jaſper. It is there very improperly called a *green copper glaſs-ore*. Good copper is made of it; and, with a phlogiſtic ſubſtance, without being uſtulated, it forms a kind of bell-metal fit for being employed for that purpoſe.

5 Malachite.

The malachite, according to Mr Fourcroy, is frequently found in Siberia, compoſing beds, ſome of which repreſent nipples of various magnitudes. Some ſpecimens are compoſed of needles, converging towards a common centre. The grain of malachite is ſufficiently hard to take a fine poliſh, and is therefore formed into toys of different kinds; but as it is frequently porous and full of unequal cavities, the ſolid pieces of a certain ſize are reckoned valuable. The ſtrata in which it is found are often of different ſhades of green. The mountain green is a true ochre of copper, of a more or leſs deep green, not heavy, and unequally diſtributed on its gangue: it appears to be combined with the cretaceous acid. There are two varieties beſides the malachite, *viz.* the ſimple mountain green, and that which is cryſtallized, or the ſilky copper ore of China. It is common in the Hartz, and likewiſe in China. It is very pure, and cryſtallized in long ſilky bundles of conſiderable ſolidity. To theſe three ſtates, ſays Mr Fourcroy, we may add a beautiful green ſand, brought by M. Dombey from Peru, which appears to be a calx of this metal mixed with ſand, and containing a ſmall quantity of muriatic acid.

6 Mountain blue, or blue chryſocolla.

3. The third variety of this ſpecies is the mountain-blue, or blue chryſocolla. This, according to M. Fourcroy, is a calx of copper of a deep blue colour, ſometimes regularly formed in rhomboidal priſmatic cryſtals of a fine blue, in which caſe it is called azure of copper. "All theſe calces of copper (ſays he) appear to have been precipitated from vitriolic ſolutions of copper, by the intermedium of calcareous earths through which the waters have tranſuded. M. Sage conſiders theſe blue copper ores as combinations of copper with the volatile alkali; from which he affirms that they differ only in their degree of ſolubility; he likewiſe thinks that the malachites is produced from this blue, which he calls tranſparent azure copper ore; but moſt mineralogiſts are of a different opinion." Mr Kirwan tells us, that 100 parts of this ore contain about 69 of copper, 29 of aerial acid, and 2 of water. Mr Morveau, in the Memoirs of the Academy of Dijon for 1782, has ſhown that the calces of copper ore determined to a blue rather than a green colour, by a greater proportion of phlogiſton.

7 Turquoiſe and lapis armenus.

III. Cupreous ſtones. Theſe are the *turquoiſe* and *lapis armenus*. The former of theſe is improperly called a ſtone, being the tooth of an animal penetrated by the blue calx of copper. It loſes its colour when heated; is opaque, of a lamellar texture, and ſuſceptible of a fine poliſh; its ſpecific gravity from 2.5 to 2.908; ſome are of a deep blue, ſome more white, and become deeper when heated. They are found in Perſia and in Languedoc in France; the copper may be extracted from them by diſtilled vinegar. Reaumur informs us, Mem. Par. 1715, that nitrous acid will not diſſolve the Perſian turquoiſe, though it will that of France. The lapis armenus has calcareous earth or gypſum for its baſe; whence it ſometimes efferveſces with acids and ſometimes not. It is uſed in painting, when ground to a fine powder, under the name of Bice. To theſe Mr Fourcroy adds "copper mineralized by the muriatic acid and united to clay." This ore has been confounded with talc; and it was expoſed to ſale at Paris, in the year 1784, under the name of green mica. It conſiſts of ſmall beautifully green cryſtals, or ſmall brilliant ſcales. It was diſcovered by Mr Forſter in the mines of John Georgenſtadt; the green cupreous ſand of Peru already mentioned, perhaps belongs to the ſame claſs.

8 Copper mineralized by ſulphur.

IV. Copper mineralized by ſulphur, with ſcarce any iron, improperly called vitreous copper ore. This is of a deep violet grey, greeniſh brown, or liver colour; melting with a very gentle heat, ponderous, ſometimes flexible, and always yielding to the knife. When broken it appears of a bright golden colour. It is ſometimes found out in ſhapeleſs maſſes, ſometimes regularly cryſtallized; is much more fuſible than pure copper, and has a ſpecific gravity from 4.81 to 5.338. It is found in mines of other copper ores, in limeſtone, ſpar, quartz, mica, and clay: it is the richeſt of all the copper ores; affording from 80 to 90 *per cent.* of copper, 10 or 12 of ſulphur, and a ſmall proportion of iron.

9 With a large proportion of iron.

V. Copper mineralized by ſulphur with a large proportion of iron, azure copper ore; does not differ from the preceding but in the quantity of iron it contains, which ſometimes amounts to 50 *per cent.* It yields 50 or 60 pounds of copper *per* hundred, the reſt being ſulphur. The leſs iron this ore contains, the richer it is in copper; and it has by many been confounded with indurated mountain blue.

10 Yellow copper ore, or yellow pyrites.

VI. Copper mineralized by ſulphur, with much iron, the yellow copper ore, or yellow pyrites. The colour of this is yellow, or yellow mixed with red or green, or variegated like a pigeon's neck; it is inferior in hardneſs to the other pyrites, not readily giving fire with ſteel as they do. It is ſometimes found cryſtallized, and ſometimes in ſhapeleſs maſſes; its ſpecific gravity is about 4.16. It occurs both in ſeparate maſſes and embodied in ſtones, being the moſt common of all the copper ores. The cryſtallized kind affords leaſt metal, containing only from 4 to 8 *per cent.* the remainder being chiefly iron. It is generally reddiſh, and is in fact only a martial pyrites with a ſmall portion of copper; the greeniſh yellow contains moſt ſulphur, and from 15 to 20 *per cent.* of copper; the pure yellow contains moſt copper, viz. from 20 to 30 *per cent.* "The cupreous pyrites (ſays M. Fourcroy) often preſent very brilliant blue or violet colours at their ſurface, which are produced by the decompoſition of their principles: they are then called *chatoyant* ores of copper, or ores reſembling the peacock's tail: they commonly contain a large quantity of ſulphur, a ſmall quantity of iron, and are not rich in copper; ſuch are the ores of Derbyſhire in England, ſome of thoſe of St Bell in Lyons, and many ores of Alſatia, ſuch as thoſe of Caulenbach and Feldens."

11 Arſenical or grey copper ore.

VII. Copper united to ſulphur, arſenic, iron, and a ſmall quantity of ſilver. This is called arſenical or grey copper ore, and is of a white, grey, or brown colour; of moderate hardneſs, very brittle, ſometimes cryſtallized, and often of an indeterminate figure. It is very difficult of fuſion, and more ponderous than the former. It contains from 35 to 60 *per cent.* of copper; the brown is the richeſt in copper; the white or grey contains moſt arſenic; and if the ſilver it contains exceed 1 or 2 *per cent.* it is called grey ſilver ore. It is found embodied in all ſorts of ſtones, and mixed with other copper ores, as well as with the ores of other metals.

A great variety of ſulphurated copper-ores is to be met with in the mines of Cornwall, viz. a whitiſh-grey ore cryſtallized in ſmall triangular and quadrangular pyramids, with truncated points, is found along with the ſolid copper ore at Poldice and Dolcoth; but the richeſt are the ſolid grey ones found in various places; ſome of which may be cut with a knife like the ſoft vitreous ſilver ore. The moſt remarkable of the yellow ores is the ſtalactitical ore, of an hemiſpherical form, called *run-yellow-copper*, often variegated with different colours. A compact red glaſſy copper ore, covered with mountain green, or green copper, and with calciform copper of a vermillion red colour, is found in cryſtallized quartz, mixed with tender green mica. We alſo meet with an *olive-green-coloured* copper ore which is arſenical, and cryſtallized into tender ſpiculæ of about three lines long, ſtanding up ſtraight, either ſingle or faſciculated, or radiated, found on the granitical mountain at Carrarach. Theſe cryſtals melt before the blow-pipe with an arſenical ſmoke, and afterwards melt, forming a button of a grey colour, which, on being melted again with borax, ſoon produces a very pure copper. Another kind of arſenical cupreous cryſtals are likewiſe met with in the form of green cubes run together, with ſmooth and ſhining ſurfaces, upon grey copper ore, in a maſs of cryſtallized compact quartz, with various cryſtals in itſelf; and greatly reſembling ſmall cubes of fluor.

12 Brown or blendoſe copper ore.

VIII. Copper mineralized by ſulphur and arſenic with zinc and iron; brown or blendoſe copper-ore. Mr Monnet found this ore only at Catherineberg in Bohemia; it is brown, granulated, and very hard, and contains from 18 to 30 *per cent.* of copper.

This kind of ore may be analyſed in the liquid way by ſolution in nitrous acid, and precipitation of the copper by iron. The iron and zinc are precipitated by the Pruſſian alkali; the precipitate is then calcined and rediſſolved in nitrous acid, and the ſolution evaporated to dryneſs. The iron being thus dephlogiſticated, becomes inſoluble in the nitrous acid, but the calx of zinc is rediſſolved, and again precipitated by the Pruſſian alkali. An hundred grains of this precipitate are equivalent to 20 of zinc in its metallic ſtate; and 100 grains of dephlogiſticated iron are equivalent to $73\frac{1}{2}$ of iron in its metallic ſtate.

13 Slaty copper ore.

IX. Argillaceous ſchiſtoſe, or ſlaty copper ore, ſeems to conſiſt of the vitreous copper ore intimately combined with ſchiſtus, and not barely diſperſed through it in viſible particles: it is of a brown or black colour, lamellar texture, and very heavy; affording from 6 to 10 *per cent.* of copper, and is of difficult fuſion, unleſs limeſtone be added. It contains a little bitumen, calcareous earth, and iron.

14 Bituminous ore.

X. Bituminous copper ore is a kind of pitcoal found in Sweden. It burns with little or no flame, but leaves aſhes from which copper is extracted.

15 Black copper ore.

XI. Black copper ore, of the colour of pitch. Mr Gellert denominates it copper ore, in ſcoriæ: it is a reſiduum of the decompoſition of the yellow and grey copper ores which contain neither ſulphur nor arſenic, and approaches to the ſtate of malachite; it has a black ſhining appearance like pitch.

16 Antimonial ore.

XII. Copper united to ſulphur and arſenic containing antimony, or antimonial copper ore, is mentioned by Mr Sage in his Elements of Mineralogy. It is grey, and bright in its fracture like antimony, and contains from 14 to 20 *per cent.* of metal.

XIII. Copper diſſolved by the vitriolic acid. In the year 1673, Dr Brown viſited a famous copper-mine at Hern-grundt, about ſeven Engliſh miles from Newſol in the Upper Hungary; and he informs us, that there he ſaw two ſprings, called the *Old* and *New Ziment*, which turned iron to copper, as it is vulgarly ſaid. But the caſe is, that the iron is diſſolved by the vitriolic acid of this ſpring-water, and the copper is precipitated in its metallic form in the place of the iron. It has been the cuſtom in Germany for ſome centuries to collect the copper contained in theſe waters, by filling with them ſome pits made purpoſely for this operation. Old iron is thrown in, and being diſſolved by the acid, is ſuſpended in the Water, whilſt the copper is precipitated: the mud being raked out, is melted afterwards in a furnace, and a very fine copper is produced: from 100 tons of iron, 84 and ſometimes 90 tons of fine copper is thus produced.

But although this method of obtaining copper has been long practiſed in Germany, yet it is but of late years, ſays Biſhop Watſon (p. 238. of the firſt volume of his Eſſays), that any ſucceſsful attempts of this kind have been made either in England or Ireland. In this laſt, at leaſt, it was quite owing to an accident. There are the very celebrated copper-mines at Arklow, in the county of Wicklow in Ireland; and from theſe mines iſſues a great quantity of water, ſtrongly impregnated with vitriol of copper. One of the workmen having accidentally left an iron ſhovel in this water, he found it ſome weeks after ſo incruſted with a coat of copper, that it was thought to be changed into copper.

The proprietors of the mines in purſuance of this hint, made proper pits and receptacles for the water; and have obtained, by means of ſoft iron bars put into them, ſuch quantities of copper, that theſe ſtreams are now of as much conſequence as the mines themſelves. One ton of iron produces near two tons of copper mud; and each ton of mud produces, when melted, 16 hundred weight of copper, which ſells for L. 10 Sterling a ton more than the copper which is fluxed from the ore.

There is in the iſle of Angleſey, on the coaſt of North Wales, a mountain called *Paris*, which abounds in copper-ore, the bed of ore being above 40 feet in thickneſs. The leſſees of this mine annually raiſe from ſix to ſeven thouſand tons of merchantable ore, and daily employ above 40 furnaces in ſmelting it. This ore contains a great quantity of ſulphur, which muſt be ſeparated by roaſting before it can be fluxed into copper. The phlogiſton, with part of the vitriolic acid, is diſperſed into the air by the force of the fire; another part of the acid attacks and diſſolves ſuch a quantity of the copper, that the water in which the roaſted ore is waſhed (by means of old iron immerſed in it according to the German method) produces great quantities of fine copper, ſo that the proprietors have there obtained in one year near 100 tons of the copper precipitated from this water.

If this water was afterwards evaporated, it would yield green vitriol or vitriolated iron, at nearly the rate of 200 tons of vitriol for each hundered ton of iron at leaſt; which, at the rate of L. 3 Sterling *per* ton, might perhaps produce very good profit to the undertakers, if any ſhould ſettle ſuch a manufacture there.

Beſides the celebrated copper-mines at Arklow in the county of Wicklow in Ireland, there are no leſs than ſeventeen different places in Britain in which copper-mines are found, as mentioned by Dr Campbell in the 2d vol. p. 44. of his *Political Survey of Britain*. Theſe are Cardiganſhire, Cheſhire, Cornwall, Cumberland, Derbyſhire, Devonſhire, Lancaſhire, Iſle of Man, Northumberland, Shropſhire, Somerſetſhire, Staffordſhire, Yorkſhire, Wales, Warwickſhire, Weſtmoreland, and North Britain: ſome that are worked at this time give ſuch large products of this metal, that the opening more copper-mines in the iſland would probably affect the copper-trade of Europe in a very conſiderable manner. The Ecton mine, in the eſtate of the Duke of Devonſhire, on the frontiers of Derbyſhire, but properly ſituated in the county of Staffordſhire, produces at leaſt 300 tons of copper *per annum*. That of the mountain called *Paris*, in the iſland of Angleſey, whoſe bed of ore is about 40 feet in thickneſs, produces about 1500 tons of copper in the year; and the copper-mines of Cornwall produce no leſs than 4000 tons in the ſame period. Mr Jars, who viſited theſe mines in the year 1770, found, upon calculation, that the annual produce of theſe mines amounted to L. 140,000 Sterling; and M. H. Klaproth, in his Obſervations on the Foſſils of Cornwall, juſt publiſhed (in 1787), aſſerts that this account is not an exaggerated one.

Copper is purified with leſs difficulty than iron; and its goodneſs is judged of by the bright redneſs of its colour.

17
Copper cryſtallizes when cooling.

The impurity of copper proceeds from the mixture of heterogeneous ſubſtances that are alloyed with it, on account of being naturally contained in the copper-ores. Iron and arſenic are the chief of theſe natural mixtures. The copper-ores of variegated colours, the white copper-ores, and generally thoſe mineralized by ſulphur, contain a greater proportion of iron; whilſt the blue and green copper-ores commonly produce a purer metal, being free, for the moſt part, of any conſiderable ferruginous mixture. The great aim, therefore, of the metallurgiſt muſt be directed to ſeparate theſe mixtures from the copper, beginning by the proper examination of the ore, and by aſcertaining the proportion of ſulphur that may be required to ſcorify the quantity of iron there contained. The ore ſhould always be roaſted by a ſlow fire, in a cloſe furnace, which contributes the beſt towards ſcorifying the ferruginous and heterogeneous mixtures; and the ſame operation muſt be repeated after the ſecond and third fuſion of the metal, till its grain becomes of an homogeneous fine texture. The mixture of ſulphureous pyrites in the fuſion of the metal contributes towards obtaining this object; if their quality be choſen according to the quantity of ſulphur wanting. But in the ſecond, third, and following operations, only pure ſulphur ſhould be added, to ſcorify the remainder of the iron that is ſtill intermixed with the copper. This ſhould be done when the metal is already well fuſed; covering it immediately with a proper quantity of charcoal, and ſeparating the ſcoria or droſs formed on the ſurface of the fuſed metal.

The copper extracted from thoſe mines Near Newſol, in Upper Hungary, is ſaid to be uſually melted 14 times before it is fit for uſe. Theſe are the greateſt copper mines in all Hungary. There are, however, other mines, whoſe copper requires far leſs fuſions to be well purified. The above was the proceſs of Mr Delius, director of the mines of Bannat near Temeſware in Hungary, propoſed by him to the imperial board of the Auſtrian mines.

18
Burns with a green flame when melted.

19
Particular deſcription of the cryſtals.

Pure copper allowed to cool ſlowly will form itſelf into regular cryſtallizations, which the Abbe Mongaz deſcribes as quadrangular pyramids, ſometimes ſolid, and ſometimes compoſed of other ſimilar ſmall pyramids laterally adhering. When heated it becomes coloured on its ſurface, nearly in the ſame manner as ſteel; the colours are blue, yellow, and laſtly violet; it does not melt but by a violent white heat, though much inferior to that which melts iron. When in a ſtate of fuſion it appears covered with a green flame, which the filings of the metal likewiſe produce when projected through flame; and hence are uſed in fireworks, as has been already remarked. The cryſtallization of the metal abovementioned is beſt perceived by ſuffering the metal to cool ſlowly; and after the ſurface is become congealed, the fluid portion being poured off, the remaining ſolid part is found to be cryſtallized in pyramids, which are more regular and large in proportion as the fuſion has been more complete and cooling more gradual. The pyramids, according to Fourcroy, are quadrangular, and appear to be formed of a great number of octahedrons inſerted into one another. When heated with exceſs of air, this metal burns at its ſurface, and is converted into a calx of a dark red colour, in proportion as it abſorbs the baſe of the dephlogiſticated part of the atmoſphere. The calx may be eaſily obtained by heating a ball of copper red-hot, the form of which cauſes the calx to ſcale off; and the ſame effect takes place when red-hot copper is quenched in cold water; the ſeparation of the calx being promoted by the ſudden contraction of the metal. This calx is called the ſcales of copper, and may be further calcined till it becomes of a deep brown; after which, by violent heat, it may be melted into a blackiſh or deep reddiſh brown maſs. The ſcoriæ may partly be reduced without any additional phlogiſton; for the founders, who buy them of the copperſmiths, take no other trouble with them than that of throwing them into large crucibles on the melted copper, with which they incorporate by fuſion; and the ſame method is made uſe of to melt the filings. The calx of copper appears to poſſeſs ſome ſaline properties, but its nature has not yet been aſcertained.

20 How the calx is obtained.

21 The ſcoriæ partly reduced without addition.

22 Copper ruſts by expoſure to the air, but without any corroſion of its internal parts.

Copper calcines when expoſed to the air, and is converted into a green ruſt or calx, which is in ſome degree ſoluble in water, and communicates a taſte as well as pernicious qualities to it. It is remarkable, however, that this ruſt does not corrode the internal parts like that of iron, but is confined to the ſurface; and thus, inſtead of deſtroying, contributes, for a long time at leaſt, to the preſervation of the metal. This is particularly obſervable in the antique medals and ſtatues, which are very well preſerved under a covering of ruſt. The antiquarians call this cruſt *patina*, and put a high value upon the pieces of antiquity covered with it; but the Italians and others have got a method of imitating this cruſt, and thus there is great danger of being deceived.

23 Patina, a name for the ruſt of copper on medals.

24 Qualities of this metal when taken into the human body.

Copper, when taken into the human body, acts as a violent emetic, and has been generally accounted poiſonous, though lately received with ſome applauſe into the materia medica as a tonic. The pernicious qualities, however, and very diſagreeable taſte which it certainly communicates on ſome occaſions, render it highly neceſſary to obſerve ſome cautions in the uſe of this metal, of which ſo many kitchen utenſils are made. Beſides an exact attention to cleanlineſs, it is altogether improper to let any fluid remain in a copper veſſel till it be cold; for copper is much more calcinable in the cold than when heated. Mr Fourcroy explains this by ſuppoſing the calcination to be produced by water in a ſtate of extreme diviſion: as long, therefore, as the fluid is boiling and the veſſel hot, the aqueous vapour does not adhere to its ſurface; but when the veſſel is cold, the drops of water which adhere to its ſides calcine it, and reduce it to a green calx. The air and the cretaceous acid (fixed air,) he ſays, alſo contribute greatly to this calcination: for by diſtilling the ruſt of copper fixed air has been obtained.

25 Of the tinning of copper.

In order to prevent the pernicious effects of copper, the veſſels made of it are uſually covered with tin in the inſide. To tin copper-veſſels, they are firſt ſcraped clean and bright; after which they are rubbed with ſal ammoniac to clean them more perfectly. They are then heated and ſprinkled with powdered reſin, which prevents the ſurface of the copper from being calcined; after which the melted tin is poured on and ſpread about. It is, however, juſtly complained, that the tinning of copper-veſſels is not ſufficient to defend them from the action of the air, moiſture, and ſaline ſubſtances: becauſe theſe veſſels, even when well tinned, are obſerved to be ſubject to ruſt. This might poſſibly be remedied by a thicker covering of tin; and a manufacture of this kind was ſome time ago eſtabliſhed at Edinburgh, though it does not appear to have much attracted the notice of the public; which, however, is no objection to the uſefulneſs of the invention. The method employed was to make the ſurface of the copper very rough, with a machine contrived for that purpoſe, and the tin put upon it in this ſituation; after which the copper was hammered ſmooth as before. Mr Fourcroy objects to this thicker covering of tin, that there "is reaſon to fear that a degree of heat ſuperior to that of boiling water, to which theſe veſſels are often expoſed, would melt the tin and leave the ſurface of the copper uncovered." This objection is ſurely void of foundation: for as long as there remains any liquid in the veſſel, the tin will not melt though the heat were applied to it directly without any intervention of copper; and if a dry heat were applied, a thin covering of tin would be ſtill leſs able to reſiſt it than a thick one. Our author, however, obſerves, that to prevent this accident the tin may be alloyed with iron, ſilver, or platina, to diminiſh its fuſibility, and render it capable of being applied in thicker ſtrata on the copper. Alloys of this kind, he tells us, are already uſed in ſeveral manufactures.

26 Very ſmall quantity of tin required for this purpoſe.

The very ſmall quantity of tin required to cover the ſurface of the copper is ſurpriſing; a veſſel of 9 inches in diameter and $3\frac{1}{4}$ inches in depth, being found to gain no more than 21 grains by this operation. This ſmall quantity is nevertheleſs ſufficient to prevent the dangers which might ariſe from the uſe of copper-veſſels, provided care be taken not to allow ſubſtances capable of diſſolving the tin to remain too long in them; but more eſpecially that the tin be frequently renewed, as the friction, heat, and action of ſpoons, with which the included ſubſtances are ſtirred, very ſoon deſtroy it. There is likewiſe another cauſe of apprehenſion, according to our author, viz. that the tin is often alloyed with lead, even to the quantity of one-fourth of its weight; in which caſe the latter may exert its miſchevious influence, eſpecially as it is known that lead is eaſily ſoluble in fatty ſubſtances. To prevent this ſophiſtication, he is of opinion that government ſhould take ſufficient care that the braziers be not deceived in the tin they purchaſe, and that they may not employ any but the Malacca or Banca tin, in the ſtate it is received from the Eaſt Indies, without having been alloyed or melted by the pewterers. A better method, however, ſeems to be that propoſed by M. Folie of Rouen, to uſe veſſels of forged iron covered over on the inſide with zinc, which, he ſays, have already been uſed with advantage by certain perſons; and it were to be wiſhed that its uſe might become more general.

27 Beſt kind of tin ought to be employed.

28 Zinc recommended inſtead of tin.

29 Various mixtures of copper with other metals.

Copper is alſo uſed in mixture with other metals, particularly tin and zinc, in enamel-painting, dyeing, &c. Mixed with tin in conſiderable quantity, it produces BELL-METAL; with a ſmaller proportion BRONZE; with zinc it forms BRASS, PINCHBECK, or SIMILOR, MANHEIM GOLD, &c. according to the proportion; it being always obſervable, that the compounds moſt nearly reſembling gold in colour have the leaſt ductility and are moſt brittle. See theſe articles, and CHEMISTRY-*Index*.

30
Of its effects as a poiſon.

With regard to the poiſonous qualities of copper when taken into the body, much leſs danger ſeems to ariſe than from thoſe of arſenic, on account of its eaſy ſolubility; nor indeed have we met with any well authenticated inſtance of a perſon who has died in conſequence of ſwallowing even verdigriſe itſelf. In one caſe, where an unlucky boy had ſwallowed ſome bits of this ſubſtance thrown out of a chemiſt's laboratory, the ſymptoms were only violent ſickneſs and vomiting, from which he recovered by drinking warm water largely; and probably nothing elſe would be requiſite in any caſe, though Mr Fourcroy adviſes *emetics*, abundance of water, liver of ſulphur, alkalis, &c. The uſe of emetics in ſuch a caſe, however, ſeems altogether ſuperfluous; ſince verdigriſe, in the quantity of a grain or a grain and a half, has been ordered by ſome medical writers in the caſe of poiſon ſwallowed otherwiſe, as the emetic moſt quick in its operation that could be thought of.

COPPERAS, a name given to the factitious green vitriol. See CHEMISTRY-*Index*.

COPPERPLATE. See ENGRAVING.

COPPICE, or COPSE, a little wood, conſiſting of under-woods, or ſuch as may be raiſed either by ſowing or planting.

COPTOS (anc. geog.), a famous trading town of the Thebais, inhabited by Egyptians and Arabs, ſome diſtance from the Nile; others place it in a ſmall iſland in the Nile, on which, however, it had a port. Here Iſis, on hearing of the death of Oſiris, cut one of her locks and put on mourning; and hence the name *Coptos*, ſignifying privation. A proof this of the antiquity of the place. And for this reaſon the Iſiaci, or prieſts of Iſis, were bald, according to Juvenal.

COPULATION, the act of generation, or the congreſs of the male and female, otherwiſe called *coition*. See GENERATION.

COPY, in a law ſenſe, a tranſcript of a writing or inſtrument, made for the uſe and ſatisfaction of ſome of the parties concerned, or in order to preſerve the memory thereof.

COPY is alſo uſed for an imitation of any original work; particularly a painting, draught, figure, &c.

COPY, among printers, denotes the manuſcript or original of a book given to print from.

Copy-Hold, a tenure for which a tenant has nothing to ſhow but the copy of the rolls made by the ſteward of the lord's court.

It is called a baſe tenure; becauſe the tenant holds the land at the will of the lord. However, it is not ſimply at the will of the lord, but according to the cuſtom of the manor by which ſuch eſtate is deſcendible, and the tenant's heirs may inherit it; and a copy-holder, ſo long as he does his ſervices, and does not break the cuſtom, cannot be ejected by the lord; and if he be, he ſhall have treſpaſs againſt him. See the articles TENURE and VILLENAGE.

Copy-Holder, one who is admitted tenant of lands or tenements within a manor, which time out of mind, by uſe and cuſtom of the manor, have been demiſable, and demiſed to ſuch as will take them in fee-ſimple or fee-tail, for life, years, or at will, according to the cuſtom of the manor by copy of court-roll; but is generally where the tenant has ſuch eſtate either in fee or for three lives.

Copy-Right, the right which an author may be ſuppoſed to have in his own original literary compoſitions; ſo that no other perſon, without his leave, may publiſh or make profit of the copies. When a man by the exertion of his rational powers has produced an original work, he has clearly a right to diſpoſe of that identical work, as he pleaſes; and any attempt to take it from him, or vary the diſpoſition he has made of it, is an invaſion of his right of property. Now the identity of a literary compoſition conſiſts intirely in the ſentiment and the language; the ſame conceptions, clothed in the ſame words, muſt neceſſarily be the ſame compoſition: and whatever method be taken of conveying that compoſition to the ear, or to the eye of another, by recital, by writing, or by printing, in any number of copies, or at any period of time, it is always the identical work of the author which is ſo conveyed; and no other man (it hath been thought) can have a right to convey or transfer it without his conſent, either tacitly or expreſsly given. This conſent may perhaps be tacitly given when an author permits his work to be publiſhed without any reſerve of right, and without ſtamping on it any marks of ownerſhip: it is then a preſent to the public, like the building of a church, or the laying out a new highway: but in caſe of a bargain for a ſingle impreſſion, or a total ſale or gift of the copyright; in the one caſe the reverſion hath been thought to continue in the original proprietor; in the other the whole property, with its excluſive rights, to be perpetually transferred to the grantee. On the other hand, it is urged, that though the excluſive right of the manuſcript and all which it contains, belongs undoubtedly to the owner before it is printed or publiſhed; yet from the inſtant of publication, the excluſive right of an author or his aſſigns to the ſole communication of his ideas immediately vaniſhes and evaporates; as being a right of too ſubtile and unſubſtantial a nature to become the ſubject of property at the common law, and only capable of being guarded by poſitive ſtatute and ſpecial proviſions of the magiſtrate.

The Roman law adjudged, that if one man wrote any thing, though ever ſo elegantly, on the paper or parchment of another, the writing ſhould belong to the original owner of the materials on which it was written: meaning certainly nothing more thereby than the mere mechanical operation of writing, for which it directed the ſcribe to receive a ſatisfaction; eſpecially as, in works of genius and invention, ſuch as a picture painted on another man's canvas, the ſame law gave the canvas to the painter. We find no other mention in the law of any property in the works of the underſtanding, though the ſale of literary copies, for the purpoſes of recital or multiplication, is certainly as ancient as the times of Terence, Martial, and Statius. Neither in Britain hath there been (till very lately) any final determination upon the right of authors at the common law. It was determined in the caſe *Miller v. Taylor* in *B. R. Paſch.* 9 Geo. III. 1769, that an excluſive copy-right in authors ſubſiſted by the common law. But afterwards, in the caſe of *Donaldſon v. Becket*, before the houſe of lords, which was finally determined 22d February 1774, it was held that no copy-right ſubſiſts in authors, after the expiration of the ſeveral terms created by the ſtatute 8 Ann c. 19. This ſtatute declares, that the author and his aſſigns ſhall have the whole liberty of printing and reprinting his works for the term of 14 years, and no longer; and alſo protects that property by additional penalties and forfeitures; directing farther, that if at the end of that term the author himſelf be living, the right ſhall then return to him for another term of the ſame duration.——Copy Right in this Country is put on a ſimilar footing, by Act of Congreſs of May 31, 1790.

COQUES (Gonzalo), an eſteemed painter of portraits and converſations, was born at Antwerp in 1618, and was a diſciple of the old David Ryckaert; under whoſe direction he applied himſelf diligently to cultivate thoſe promiſing talents which he poſſeſſed; not only by practiſing the beſt rules adminiſtered to him by his inſtructor, but alſo by ſtudying nature with ſingular attention.—He was a great admirer of Vandyck; and fixing on the manner of that great artiſt as his model, had the happineſs of ſo far ſucceeding, that next to him he was eſteemed equal to any other painter of his time.—In the ſchool of Ryckaert he had been accuſtomed to paint converſations, and he frequently compoſed ſubjects of fancy like Teniers, Oſtade, and his maſter; and by that habit, he introduced a very agreeable ſtyle of portrait painting, in a kind of hiſtorical converſations, which ſeemed much more acceptable to perſons of taſte than the general manner of painting portraits, and procured him great reputation and riches. In that way he compoſed ſeveral fine pictures for king Charles I. and likewiſe ſeveral for the archduke Leopold, and the prince of Orange; which latter prince, as a mark of reſpect, preſented Coques with a rich gold chain, and a gold medal on which the buſt of that prince was impreſſed. He died in 1684.—He had an excellent pencil; his portraits were well deſigned, with eaſy natural attitudes; he diſpoſed the figures in his compoſition ſo as to avoid confuſion or embarraſſment; he gave an extraordinary clearneſs of colour to his heads and hands; and his touch was free, firm, and broad, a circumſtance very uncommon in works of a ſmall ſize.

COQUIMBO, a port-town of Chili, in South America, ſituated at the mouth of a river of the ſame name, which diſcharges itſelf into the Pacific ocean. W. Long. 75. 10. S. Lat. 30. 0.

COR CAROLI, in aſtronomy, an extraconſtellated ſtar in the northern hemiſphere, ſituated between the *coma Berenices*, and *urſa major*; ſo called by Dr Halley in honour of king Charles.

Cor Hydræ, a fixed ſtar of the firſt magnitude, in the conſtellation of hydra.

Cor Leonis, in aſtronomy, a fixed ſtar of the firſt magnitude, in the conſtellation Leo.

Cor-meille, a noted plant, common in the Highlands of Scotland. Its roots dried are the ſupport of the highlanders in long journeys, amidſt the barren hills deſtitute of ſupports of life; and a ſmall quantity, like the alimentary powders, will for a long time repel the attacks of hunger. Infuſed in liquor it is an agreeable beverage, and like the Nepenthe of the Greeks, exhilarates the mind. From the ſimilitude of ſound in the name, it ſeems to be the ſame with chara, the root diſcovered by the ſoldiers of Cæſar at Dyrrhachium, which ſteeped in milk was ſuch a relief to the famiſhed army. Or we may reaſonably believe it to have been the Caledonian food deſcribed by Dio, of which the quantity of a bean would prevent both hunger and thirſt: and this, ſays the hiſtorian, they have ready for all occaſions.

CORACIAS, the ROLLER, in ornithology; a genus of birds of the order of picæ, the characters of which are: The bill is ſtraight, bending towards the tip, with the edges cultrated: the noſtrils are narrow and naked; the legs for the moſt part ſhort; the toes placed three before and one behind, and divided to their origin. This genus is not confined to one ſpot of the globe, as one or other of the different ſpecies may be met with in all the four quarters of it.

1. The garrula, or garrulous roller, is about the ſize of a jay; the bill black, and at the baſe beſet with briſtles, but do not cover the noſtrils: the head, neck, breaſt, and belly, are of a light bluiſh green; back and ſcapulars, reddiſh brown; coverts on the ridge of the wing rich blue, beneath them pale green; upper part and tips of the quills duſky; the lower parts of a fine deep blue; rump, of this laſt colour: tail forked, of a light blue; the outer feather tipped with black above, and beneath with deep blue, as is the caſe with ſuch part of the quill feathers as is black above; the other tail feathers are dull green: the legs are ſhort, and of a dirty yellow. Mr Pennant obſerves that theſe birds are frequent in ſeveral parts of Europe, in moſt parts of which it is a bird of paſſage. Mention is made of them in Sweden and Denmark on the one hand, and as far as Africa on the other; not that they are found in all the parts between, nor in the ſame plenty. Willoughby tells us, that in Germany, Sicily, and Malta, they are ſo common as to be ſold in the markets, and in poulterers ſhops. Adanſon ſays, that it "comes to reſide for ſome months of the ſummer in the ſouthern parts of Europe, and goes back to ſpend the remainder of the year in Senegal," having ſhot one on board the ſhip, on its paſſage, in April. Friſch obſerves, that it makes its neſt in woods, where there is birch; that it does not come to its colour till the ſecond year; flies in troops in autumn; often ſeen in tilled grounds, with rooks and other birds, ſearching for worms, ſmall ſeeds, and roots. Its fleſh taſtes like that of a turtle. It is ſaid alſo ſometimes to make the neſt in holes in the ground, in one of which neſts two eggs were found. The neſt is generally filthy, from the young evacuating their excrements therein; whence by ſome it was ſaid to make the neſt of excrements. We are told in the Britiſh Zoology, that it has been twice ſhot in England, and is remarkable for making a chattering noiſe, whence its name.

2. The blue-ſtriped roller is in length eight inches; the bill three quarters of an inch long, bent at the tip, and of a black colour: the irides are red: the general colour of the plumage deep blue-black, daſhed with ſtreaks of greeniſh blue: the tail and legs are black. It inhabits New Caledonia. Plate CXLIX.

3. The Chineſe roller is of the ſize of a jay: The bill and irides are red: the head, hind part of the neck, back, rump, and upper tail coverts, are green: through the eyes on each ſide is a black ſtripe: the under parts of the body, from chin to vent, are yellowiſh white, tinged with green; but the thighs are grey: the wing coverts are olive brown; quills the ſame, with a mixture of cheſnut in ſome; and others, neareſt the body, tipped with white: the tail is five inches in length, and wedge-ſhaped, the outer feathers ſhortening by degrees like that of a magpie; all of them are more or leſs geeen, verging to black near the ends; the tips of all are white: the legs and claws are of a pale red, and longer than in other rollers. It inhabits China, and is called at Canton *Sau-ta-hoang*. It is not very common.

There are 13 other ſpecies enumerated by ornithologiſts; though many of them doubtful, and ſuppoſed to be only varieties.

CORACO-BRACHIALIS, in anatomy, the name of a muſcle in the arm, ſerving to raiſe it upwards.

CORACOIDES, in anatomy, a ſmall ſharp proceſs of the ſcapula. See ANATOMY, n° 47.

CORACOMANTES, in antiquity, perſons who foretold events from their obſervations on crows.

CORALLINA, or CORAL, in zoology, a genus belonging to the order of vermes zoophyta. The trunk is radicated, jointed, and calcareous. The ſpecies are eight, diſtinguiſhed by the form of their branches, and are found in the ocean adhering to ſtones, bones, ſhells, &c. The corals were formerly believed to be vegetable ſubſtances hardened by the air; but are now known to be compoſed of congeries of animals, which are even endued with the faculty of moving ſpontaneouſly.

The iſlands in the South-ſea are moſtly coral rocks covered over with earth. The little creatures, which have ſcarce ſenſation enough to diſtinguiſh them from plants, build up a rocky ſtructure from the bottom of that ſea, too deep to be meaſured by human art, till it reaches the ſurface. Some of theſe coralline iſlands appear to be of a much older date than others; particularly the Friendly iſlands: and it is probable that as theſe ſubmarine works are continually going on, new iſlands may by that means frequently be produced.

M. de Peyſſonnel of Marſeilles, in conſequence of a ſeries of experiments and obſervations from about the year 1720 to 1750, ſeems to have been the firſt who threw a proper light upon the nature and production of coral and ſimilar marine ſubſtances. Thoſe bodies, which the count de Marſigli imagined to be flowers, this ingenious naturaliſt diſcovered to be inſects inhabiting the coral; for upon taking branches of it out of the water, the flowers, which proceeded from a number of white points anſwering to the holes that pierced the bark, and the radiation of which reſembled the flower of the olive-tree, entered into the bark and diſappeared; but upon being again reſtored to the water, they were ſome hours after perceptible. Theſe flowers ſpread on white paper loſt their tranſparency, and became red as they dried. The holes in the bark correſpond to ſmall cavities upon the ſubſtance of the coral; and when the bark is removed, there may be ſeen an infinite quantity of little tubes connecting the bark with the inner ſubſtance, beſides a great number of ſmall glands adhering to them; and from theſe tubes and glands the milky juice of coral iſſues forth: the holes in the bark are the openings through which the inſects that form theſe ſubſtances for their habitation come forth; and thoſe cavities which are partly in the bark and partly in the ſubſtance, are the cells which they inhabit. The organs of the animal are contained in the tubes, and the glandules are the extremities of its feet, and the milky liquor is the blood and juice of the animal, which are more or leſs abundant in proportion to its health and vigour. When the inſects are dead, they corrupt, and communicate to the water the ſmell of putrid fiſh. This juice or liquor runs along the furrows perceived upon the proper ſubſtance or body of coral, and ſtopping by little and little becomes fixed and hard, and is changed into ſtone: and being ſtopped in the bark, cauſes the coral to increaſe proportionably and in every direction. In forming coral, and other marine productions of this claſs, the animal labours like thoſe of the teſtaceous kind, each according to his ſpecies; and their productions vary according to their ſeveral forms, magnitudes, and colours.

The coral inſect, or polype, M. Peyſſonnel obſerves, expands itſelf in water, and contracts itſelf in air, or when it is touched with the hand in water, or acid liquors are poured upon it: and he actually ſaw theſe inſects move their claws or legs, and expand themſelves, when the ſea-water containing coral was placed near the fire, and keep them in their expanded ſtate when ſeparated from the coral in boiling water. Broken branches of coral have been obſerved to faſten themſelves to other branches, and have continued to grow; and this is the caſe when they are connected with detached pieces of rock and other ſubſtances, from which no nouriſhment could be derived. The coral inſects in their cells, not having been injured, continue their operations; and as they draw no nouriſhment from the ſtone of the coral, they are able to increaſe in a detached and ſeparate ſtate. Coral was found to be equally red in the ſea as out of it; and it was more ſhining when juſt taken out of the water than even when it is poliſhed; and the bark by being dried becomes ſomewhat pale. M. Peyſſonnel found that it grows in different directions, ſometimes perpendicularly downwards, ſometimes horizontally, and ſometimes upwards; and in the caverns of the ſea, open to every expoſure.

This ſyſtem was little regarded, though firſt communicated to the Academy of Sciences at Paris in 1727, till Mr Trembley's diſcovery of the freſh-water polype; but ſince that time it has been confirmed by the obſervations of M. Bernard de Juſſieu on the ſea-coaſts of Normandy, and thoſe of M. de Reaumur near Rochelle. M. Donati of Turin has alſo adopted the ſame hypotheſis, viz. that coral is a maſs of animals of the polype kind; and inſtead of repreſenting the polype beds and cells which they contain as the work of polypes, he thinks it more juſt to ſay, that coral and other coralline bodies have the ſame relation to the polypes united to them, that there is between the ſhell of a ſnail and the ſnail itſelf, or the bones of an animal and the animal itſelf.

The ſame ſyſtem has alſo been excellently illuſtrated and eſtabliſhed by Mr Ellis, in anſwer to the objections

tions of Dr Baſter of Zealand, and Dr Pallas of Berlin, who ſtill refer corallines to the vegetable kingdom.

There are properly but three kinds of coral; red, white, and black: the black is the rareſt, and moſt eſteemed; but the red was formerly uſed in medicine. It muſt be choſen thick, ſmooth, and ſhining, and of a beautiful red, not covered with any tartareous matter. However, this ſubſtance is now ſcarce ever preſcribed by any intelligent practitioner.

When coral is newly taken up out of the ſea, the ſmall protuberances on its ſurface are ſoft, and yield, on being preſſed, a milky juice which effervesſces with acids. The cortical part with which the coral is all over covered is not near ſo compact as the internal, and may eaſily be taken off whilſt freſh; and from this part it is uſually freed before it comes to the market. The greateſt coral trade is in Genoa and Leghorn. The ſmall ſprigs unfit for ornamental uſes are in the ſhops levigated into a ſubtile powder; which, however, has no medicinal virtues ſuperior to the common teſtacea. Coral is not unfrequently imitated by artificial compoſitions, ſome of which are made to reſemble it exactly; but the abuſe may be diſcovered by fire, the counterfeit not affording the alkaline earth which is afforded by the genuine coral. The colouring ingredients in the artificial coral are cinnabar and minium, both of which are eaſily diſcovered. The natural coral ſeems to receive its colour from iron; for ſpirit of vitriol acquires from it a ferruginous taſte; and on calcining the coral, ſome particles are found among the aſhes that are attracted by the magnet. Sixteen ounces of coral, according to Neumann, when diſtilled in an open fire, yield about ſix ſcruples and an half of volatile alkaline ſpirit, with two or three grains of an empyreumatic oil: from the caput mortuum calcined, five ſcruples and a half of fixed ſalt may be extracted. In former times, many extraordinary virtues were expected from this ſubſtance, on account of its fine red colour; and therefore a great number of methods were tried to extract this colour by means of ſpirit of wine. None of theſe, however, ſucceeded. A red colour was indeed ſometimes obtained, but it turned out the ſame whether any coral was uſed in the operation or not. In ſome of theſe proceſſes, however, the coral loſes its colour. One method of making the tincture is by diſſolving a pound of ſugar in a little water, and then adding half a pound of wax. A pound of coral boiled in this mixture loſes its redneſs, but is found to be unaltered in other reſpects. In order to prepare the tincture, the wax and ſugar muſt be diſſolved in ſpirit of wine.

CORAL Fishery. Red coral is found in the Mediterranean, on the ſhores of Provence, from Cape de la Couronne to that of St Tropez; about the iſles of Majorca and Minorca; on the ſouth of Sicily; on the coaſts of Africa; and, laſtly, in the Ethiopic ocean, about cape Negro. The divers ſay, that the little branches are found only in the caverns whoſe ſituation is parallel to the earth's ſurface, and open to the ſouth. The manner of fiſhing being nearly the ſame where ever coral is found, it will ſuffice to inſtance the method uſed at the baſtion of France, under the direction of the company eſtabliſhed at Marſeilles for that fiſhery. Seven or eight men go in a boat commanded by the patron or proprietor; and when the net is thrown by the caſter, the reſt work the veſſel, and help to draw the net in. The net is compoſed of two rafters of wood tied croſs-wiſe, with leads fixed to them: to theſe they faſten a quantity of hemp twiſted looſely round, and intermingled with ſome large netting. This inſtrument is let down where they think there is coral, and pulled up again when the coral is ſtrongly intangled in the hemp and netting. For this purpoſe, ſix boats are ſometimes required; and if in hauling in, the rope happens to break, the fiſhermen run the hazard of being loſt. Before the fiſhers go to ſea, they agree for the price of the coral, which is ſometimes more, ſometimes leſs, a pound; and they engage, on pain of corporal puniſhment, that neither they nor their crew ſhall embezzle any, but deliver the whole to the proprietors. When the fiſhery is ended, which amounts one year with another to twenty-five quintals for each boat, it is divided into thirteen parts; of which the proprietor hath four, the caſters two, and the other ſix men one each, the thirteenth belongs to the company for payment of the boat furniſhed them.

Coral-Stone, a name for a kind of red and white agate which breaks in veins, and is found in Italy and ſome parts of Saxony. That of Rochlitz in Saxony is the moſt celebrated, and is found in globules which have a kind of cruſt about them.

CORALLINES, in natural hiſtory, were formerly reckoned a genus of plants, and Mr Tournefort enumerates 36 ſpecies of them; but in the Linnæan ſyſtem they belong to the claſs of zoophytes, and are defined by modern naturaliſts to be ſubmarine plant-like bodies, that conſiſt of many ſlender finely divided and jointed branches, reſembling ſome ſpecies of moſs; or animals growing in the form of plants, having their ſtems fixed to other bodies: theſe ſtems are compoſed of capillary tubes, whoſe extremities paſs through a calcareous cruſt, and open into pores on the ſurface. The branches are often jointed, and always ſubdivided into ſmaller branches, which are either looſe and unconnected, or joined as if they were glued together. They are diſtinguiſhed from plants by their texture and hardneſs: they alſo yield in diſtillation a conſiderable quantity of volatile ſalt; and their ſmell, in burning, reſembles that of burnt horns and other animal ſubſtances. Many of the corallines ſeem to conſiſt of a ſingle tube, containing a ſingle parent animal. Every branch emitted contains an offſpring of this parent dependant upon it, and yet capable of producing its like in the emiſſion of a new branch. Others conſiſt of many ſuch tubes united, riſing up together, and encircling the deſerted tubes of their progenitors, whoſe exuviæ become the ſubſtratum of a riſing generation. Mr Ellis diſtributes corallines into the *veſiculated*, *tubular*, *celliferous*, and *articulated* kinds.

Veſiculated corallines are diſtinguiſhed by their horny hollow ramifications: moſt of them are furniſhed with little denticles on their branches, like leaves on moſſes; and at certain ſeaſons of the year they are furniſhed with ſmall bodies like bladders, proceeding from their ſtems and branches, and differing in form according to the different ſpecies. Their colour, when dry, is of a yellowiſh or pale brown, and their nature is elaſtic. They are found adhering to rocks, ſhells, and fucuſes, by ſmall root-like tubes: they recover their form in water, after having been dried; and when put into vinegar, they cauſe no effervefcence. See Plate CXLVII. fig. 1. where *a* repreſents the ſea-tamariſk in its natural ſize, and A in which the denticles are magnified. Fig. 2. *b*, B, is the ſea-cypreſs; fig. 3. *c d*, CD, the ſmall climbing coralline with well ſhaped cups.

Tubular corallines are compoſed of a number of ſimple tubes, growing up nearly together; or of ſuch branched ones as have neither denticles nor veſicles. Theſe are horny and elaſtic like the former, and recover their original form in water. Some of them appear wrinkled like the wind-pipe, and others like the inteſtines of ſmall animals. See fig. 4, E.

Celliferous corallines are thoſe which appear, when magnified, to be fine thin cells, the habitations of ſmall animals connected together, and diſpoſed in a variety of elegant forms like branches. Theſe effervefce with acids. See fig. 5, F f, with part (GH) magnified.

Articulated corallines conſiſt of ſhort pieces of a ſtony or cretaceous brittle matter, whoſe ſurface is covered with pores or cells, which are joined by a tough, membranous, flexile ſubſtance, compoſed of many ſmall tubes of the like nature compacted together. The ſtony part is ſoluble in vinegar, and the other part remains entire. *a*, A, (fig. 6.) is the coralline of the ſhops. Plate CXLVIII. It is fixed to rocks and ſhells by ſtony joints, which, as they riſe, are united to others by extremely fine and ſlender tubes: Theſe may be diſcovered by a good eye, or a common magnifier. As the ſtems extend themſelves, they become pennated by ſide-branches which come out oppoſite to each other, and are jointed in the ſame manner: the joints of this ſpecies are like the upper part of an inverted cone, but a little compreſſed: The whole ſurface is covered over with very minute circular-ſhaped cells like pores; ſee B, and B 1, where they are higher magnified. B 2, ſhows a croſs ſection highly magnified. If a branch of this coralline is put into vinegar, theſe cells are diſſolved with the whole cretaceous ſurface; inſtead of which there appear rows of minute ramifications, which ſeem to have communicated with each of theſe cells. Upon ſome ſpecimens of this coralline, we may obſerve little ſmall figures like ſeed-veſſels, with which the branches frequently terminate: They are alſo found on the ſides, as may be ſeen at A, where they are magnified.—When a branch is rendered ſoft by being ſteeped in vinegar, there may be ſqueezed out from the little knobs at the ends and ſides, ſmall twiſted figures, like thoſe at A 1, which are magnified higher at A 2.—We frequently find this coralline of different colours, as red, green, aſh, and white; but all of it, by being expoſed to the ſun and air on the ſhore, becomes white.

The ancients have ſaid great things of the virtues of the common coralline. Dioſcorides preſcribes it for mitigating the pain of the gout, and for preventing ſtagnations of the humours in any part; he ſays nothing of its virtues againſt worms, which are what we alone eſteem it for. We give it in powder from 10 grains to a ſcruple or half a dram twice a day in theſe caſes, and that with a conſiderable good effect.

Beſides the above, Mr Ellis enumerates other genera of marine productions; as the keratophyta, eſchara, ſponges, and alcyonium; all which are the neſts or matrices of ſea-animals. See POLYPE. The laſt claſs of marine bodies is formed like funguſes of various figures, and with different ſorts of covering: ſome having a gritty, and ſome a callous ſkin, with a ſpongy ſubſtance in the inſide: other ſpecies are of a fleſhy ſubſtance.

CORALLODENDRON, in botany. See ERYTHRINA.

CORALLOIDES (FRUTICES.) See ESCHARA and KERATOPHYTA.

CORAM (Captain Thomas), an Engliſh gentleman remarkably diſtinguiſhed by his humanity, was born about the year 1668, and ſpent the early part of his life in the ſtation of maſter of a veſſel trading to the colonies. Afterwards reſiding in the eaſtern part of the metropolis, among ſeafearing people, where buſineſs often obliged him to come early into the city and return late, he frequently ſaw young children expoſed in the ſtreets through the indigence or cruelty of their parents. This excited his compaſſion, and induced him to project the foundation of an hoſpital for foundlings. In this humane deſign he laboured with indefatigable diligence for ſeventeen years; and by his application procured a number of the nobility and gentry to patronize and carry the ſcheme into execution, and at length obtained the royal charter for it. He was alſo highly inſtrumental in promoting the trade of America, by procuring a bounty upon naval ſtores imported from the colonies. He was likewiſe eminently concerned in ſetting on foot the colonies of Georgia and Nova Scotia. His laſt charitable deſign, in which he lived to make ſome progreſs, was a ſcheme for uniting the North American Indians more cloſely to the Britiſh intereſt, by an eſtabliſhment for the education of Indian girls. In ſhort, he ſpent the greateſt part of life in labouring for the public, and experienced a fate too common in thoſe who devote their talents to ſuch laudable purpoſes; being at laſt indebted for ſubſiſtence to the voluntary ſubſcriptions of ſome public-ſpirited perſons, at the head of whom was the late Frederic Prince of Wales. Captain Coran died in 1751: and was interred, at his own deſire, in a vault under the chapel of the Foundling Hoſpital.

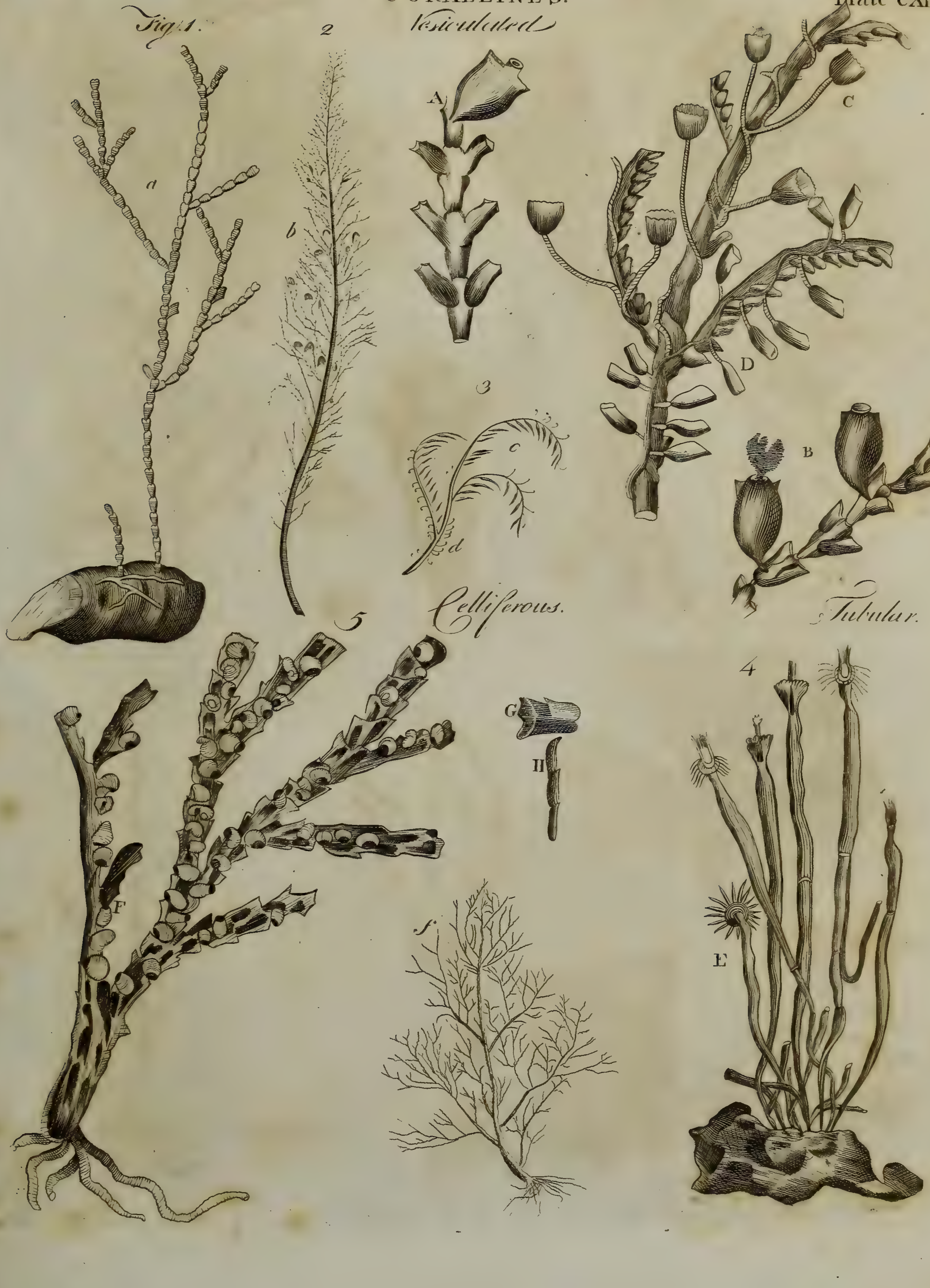
CORAN, or ALCORAN. See ALCORAN.

CORAX, in ornithology, the trivial name of a ſpecies of CORVUS.

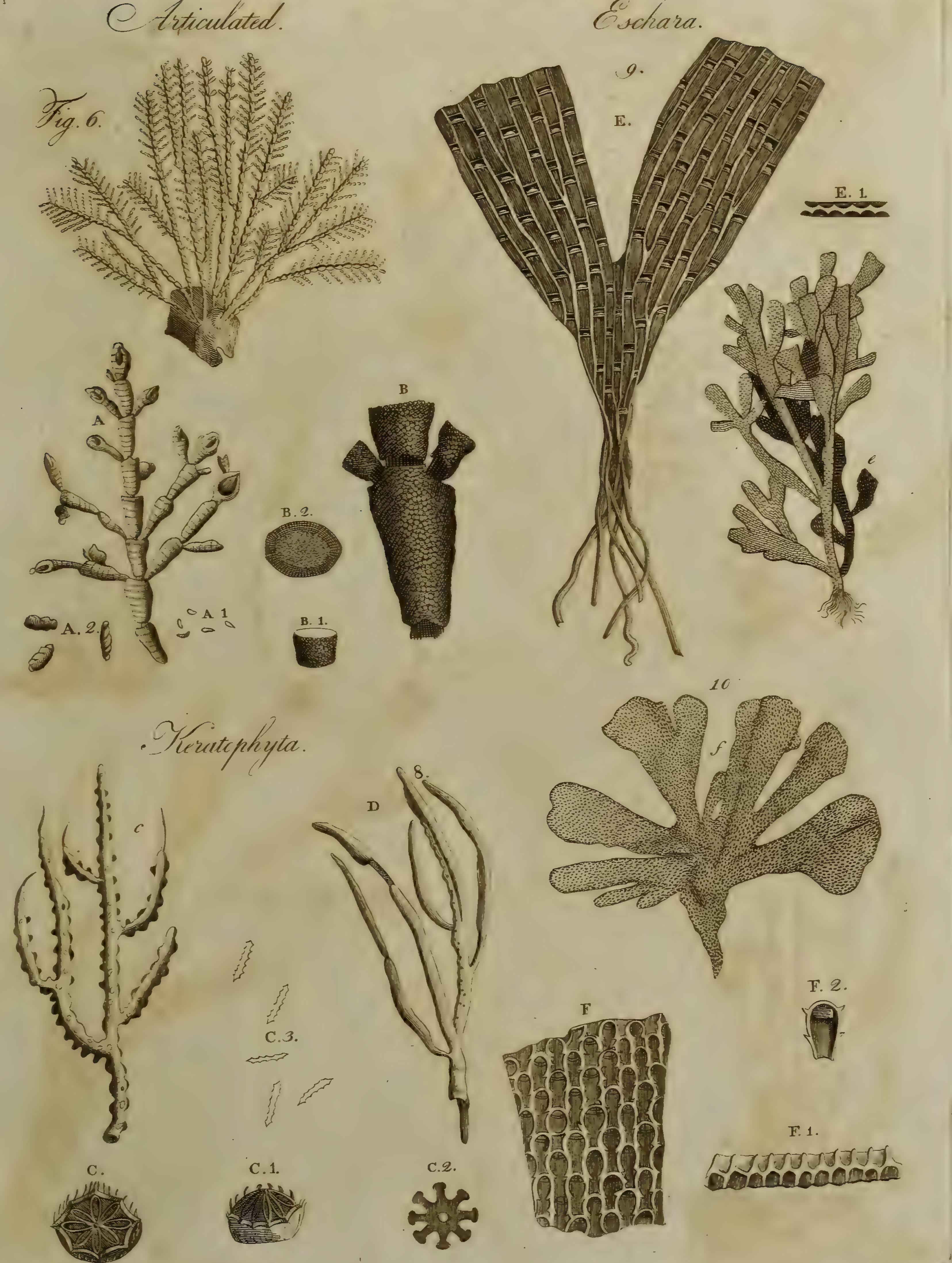
CORANICH, among the Scotch and Iriſh, the cuſtom of ſinging at funerals, anciently prevalent in thoſe countries, and ſtill practiſed in ſeveral parts. Of this cuſtom Mr Pennant gives the following account. "I had not the fortune to be preſent at any in North Britain: but formerly aſſiſted at one in the ſouth of Ireland, where it was performed in the fulneſs of horror. The cries are called by the Iriſh the *ulogohne* and *hullulu*; two words very expreſſive of the ſound uttered on theſe occaſions; and being of Celtic ſtock, etymologiſts would ſwear to be the origin of the ολολυγων of the Greeks and *ululatus* of the Latins. Virgil is very fond of uſing the laſt whenever any of his females are diſtreſſed; as are others of the Roman poets, and generally on occaſions ſimilar to this. It was my fortune

to

CORALLINES. Plate CXLVII.



CORALLINES and FRUTICES CORALLOIDES. Plate CXLVIII.



to arrive at a certain town in Kerry at the time that a perſon of ſome diſtinction departed this life: my curioſity led me to the houſe, where the funeral ſeemed conducted in the pureſt claſſical form.

Quodcunque aſpiceret luctus, gemituſque ſonabant,
Formaque non taciti funeris intus erat.

In ſhort, the *conclamatio* was ſet up by the friends in the ſame manner as Virgil deſcribes that conſequential of Dido's death;

Lamentis, gemituque, & femineo ululatu
Tecta fremunt.

Immediately after this followed another ceremony, fully deſcribed by Cambden in his account of the manners of the ancient Iriſh; the earneſt expoſtulations and reproaches given to the deceaſed for quitting this world, where ſhe enjoyed ſo many bleſſings, ſo good a huſband, and ſuch fine children. This cuſtom is alſo of great antiquity, for Euryalus's mother makes the ſame addreſs to her dead ſon.

———————— *Tune illa ſenectæ*
Sera meæ requies? potuiſti relinquere ſolam,
Crudelis?

But when the time approached for carrying out the corps, the cry was redoubled,

Tremulis ululatibus æthera complent;

a numerous band of females waiting in the outer court to attend the hearſe, and to pay in chorus the laſt tribute of their voices. The habit of this ſorrowing train, and the neglect of their perſons, were admirably ſuited to the occaſion; their robes were black and flowing, reſembling the ancient Palla; their feet naked, the hair long and diſhevelled: I might truly ſay,

Ut qui conducti plorant in funera, dicunt
Et faciunt prope plura dolentibus exanimo.

The corpſe was carried ſlowly along the verge of a moſt beautiful lake, the ululatus was continued, and the whole proceſſion ended among the venerable ruins of an old abbey."

CORBAN, in Jewiſh antiquity, were thoſe offerings which had life, in oppoſition to the *minchah*, or thoſe which had not. It is derived from the word *karab*, which ſignifies "to approach;" becauſe the victims were brought to the door of the tabernacle. The corban were always looked upon as the moſt ſacred offerings. The Jews are reproached with defeating, by means of the corban, the precept of the fifth commandment, which enjoins the reſpect due to parents. For when a child had no mind to relieve the wants of his father or mother, he would ſay to them, "It is a gift (*corban*) by whatſoever thou mighteſt be profited by me;" *i. e.* "I have devoted that to God which you aſk of me, and it is no longer mine to give."

CORBAN is alſo a ceremony which the Mahometans perform at the foot of mount Arrarat in Arabia, near Mecca. It conſiſts in killing a great number of ſheep, and diſtributing them among the poor.

CORBEILS, in fortification, little baſkets, about a foot and a half high, eight inches wide at the bottom and twelve at the top; which being filled with earth, are frequently ſet one againſt another upon the parapet or elſewhere; leaving certain port-holes, from whence to fire upon the enemy under covert without being ſeen by them.

CORBEL, in architecture, the repreſentation of a baſket, ſometimes ſeen on the heads of carytides. The word is alſo uſed for the vaſe, or tambour, of the Corinthian column; ſo called from its reſemblance of a baſket, or becauſe it was firſt formed on the model of a baſket.

CORBEL, or *Corbil*, is alſo uſed, in building, for a ſhort piece of timber placed in a wall, with its end ſticking out ſix or eight inches, as occaſion ſerves, in manner of a ſhouldering-piece. The under part of the end thus ſticking out is ſometimes cut into the form of a boultin; ſometimes of an ogee, and ſometimes of a face, &c. according to the workman's fancy, the upper ſide being plain and flat.

CORBEL is alſo uſed by ſome architects for a niche or hollow left in walls for images, figures, or ſtatues to ſtand in.

CORBET (Richard), biſhop of Norwich, and an eminent poet, was born at Ewell in Surry, toward the latter end of the 16th century; and educated at Oxford, where he was eſteemed one of the moſt celebrated wits of the univerſity. Entering into holy orders, he became a popular preacher, and was made chaplain to King James I.: when, after ſeveral preferments in the church, he was, in 1629, made biſhop of Oxford; and, in 1632, was tranſlated to the ſee of Norwich. He was very hoſpitable, and always a generous encourager of public deſigns. He died in 1635. There have been ſeveral editions of his poems publiſhed under the title of *Poemata Stromata*.

CORBEY, a town of Picardy in France, with a famous abbey of Benedictine monks. It is ſeated on the river Somme, 10 miles eaſt of Amiens, and 75 north of Paris. E. Long. 2. 35. N. Lat. 49. 55.

CORCELET, in natural hiſtory, that part of the fly-claſs which is analogous in its ſituation to the breaſt in other animals. Many have called it the breaſt in theſe alſo, but improperly; becauſe the breaſt of other animals is the place of the lungs and trachea, but theſe organs are in the fly-claſs diſtributed through the whole body. The wings are affixed to this part of the fly-claſs; and there are ſome diſtinctions of great conſequence in regard to the arrangement and diſtribution of thoſe animals into genera. Some flies have a double corcelet, or one divided into two parts; and this is the caſe of the fly produced from the formica leo, which therefore does not carry its only diſtinction in the figure of its antennæ. One pair of the legs of this fly are attached to the firſt or anterior corcelet, which is alſo capable of moving on the other.

The corcelets of ſome flies are alſo much more elevated than thoſe of others; and in ſome this elevation is carried ſo far, that the head is forced by it to be bent downward, and the creature is plainly made hump-backed by it. The great kind, and the *tipulæ*, furniſh inſtances of this elevated and hump-backed *corcelet*.

A ſeries of flies of two wings are known by a very particular armament which they carry on the corcelet, uſually called their *breaſt*. This conſiſts of two long, ſlender, ſharp-pointed prickles, which are immoveable in their inſertions, and ſeem meant as offenſive or defenſive weapons; but in what manner they are uſed it is not eaſily to be determined.

All theſe flies are produced from long water-worms with open and funnel-faſhioned tails, or furniſhed with their aperture for reſpiration at the hinder extremity. There are three known ſpecies of this ſort of fly, with armed corcelets, which differ much in ſize, but are all produced of worms of this kind. The largeſt of theſe flies are produced from the largeſt and longeſt worm, and are ſomething longer than the bee. The ſmalleſt are produced of worms very ſmall and ſlender, and are themſelves extremely minute: and the third kind is of a middle ſize between theſe, and produced from a proportionably ſmaller worm than that of the firſt, and proportionably larger than that of the ſecond ſpecies.

All theſe ſpecies have their wings but little diſtinguiſhable at their firſt production from the ſhell; they appear indeed only like two ſlender filaments laid acroſs their bodies: but they quickly ſhew, that in this ſtate they were only very nicely folded together; and ſoon expand, and ſhow their full extent and proportion.

When firſt produced from the ſhell, theſe flies are of a pale green colour. The under part of their belly in many continues green, but in the greater number it becomes of a pale dead brown. Some of them have the outſide of their bodies of a deep brown, approaching to black, with lines of a dead brown between the commiſſures of the rings. The back of ſome others has only a blackiſh brown band, which runs ſtraight down from the corcelet to the end of the body, the whole body beſide being of a dead brown. The corcelet in theſe flies is brown, and the prickles are yellowiſh near their inſertions, but nearly black at their points. They have three of the ſmall gloſſy eyes diſpoſed in the ſhape of a triangle on the back part of their head; and their reticular eyes are brown, and at ſome diſtance from one another.

CORCHORUS, in botany: A genus of the monogynia order, belonging to the polyandria claſs of plants; and in the natural method ranking under the 37th order, *Columneæ*. The corolla is pentapetalous; the calyx pentaphyllous and deciduous; and the capſule many-valved and many-celled.

There are eight ſpecies; of which the moſt remarkable is the olitorius, an annual, and a native of Aſia, Africa, and America. It riſes with a round, ſtriated, upright, branched ſtalk, to near two feet, which is furniſhed with leaves differing in ſhape; ſome being oval, ſome cut off ſtraight at their baſe, and others almoſt heart-ſhaped. They are of a deep green colour, and have a few teeth on the margins of their baſe, that end in briſtly, reflexed, purpliſh filaments. The flowers come out at the ſides of the branches oppoſite to the leaves. They ſtand ſingly on very ſhort peduncles; are compoſed of five ſmall yellow petals, and a great number of ſtamina ſurrounding an oblong germen, which becomes a long, rough, ſharp-pointed capſule, opening in four parts, each filled with greeniſh angular ſeeds.—This plant is ſown by the Jews about Aleppo, and is therefore called *Jews mallow*. The leaves are a favourite ſallad among theſe people, and they boil and eat them with their meat.

CORCULUM, a diminutive from *cor*, "the heart," little heart; the eſſence of a ſeed, and principle of life of the future plant, attached to and contained within the lobes. It conſiſts of two parts, termed by Linnæus Plumula and Rostellum. The former is the *radicula* of Grew and other naturaliſts. The corculum is in fact the embryo of the future vegetable; and is attached by two trunks of veſſels to the lobes at their union. The firſt of its two parts mounts upward, and becomes the trunk. The other ſtrikes into the ground, and is the rudiment of the root. The lobes and heart of the ſeed are diſtinctly viſible in the bean, and other ſeeds of that claſs, eſpecially after remaining ſome time in water or earth.

The principle of life is ſeated either at the ſummit or baſe of the ſeed. From this circumſtance are conſtructed the two firſt claſſes in Cæſalpinus's method, containing trees and ſhrubs only.

CORCYRA (anc. geog.), an iſland in the Ionian Sea, oppoſite to Theſprotia, a diſtrict of Epirus, called *Scheria* and *Phæacia* by Homer. In Callimachus it is called *Drepane*; its moſt ancient name, according to the Scholiaſt, from the curvity of its figure. Famous for the ſhipwreck of Ulyſſes and the gardens of Alcinous. Now *Corfu*.

Corcyra, a cognominal town of the iſland; formerly powerful, and capable of coping with mighty ſtates; ſituated about the middle of the eaſt ſide of the iſland, called *The Town of the Phæacians* by Homer. Now *Corfu*, from the Κορυφω of the middle age, the name of the citadel. It was a colony of Corinthians; *Corcyræi*, the people. E. Long 19. 43. Lat. 39. 50.

Corcyra Nigra, an iſland in the Adriatic, on the coaſt of Dalmatia (Pliny); called *Melæna* by the Greeks, to diſtinguiſh it from the iſland in the Ionian Sea. The epithet *Nigra* was added, from its woods of tall trees with which it is almoſt covered. Now *Curzola*.

CORD, or Chord, an aſſemblage of ſeveral threads of hemp, cabled or twiſted together by means of a wheel. See Cordage. The word comes from the Greek χορδη, which properly ſignifies an inteſtine or gut, of which chords may be made. See Chord.

Magical Chord, an inſtrument in great uſe among the Laplanders, and by them ſuppoſed to be endued with a number of virtues. It is a cord or rope with three knots tied in it. They uſe many magical rites and ceremonies in the tying of this cord; and, when thus prepared, it is ſuppoſed to have power over the winds; and they will ſell, by means of it, a good wind, or at leaſt the promiſe of one, to a ſhip. If they untie only one of theſe knots, a moderate gale ſucceeds; if two, it is much ſtronger; and if three, a ſtorm is ſure to follow.

Cord of Wood, a certain quantity of wood for burning, ſo called becauſe formerly meaſured with a chord. The dimenſions of a ſtatute cord of wood are eight feet long, four feet high, and four feet broad.

Cord-Wood, is new wood, and ſuch as, when brought by water, comes on board a veſſel, in oppoſition to that which is floated.

CORDAGE, a term uſed in general for all ſorts of cord, whether ſmall, middling, or great. See Rope.

The naval cordage of the earlier ages was in all probability only thongs of leather. Theſe primitive ropes were retained by the Caledonians in the third century. The nations to the north of the Baltic had them in the ninth or tenth centuries: and the inhabitants of the weſtern iſles of Scotland make uſe of them at preſent; cutting the ſkin of a ſeal, or the raw and ſalted hide of a cow, into long pieces, and faſtening the plough to their horſes with them, or even twiſting them into ſtrong ropes of 20 or 30 fathoms length.

But theſe, in the ſouth of Britain, and on the continent, were early ſuperſeded by the uſe of iron chains. The very maritime and commercial nation of the Veneti, that were ſo intimately connected with the Belgæ of Britain, uſed iron chains for their cables in the days of Cæſar. But in the more diſtant and refined countries of the ſouth, both thongs and theſe had long given place to the uſe of vegetable threads, and the arts of combining them into ſtrength. In this manner the Greeks appear to have uſed the common ruſhes of their country, and the Carthaginians the ſpartum or broom of Spain. And as all the cordage of the Romans was made of theſe materials at their laſt deſcent on Britain, ſo the art of manufacturing them would neceſſarily be introduced with the Roman ſettlements among the Britons. Under the direction of Roman artiſts their thongs of leather would naturally be laid aſide; and the junci, or ruſhes of the plains, worked up into cordage. And what remarkably coincides with this opinion is, that the remains of old cables and ropes are ſtill diſtinguiſhed among the Britiſh ſailors by name of *old junk*.

The nations of Roman Britain, and the tribes of Caledonia and Ireland, had inherited, from their earlieſt anceſtors, many of the ruder arts of navigation. Their ſhips were large open boats, framed of light timbers ribbed with hurdles and lined with hides. Theſe were furniſhed with maſts and ſails. The latter were formed of hides, as the tackle was of thongs. They were actually of hides among the Veneti as late as the days of Cæſar; and they were never furled, but only bound to the maſt. But theſe ſlight ſea-boats and their rude furniture, would ſoon be diſmiſſed by the provincials for the more ſubſtantial veſſels and more artificial ſails of the Romans. The Roman ſails, which were compoſed of flax in the days of Agricola, were afterwards made of hemp; and our own are therefore denominated *cannabis* or *canvas* by our mariners at preſent. And about the ſame period aſſuredly did the junk of the Britiſh cordage give way to the ſame materials; the uſe of hempen ropes upon land, and of hempen nets for hunting, being very common among the Romans in the firſt century.

CORDATED, an appellation frequently given by naturaliſts to things ſomewhat reſembling a heart.

CORDED, in heraldry. A croſs corded, ſome authors take for a croſs wound or wrenched about with cords: others, with more probability, take it for a croſs made of two pieces of cord.

CORDELERAS, mountains of South America, otherwiſe called ANDES.

CORDELIER, a Franciſcan, or religious of the order of St Francis. The Cordeliers are clothed in thick grey cloth, with a little cowl, a chaperon, and cloak, of the ſame; having a girdle of rope or cord tied with three knots: whence the name.—They are otherwiſe called *Minor Friars*, their original name. The denomination *Cordelier* is ſaid to have been firſt given them in the war of St Louis againſt the infidels; wherein the Friars Minor having repulſed the barbarians, and that king having inquired their name, it was anſwered, they were people *cordeliez*, "tied with ropes." The Cordeliers are to a man profeſſed Scotiſts.

CORDEMOI (Geral de), a learned philoſopher and hiſtorian, born at Paris, made himſelf known to M. Boſſuet, who placed him about the dauphin in the quality of reader. He inſtructed that young prince with great aſſiduity; and in 1675 was received into the French academy. He wrote a general hiſtory of France during the firſt races of the French kings, in 2 vols; and ſix diſcourſes on the Diſtinction between Body and Soul, which were printed together in 1702 quarto. He died in 1684. M. Cordemoi followed the principles of Deſcartes.

CORDIA, in botany: A genus of the monogynia order, belonging to the pentandria claſs of plants; and in the natural method ranking under the 41ſt order, *Aſperifoliæ*. The corolla is funnel-ſhaped; the ſtyle dichotomous or divided into two threads, and each of theſe divided into other two.

There are five ſpecies, of which the principal are the myxa and ſebeſtena. 1. The myxa, or Aſſyrian plum, grows wild in Aſſyria and Egypt, and alſo on the coaſt of Malabar. It riſes to the height of a middling plum-tree; and its branches are furniſhed with oval, woolly leaves, ſtanding without order. The flowers are produced in bunches; are white, and conſiſt of one tubular petal, and a like calyx, nearly of an equal length, and both are cut into five parts at their brims. In their centre are five very ſmall ſtamina, and one ſlender ſtyle crowned with an obtuſe ſtigma. The germen is roundiſh, and ſwells to a plum of the ſame form, and about the ſize of a damſon, of a dark brown colour, a ſweet taſte, and very glutinous. Theſe plums were formerly kept in the ſhops; and were accounted good for obtunding acrimony, and thereby ſtopping defluxions of rheum upon the lungs: but at preſent they are little uſed for theſe purpoſes. In ſome parts of Turkey they cultivate this tree in great abundance, not only for the ſake of the fruit to eat, but to make birdlime of, which is a vaſt article of trade in a town called *Seid*.—2. The ſebeſtena, or rough-leaved ſebeſten, grows naturally in both the Indies, and ſends forth ſeveral ſhrubby ſtalks eight or ten feet high. The young leaves are ſerated, but the full grown ones are not. They are of an oblong-oval form, rough, of a deep green on the upper ſide, and ſtand alternately on ſhort footſtalks. The flowers terminate the branches in large cluſters, are nearly of the ſhape and colour of thoſe of the marvel of Peru, and make a moſt beautiful appearance. Each has five ſtamina and one bifid ſtyle. The plums are much of the ſhape of thoſe of the myxa, and are eaten in the ſame manner. The fruit of this tree is leſs valuable than the wood, a ſmall piece of which thrown upon a clear fire will perfume a room with a moſt agreeable odour.

CORDIAL, in medicine, whatever raiſes the ſpirits, and gives them a ſudden ſtrength and cheerfulneſs; as wine, ſpirits, the effluvia of flowers, fruit, and many other ſubſtances.

CORDON, in fortification, a row of ſtones, made round on the outſide, and ſet between the wall of the fortreſs which lies aſlope, and the parapet which ſtands perpendicular, after ſuch a manner, that this difference may not be offenſive to the eye; whence the cordons ſerve only as an ornament, ranging round about the place, being only uſed in fortifications of ſtone-work; for in thoſe made with earth the void ſpace is filled up with pointed ſtakes.

CORDUBA (anc. geog.), an illuſtrious city of Bætica, on the right or north ſide of the Bætis. Built by Marcellus, according to Strabo; but which Marcellus, is not ſo clear. It was the firſt colony ſent into thoſe parts by the Romans; and ſurnamed *Patricia*, becauſe at firſt inhabited by principal men, both of the Romans and natives. It is mentioned by Sil. Italicus in the ſecond Punic war; and hence it is probable the firſt Marcellus was the founder, and not the Marcellus engaged in the civil war between Cæſar and Pompey. It was famous for the birth of the two Senecas and of Lucan (Martial), and for its rich produce in oil (Statius, Martial). Still retaining its name a little altered. W. Long. 5. Lat. 37. 45.

CORDOUA, or CORDOVA, a city of Andaluſia in Spain, ſituated on the river Guadalquiver, in a very extenſive plain. The circumference is large; but it is not peopled in proportion to its extent, for there are a great many orchards and gardens within the walls. There are many ſuperb ſtructures, palaces, churches, and religious houſes; particularly the cathedral, which is very magnificent: it was formerly a moſque when the Moors poſſeſſed the town; for which reaſon it ſtill retains the name of *Mezquita*, which has the ſame meaning. This cathedral is very rich in plate, four of the ſilver candleſticks coſt L. 850 a-piece. The revenue of the ſee amounts to L. 3500 *per annum*; but as the biſhops cannot deviſe by will, all they die poſſeſſed of eſcheats to the crown. The ſquare called the *Plaza Major* is ſurrounded with very fine houſes, under which are piazzas. The trade is flouriſhing on account of the river; and conſiſts of wine, ſilk, and Cordovian leather. In the neighbourhood of this place are a vaſt number of orange and lemon trees, which renders their fruits exceeding cheap. The beſt horſes in Spain come from hence.

Cordova was the ancient *Corduba* mentioned in the preceding article. After the fall of the Roman empire, it was ſubjected to the dominion of the Goths; but in the eight century it was raiſed by the Mooriſh princes to a ſtate of ſplendor unequalled in any other part of the world. In the year 755, Abdoulrahman, only heir-male of the Ommiad line, having paſſed over from Africa at the head of a few deſperate followers, found means to raiſe a rebellion in Spain; when, after a battle fought on the banks of the Guadalquiver, in which he overthrew the lieutenant of the Abaſſid Caliph of Damaſcus, he became king of all the Mooriſh poſſeſſions in the ſouth of Spain, and in 759 fixed his royal reſidence at Cordova. Then began thoſe flouriſhing ages of Arabian gallantry and magnificence which rendered the Moors of Spain ſuperior to all their cotemporaries in arts and arms, and made Cordova one of the moſt ſplendid cities of the world. Agriculture and commerce proſpered under the happy ſway of this hero; and the face of the country was changed from a ſcene of deſolation, which the long wars and harſh government of the viceroys had brought on, into a moſt populous flouriſhing ſtate, exceeding in riches, number of inhabitants, activity, and induſtry, any prior or ſubſequent era of the Spaniſh hiſtory. He added new fortifications to the town, built himſelf a magnificent palace with delicious gardens, laid cauſeways through the marſhes, made excellent roads to open ready communication between the great towns, and in 786 began the great moſque, which he did not live to finiſh.

During the courſe of two centuries, this court continued to be the reſort of all profeſſors of the polite arts, and of ſuch as valued themſelves upon their military and knightly accompliſhments; while the reſt of Europe was buried in ignorance, debaſed by brutality of manners, or diſtracted by ſuperſtitious diſputes. England, weakened by its heptarchy, was too inconſiderable even to be mentioned in the political hiſtory of the times: France, though it had a gleam of reputation under Charlemagne, was ſtill a barbarous unpoliſhed nation: and Italy was in utter confuſion; the frequent revolutions and change of maſters rendering it impoſſible for learning, or any thing good, to acquire a permanent footing in ſo unſtable a ſoil: Greece, though ſtill in poſſeſſion of the arts and luxury of ancient Rome, had loſt all vigour, and ſeemed abſorbed in the moſt futile of all purſuits; *viz.* that of ſcholaſtic argument and religious ſubtilties.

The reſidence of the Ommiad Caliphs was long conſpicuous for its ſupreme magnificence, and the crowds of learned men who were allured to it by the protection offered by its ſovereigns, the beauty of the country, the wholeſomeneſs of the climate, and the variety of pleaſures that returned inceſſantly in one enchanting round.

Cordova became the centre of politeneſs, induſtry, and genius. Tilts and tournaments, with other coſtly ſhows, were long the darling paſtimes of a wealthy happy people; and this was the only kingdom in the weſt where geometry, aſtronomy, and phyſic, were regularly ſtudied and practiſed. Muſic was no leſs honoured; for we find, that in 844 a famous muſician called *Ali Zeriab* came to ſettle at Cordova, and formed ſeveral pupils, who were ſuppoſed to equal the moſt celebrated performers that were ever known even in the Eaſt. That architecture was greatly encouraged, we need no other proof than the great and expenſive fabrics undertaken and completed by many of theſe Spaniſh monarchs. Whatever faults may be juſtly condemned in their manner by the connoiſſeur, accuſtomed to the chaſte noble graces of the Grecian proportions, certainly nobody can behold what remains of theſe Mooriſh edifices, without being ſtrongly impreſſed with a high idea of the genius of the artiſts, as well as the grandeur of the prince who carried their plans into execution.

The ſultans not only gave the moſt diſtinguiſhed protection to arts and ſciences, and to the perſons learned in any of them, but were themſelves eminently verſed in various branches of knowledge. Alkehem II. collected ſo immenſe a quantity of manuſcripts, that before the end of his reign the royal library contained no leſs than 600,000 volumes, of which the very catalogue filled 40 huge folios. The univerſity of Cordova was founded by him, and under ſuch favourable auſpices roſe to the higheſt pitch of celebrity.

Abdoulrahman was ſucceeded by his ſon Hiſſem, whoſe paſſion for glory and architecture was not in the leaſt inferior to that of his father. He put the finiſhing hand to the moſque, which the plunder of the ſouthern provinces of France enabled him to complete in the courſe of a few years. The bridge over the Guadalquiver was a work of Hiſſem's after his own plan.

Alkahem ſucceeded Hiſſem.

Abdoulrahman II. was alſo paſſionately fond of building. He was the firſt that brought the ſupplies of water to Cordova by means of leaden pipes laid upon aqueducts of ſtone. The quantity was ſo conſiderable, that every part of the palace, the moſques, baths, ſquares, and public edifices, had all of them their fountains conſtantly playing. A great many of theſe works ſtill ſubſiſt. He paved the whole city, and erected ſeveral moſques.

After him reigned Mahomet Almundar, Abdallah, and Abdoulrahman III. who ſurpaſſed all his predeceſſors in ſplendor, riches, and expence. His ſubjects vied with each other in profuſion and magnificence. This monarch was ſucceeded by his ſon Alkahem II. who left a minor to ſucceed him, and the kingdom to be governed by a famous viſir, Mahomet Abenamir, ſirnamed *Almanzor*, or "the defender," from his great victories and wiſe conduct. His deſcendents inherited from him the viſirſhip, and a power as abſolute as if they had been caliphs, until the weakneſs of the ſovereigns encouraged, and the inſolence of the miniſters provoked, the grandees to diſturb the ſtate with their jealouſies and diſſenſions. Theſe broils occaſioned ſuch a ſeries of civil wars and anarchy, as overthrew the thone of Cordova and deſtroyed the whole race of Abdoulrahman. Thus the glorious edifice, founded by the valour and prudence of that conqueror, and cemented by ſimilar virtues in many of his ſucceſſors, ſunk into nothing as ſoon as the ſceptre devolved upon weak enervated princes, whoſe indolence and incapacity transferred the management of every thing to a viſir. Many petty kingdoms ſprang up out of the ruins of this mighty empire; and the Chriſtians ſoon found opportunities of deſtroying, by ſeparate attacks, that tremendous power, which when united had proved an overmatch for their utmoſt force.

New Cordoua, a conſiderable town of South America, in the province of Tucuman, with a biſhop's ſee, 175 miles from St Jago. W. Long. 62. 5. S. Lat. 32. 10.

CORDUAN, a famous pharos or light-houſe of France, in Guienne, at the mouth of the river Girond. The architecture is extremely fine; and is placed there to hinder veſſels from running on the ſand banks at the mouth of the river. W. Long. 1. 9. N. Lat 45. 36.

CORDUS (Valerius), a learned botaniſt, was the ſon of Ericius Cordus, a phyſician and poet of Germany. Having learnt the languages, he applied himſelf to the ſtudy of botany; in the proſecution of which, he examined the mountains of Germany, and travelled into Italy; but being wounded in the leg by the kick of a horſe, died at Rome in 1544. He wrote Remarks on Dioſcorides, and other works.

CORDWAINERS, or Cordiners, the term whereby the ſtatutes denominate *ſhoemakers*. The word is formed from the French *cordonnier*, which Menage derives from *cordouan*, a kind of leather brought from Cordoua, whereof they formerly made the upper-leathers of their ſhoes. Others derive it from *corde*, "rope," becauſe anciently ſhoes were made of cords; as they ſtill are in ſome parts of Spain, under the name of *alpargates*. But the former etymology is better warranted: for, in effect, the French workmen who prepare the corduas are ſtill called *cordouanniers*.

In Paris they have two pious ſocieties under the titles of *freres cordonniers*, "brothers ſhoemakers," eſtabliſhed by authority towards the middle of the 17th century; the one under the protection of St Criſpin*, the other of St Criſpianus, two ſaints who had formerly honoured the profeſſion. They live in community, and under fixed ſtatutes and officers; by which they are directed both in their ſpiritual and ſecular concerns. The produce of their ſhoes goes into a common ſtock, to furniſh neceſſaries for their ſupport; the reſt to be diſtributed among the poor.

COREA, a peninſula lying to the north-eaſt of China, between 99 and 109 degrees of E. Long. and between 32 and 46 N. Lat. It is divided into eight provinces, which contain 40 cities of the 1ſt rank, 51 of the 2d, and 70 of the 3d. The capital of the whole is Hanching, where the king reſides. The Jeſuits ſay, the people are well made, of a ſweet and tractable diſpoſition, and fond of learning, muſic, and dancing, and in general reſemble the Chineſe. Their houſes are mean, being covered with thatch; and they have no beds but lie on the floor. They have little ſilk, and therefore make uſe of linen-cloth in its room. Their trade conſiſts in white paper, pencils, gingſeng, gold, ſilver, iron, yellow varniſh, fowls whoſe tails are three feet long, horſes no more than three feet in height, ſable-ſkins, caſtor, and mineral ſalt. In general it is a fertile country, though abounding in mountains. It is tributary to China.

Mr Groſier relates an obſervation concerning the natural hiſtory of Corea, which, in his opinion, furniſhes a new proof of the revolutions which the ſurface of our globe has undergone. An ancient Chineſe book aſſerts, that the city where Kipe, the king of Corea, eſtabliſhed his court, was built in a place which forms at preſent a part of the territories of *Yong-ping-fou*, a city of the firſt claſs in the province of Petcheli. "If this (ſays he) be admitted as a fact, we may from thence conclude that theſe territories formerly belonged to Corea; and that the gulf of Lax-tong, which at preſent ſeparates this kingdom from the province of Petcheli, did not then exiſt, and that it has been formed ſince; for it is not probable that a ſovereign would have fixed his reſidence without the boundaries of his kingdom, or in a place where he was ſeparated from it by a wide and extenſive ſea. This conjecture is confirmed by certain facts admitted by the Chineſe. Thus when *Yu*, ſurnamed the *Great*, undertook to drain and carry off the waters which had inundated the low grounds of ſeveral provinces, he began by the river Hoang-ho, the overflowing of which cauſed the greateſt devaſtation. He went in ſearch of its ſource to the boſom of Tartary, from whence he directed its courſe acroſs the provinces of Chan-ſi, Chen-ſi, Honan, and Petcheli. Towards its mouth, in order to weaken the rapidity of its waters, he divided them into nine channels, through which he cauſed this river diſcharge itſelf into the eaſtern ſea

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*See *Criſpin*.

near the mountain of *Kie-che-chan*, which then formed a promontory. Since that time to the preſent, that is about 3950 years, the river Hoang-ho has departed ſo much from its ancient courſe, that its mouth at preſent is about ſix degrees farther ſouth. We muſt alſo remark, that the mountain Kie-che-chan, which was formerly united to the main land of Yong-ping-fou, ſtands at preſent in the ſea at the diſtance of about 50 leagues to the ſouth of that city. If the ſea has been able to cover with its waters that extent of territory which at preſent forms part of the gulph of Lea-tong, may we not be allowed to ſuppoſe that like inundations may have formed ſucceſſively the whole of that gulph, the ancient exiſtence of which ſeems ſo ill to agree with the reſidence of the kings of Corea in the territories of Yong-ping-fou? It is true, the Chineſe hiſtory makes no mention of ſo conſiderable a phyſical revolution; but it is equally ſilent with regard to the 500 *lys* (50 leagues) extent of ground which is at preſent covered by the ſea beyond the mountains of Kie-che-chan. Beſides, of all the changes which the ſurface of our globe experiences, thoſe only are mentioned in hiſtory which happen ſuddenly, and which conſequently make more impreſſion on the minds of men.

Corea chiefly produces wheat, rice, and ginſeng, with a kind of palm-tree, which yields a gum capable of producing a yellow varniſh little inferior to gilding. Hence alſo are exported caſtor and ſable ſkins; alſo gold, ſilver, iron, and foſſil ſalt; a kind of ſmall bruſhes for painting, made of the hair of a wolf's tail, are likewiſe manufactured here, which are exported to China and highly eſteemed there. The ſea-coaſts abound in fiſh, and great numbers of whales are found there every year towards the north-eaſt. Several of theſe, it is ſaid, have in their bodies the harpoons of the French and Dutch, from whom they have eſcaped in the northern extremities of Europe; which ſeems to indicate a paſſage from the European into the Aſiatic ſeas round the continents of Europe and Aſia.

A conſiderable quantity of the paper of Corea is annually imported into China; indeed the tribute due to the emperor is partly paid with it every year. It is made of cotton, and is as ſtrong as cloth, being written upon with a ſmall hair-bruſh or pencil; but muſt be done over with alum-water before it can be written upon in the European manner. It is not purchaſed by the Chineſe for writing, but for filling up the ſquares of their ſaſh-windows; becauſe, when oiled, it reſiſts the wind and rain better than that of China. It is uſed likewiſe as wrapping paper; and is ſerviceable to the taylors, who rub it between their hands until it becomes as ſoft and flexible as the fineſt cotton cloth, inſtead of which it is often employed in lining clothes. It has alſo this ſingular property, that if it be too thick for the purpoſe intended, it may be eaſily ſplit into two or three leaves, each of which are even ſtronger than the beſt paper of China

The Coreans are well made, ingenious, brave, and tractable; are fond of dancing, and ſhow great docility in acquiring the ſciences, to which they apply with great ardour and honour in a particular manner. The northern Coreans are larger ſized and more robuſt than thoſe of the ſouth; have a taſte for arms, and become excellent ſoldiers. Their arms are croſs-bows and long ſabres. Men of learning are diſtinguiſhed from other claſſes of people by two plumes of feathers in their caps; and when merchants preſent the Coreans with any books for ſale, they dreſs themſelves in their richeſt attire, and burn perfumes before they treat concerning the price.

The Coreans mourn three years, as in China, for a father or mother: but the time of mourning for a brother is confined to three months. Their dead are not interred until three years after their deceaſe: and when the ceremony of interment is performed, they place around the tomb the clothes, chariot, and horſes of the deceaſed, with whatever elſe he ſhowed the greateſt fondneſs for while alive; all which they leave to be carried off by the aſſiſtants. Their houſes, as in China, conſiſt only of one ſtory, and are very ill built; in the country being compoſed of earth, and in cities generally of brick, but all thatched with ſtraw: the walls of their cities are conſtructed after the Chineſe manner, with ſquare turrets, battlements and arched gates. Their writing, dreſs, religious ceremonies, and creed, as well as the greater part of their cuſtoms, are borrowed from the Chineſe. Their women, however, are leſs confined, and have the liberty of appearing in public with the other ſex, for which they are often ridiculed by their neighbours. They differ from the Chineſe alſo in their ceremonies of marriage, and in the manner of contracting it; the parties in this country taking the liberty to chooſe for themſelves, without conſulting the inclination of their parents, or ſuffering them to throw any obſtacles in their way.

COREIA, in antiquity, a feſtival in honour of Proſerpine, named *Core*, Κορη, which in the Moloſſian dialect ſignifies a beautiful woman.

CORELLI (Arcangelo), the famous Italian muſician and compoſer, a native of Fuſignano, in the territory of Bologna, was born in 1653. He entertained an early propenſity to the violin; and as he advanced in years, laboured inceſſantly in the practice of that inſtrument. About the year 1672, his curioſity led him to viſit Paris, probably with a view to attend the improvements which were making in muſic under the influence of cardinal Mazarine, and in conſequence of the eſtabliſhment of a royal academy: but notwithſtanding the character which he brought with him, he was driven back to Rome by Lully, whoſe jealous temper could not brook ſo formidable a rival as this illuſtrious Italian. In the year 1680 he viſited Germany, and met with a reception ſuitable to his merit from moſt of the German princes, particularly the elector of Bavaria; in whoſe ſervice he was retained and continued for ſome time. After about five years ſtay abroad, he returned again to Rome, and there purſued his ſtudies with great aſſiduity.

The proficiency of Corelli on his favourite inſtrument the violin was ſo great, that the fame of it reached throughout Europe. The ſtyle of his performance was learned, elegant, and pathetic; and his tone firm and even. Mr Geminiani, who was well acquainted with, and had ſtudied it, was uſed to reſemble it to a ſweet trumpet. A perſon who had heard him perform ſays, that, whilſt he was playing on the violin, it was uſual for his countenance to be diſtorted, his

Corelli.

eyes to become as red as fire, and his eye-balls to roll as in an agony.

Corelli was highly favoured by that great patron of poetry and muſic, cardinal Ottoboni. Creſcembini ſays, that he regulated the muſical academy held at the palace of his eminence every Monday afternoon. Here it was that Mr Handel became acquainted with him; and in this academy a ſerenata of Mr Handel, entitled, *Il Trionfo del Tempo*, was performed, the overture to which was in a ſtyle ſo new and ſingular, that Corelli was confounded in his firſt attempt to play it.

During the reſidence of Corelli at Rome, beſides thoſe of his own country, many perſons were ambitious of becoming his diſciples, and learning the practice on the violin from the greateſt maſter of that inſtrument the world had then heard of. Of theſe it is ſaid the late lord Edgecumbe was one; and that the fine mezzotinto print of Corelli by Smith was ſcraped from a picture painted by Mr Hugh Howard at Rome for that nobleman.

Corelli died at Rome in 1713; and was buried in the church of the Rotunda, otherwiſe called the Pantheon, in the firſt chapel, on the left hand of the entrance. Over the place of his interment is a ſepulchral monument to his honour, with a marble buſt thereon, erected at the expence of Philip-William, count palatine of the Rhine, under the care and direction of cardinal Ottoboni.

For many years after his deceaſe, this excellent muſician was commemorated by a ſolemn muſical performance in the Pantheon, on the anniverſary of his death. In the year 1730 an eminent maſter, now living, was preſent at that ſolemnity, who relates that at it the third and eighth of his concertos were performed by a numerous band, among whom were many who had been the pupils of the author. He adds, that theſe two pieces were performed in a ſlow, diſtinct, and firm manner, without graces, and juſt as they are wrote; and from hence concludes, that this was the manner in which they were played by the author himſelf.

He died poſſeſſed of about 6000 l. ſterling. He was a paſſionate admirer of pictures, and lived in an uninterrupted friendſhip with Carlo Cignani and Carlo Maret: theſe two eminent painters were rivals for his favour; and for a ſeries of years preſented him at times with pictures, as well of other maſters as of their own painting. The conſequence was, that Corelli became poſſeſſed of a large and valuable collection of original paintings; all which, together with the ſum abovementioned, he bequeathed to his dear friend and patron cardinal Ottoboni, who, reſerving the pictures to himſelf, generouſly diſtributed the reſt of the effects among the relations of the teſtator.

Corelli is ſaid to have been remarkable for the mildneſs of his temper and the modeſty of his deportment: nevertheleſs, he was not inſenſible of the reſpect due to his ſkill and exquiſite performance. Cibber, in the Apology for his Life, p. 340. relates, that when he was playing a ſolo at cardinal Ottoboni's, he diſcovered the cardinal and another perſon engaged in diſcourſe, upon which he laid down his inſtrument; and being aſked the reaſon, gave for anſwer, that he feared the muſic interrupted their converſation.

Corelli
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Corfu.

The compoſitions of Corelli are celebrated for the harmony reſulting from the union of all the parts; but the fineneſs of the airs is another diſtinguiſhing characteriſtic of them: the allemand in the 10th ſolo is as remarkable for ſpirit and force, as that in the 11th is for its enchanting delicacy: his jigs are in a ſtyle peculiarly his own; and that in the 5th ſolo was never equalled. In the gavot movements in the 2d and 4th operas, the melody is diſtributed with great judgment among the ſeveral parts. In his minutes alone he ſeems to fail; Bononcini, Mr Handel, and Giuſeppe Martini, have excelled him in this kind of airs.

It is ſaid there is in every nation a ſtyle both in ſpeaking and writing, which never becomes obſolete; a certain mode of phraſeology, ſo conſonant and congenial to the analogy and principles of its reſpective language, as to remain ſettled and unaltered. This, but with much greater latitude, may be ſaid of muſic, and accordingly it may be obſerved of the compoſitions of Corelli, not only that they are equally intelligible to the learned and unlearned, but that the impreſſions made by them have been found to be as durable in general. His muſic is the language of nature; and, for a ſeries of years, all that heard it became ſenſible of its effects: of this there cannot be a ſtronger proof than that, amidſt all the innovations which the love of change had introduced, it continued to be performed, and was heard with delight in churches, in theatres, at public ſolemnities and feſtivities, in all the cities of Europe for near 40 years. Men remembered, and would refer to paſſages in it as to a claſſic author; and even at this day, the maſters of the ſcience do not heſitate to pronounce of the compoſitions of Corelli, that, of fine harmony and elegant modulation, they are the moſt perfect exemplars.

COREOPSIS, TICKSEEDED SUNFLOWER: A genus of the polygamia fruſtanea order, belonging to the ſyngeneſia claſs of plants; and in the natural method ranking under the 49th order, *Compoſitæ*. The receptacle is paleaceous; the pappus two-horned; the calyx erect and polyphyllous, ſurrounded with patent radiated leaflets at the baſe. There are 11 ſpecies, moſt of them herbaceous perennials. They are very flowery, and riſe from three to eight feet ſtature; terminated by cluſters of compound radiated flowers of a yellow colour. They have all perennial fibrous roots, and annual ſtalks, which riſe in the ſpring, flower from July to October, and decay to the root in November. The flowers are all ſhaped like ſun-flowers, but ſmaller, and are very ornamental. They are eaſily propagated by ſlipping or dividing the roots in autumn, when the ſtalks decay; planting the ſlips at once where they are to remain; after which they will require no farther trouble than to be kept free from weeds, and have the decayed ſtalks cut annually in autumn.

CORFE-CASTLE, a borough-town in Dorſetſhire in England. It takes its name from a ſtrong caſtle, belonging to the crown, that ſtood there, but is now ruined. It ſends two members to parliament. W. Long. 2. 8. N. Lat. 50. 33.

CORFU, an iſland in the Ionian ſea, at the mouth of the gulph of Venice, formerly called *Corcyra* and *Phæacia*, famous for the gardens of Alcinous. It belongs at preſent to the Venetians; and forms the bulwark of Chriſtendom againſt the Turks, who have often attempted to reduce it, but without ſucceſs. It is well fortified, and has 50 caſtles; and the number of the inhabitants is ſaid to be about 50,000. The inhabitants are of the Greek church; and the Venetians ſend them a governor and magiſtrates, which are changed every two years. The ſoil is very fruitful, and produces a great deal of wine, olives, and ſeveral other fruits, particularly figs, which are exceedingly good. The chief city is likewiſe called *Corfu*; ſee the following article.

Corfu, a city of the iſland of that name, belonging to the Venetians. It is a large place, ſtrongly fortified and defended by a garriſon of about 10,000 men; which, however, in the opinion of a late traveller, do not appear adequate to the extent of the fortifications. A number of very excellent braſs and iron cannon are mounted on the different forts, which, he obſerves, are ſo divided, that it would take treble the number of their garriſon to defend them. However, the republic of Venice is generally at peace with the different European nations, and the ancient power of the Turks being much decayed, they have little to apprehend; tho' to prevent any ſudden ſurpriſe, the Venetians keep a formidable ſquadron in the harbour of Corfu, and the works have been much improved by Major General Paterſon.—In the late war they had with the Turks, this town was attacked by an army of 80,000 men, and attempted to be ſtormed ſeveral times by the enemy; but the garriſon, which conſiſted of 12,000 men under the command of Count Schulenburg, made ſo brave and gallant a defence, that they always repulſed them, and obliged them to raiſe the ſiege, and abandon the place with conſiderable loſs. For this piece of ſervice the republic has cauſed a magnificent ſtatue to be erected in memory of the Count, with an elegant Latin inſcription, ſetting forth the many eminent ſervices of his military atchievements. The circumference of the city is about four miles; the number of inhabitants on the whole iſland are computed at about 50,000, the greateſt part of whom are Greeks.

This iſland is the reſidence of the governor-general, whoſe juriſdiction extends over all the iſlands ſubject to the republic of Venice, in the Levant ſeas, and is conſidered as one of the greateſt honours they can confer on a ſubject. He is always a nobleman of the firſt rank, and has his appointment for three years only, in which time he makes a tolerable addition to his fortune, and on his return to Venice is generally advanced to the honours of the ſenate. In the city are many handſome Greek churches, the principal of which is that of St Speridione, or the cathedral: It is embelliſhed with ſome excellent paintings, and moſt ſuperbly ornamented. The body of the ſaint from whom it was named, is preſerved entire in a rich ſhrine within the church. The Greeks are moſt of them ſuch fanatics as to be continually offering their devotions at this ſhrine, believing that through the interceſſion of the ſaint they will obtain all their wants; and that by offerings of money their ſins will be forgiven them; by which means the church has amaſſed an immenſe treaſure. The relic of the ſaint is depoſited in a ſilver coffin, richly decorated with precious ſtones. It is in an amazing ſtate of preſervation; he having died in the iſland of Cyprus upwards of 700 years ago; and after remaining 400 years there, was tranſported to this place. Beſides the grand fleet, the Venetians have another of galleys, that are manned by convicts whoſe crimes are not of ſuch a nature as to merit death. The chief diverſions of this place in the winter are operas; they have always a company of comedians for the ſeaſon from Naples. In the ſummer they paſs their time in walking upon the ramparts: few except the governor and great officers of ſtate are permitted to keep carriages. The Corfu people perfectly reſemble the Zanteots in their manners (ſee Zante); though it muſt be obſerved in praiſe of the former, that aſſaſſinations are uncommon among them, their laws being too ſevere to permit ſuch practices with impunity. E. Long. 19. 48. N. Lat. 39. 50.

CORIA, a town of Spain, in the kingdom of Leon and province of Eſtremadura, towards the confines of Portugal, with a biſhop's ſee. It is ſeated on a little river called *Alagon*, in a very fertile plain. There is nothing remarkable but the cathedral church, except at a little diſtance a river without a bridge, and a bridge without a river. This was cauſed by an earthquake, which turned the river another way. W. Long. 6. 46. N. Lat. 39. 59.

CORIANDRUM, Coriander: A genus of the digynia order, belonging to the pentandria claſs of plants; and in the natural method ranking under the 45th order, *Umbellatæ*. The corolla is radiated; the petals inflexed-emarginated; the involucrum univerſal and monophyllous; the partial involucra halved; the fruit ſpherical. There are only two ſpecies, both of them herbaceous annuals, the leaves of which are uſeful for the kitchen, and the ſeeds for medicine. Both ſpecies have divided ſmall leaves, ſomewhat reſembling parſley: but there is but one ſpecies generally cultivated; namely, the *ſativum*. This hath a ſmall fibrous white root, crowned by many parted leaves, having broadiſh ſegments; and in the centre an upright, round, branchy ſtalk, two feet high, having all the branches terminated by umbels of flowers, which are ſucceeded by globular fruit. It is propagated by ſeed, which when a good crop is wanted, ought to be ſown in March, either in drills a foot aſunder, or by broadcaſt, and then raked in. When the plants are an inch or two high, they ſhould be hoed to ſix or eight inches diſtance. The ſeeds when freſh have a ſtrong diſagreeable ſmell, which improves by drying, and becomes ſufficiently grateful: they are recommended as carminative and ſtomachic. They are alſo much uſed by the brewers both in England and Holland, to give a flavour to their ſtrongeſt beer. The ancients had a notion, that the juice of coriander would deprive people of their ſenſes, and even of life. The leaves are ſometimes uſed for culinary purpoſes in ſoups, and as an ingredient in ſalads; but as they are of a fetid ſmell, they are held in no great eſteem in this country.

CORIARIA, the *Tanner's* or *myrtle-leafed* Sumach: A genus of the decandria order, belonging to the diœcia claſs of plants; and in the natural method ranking under the 54th order, *Miſcellaneæ*. The male calyx is pentaphyllous; the corolla pentapetalous, very like the calyx, and united with it; the antheræ bipartite. The female calyx is pentaphyllous; the corolla like that of the male; the ſtyles five, ſeeds five, covered with a like number of ſucculent petals, forming altogether the reſemblance of a berry. There are two ſpecies, the myrtifolia and the fœmina. They are both natives of the ſouth of France, but the former is moſt commonly cultivated in Britain. It is a pretty ornamental plant, with a ſhrubby pithy brown ſtem, cloſely branching from the bottom, and forms a buſhy head three or four feet over, thickly garniſhed with oblong, pointed, bright green leaves, having ſmall ſpikes of whitiſh flowers at the ends of the branches. It is eaſily propagated by ſuckers from the root, which it affords plentifully, and may be taken off with fibres every autumn or winter. It may alſo be propagated by layers in autumn, which will take root in a year. It is much uſed in the ſouth of France, where it naturally grows, for tanning of leather, whence its name of *tanner's ſumach*. It alſo dyes a beautiful black colour. The berries are dangerous, and when eaten generally occaſion vertigoes and epilepſies. The old leaves have the ſame effect upon cattle that eat them, but the young leaves are innocent.

CORIDOR, or **CORRIDOR**, in fortification, a road or way along the edge of the ditch, without-ſide: encompaſſing the whole fortification. The word comes from the Italian *coridore*, or the Spaniſh *coridor*.

It is alſo called the *covert-way*; becauſe covered with a glacis, or eſplanade, ſerving it as a parapet. The coridor is about 20 yards broad.

CORIDOR is alſo uſed in architecture, for a gallery or long iſle around a building, leading to ſeveral chambers at a diſtance from each other, ſometimes wholly incloſed, and ſometimes open on one ſide.

CORINNA, a Grecian lady, celebrated for her beauty and poetic talents, was born at Theſſu a city of Bœotio, and was the diſciple of Myrtis another Grecian lady. Her verſes were ſo eſteemed by the Greeks that they gave her the name of the *lyric muſe*. She lived in the time of Pindar, about 495 years before Chriſt; and is ſaid to have gained the prize of lyric poetry from that Poet: but Pauſanias obſerves that her beauty made the judges partial.

CORINTH, a celebrated city of antiquity, for ſome time the moſt illuſtrious of all the Greek cities. It is ſaid to have been founded 1514 years before Chriſt, by Siſyphus the ſon of Eolus, and grandfather of Ulyſſes. Various reaſons are given for its name, but moſt authors derive it from *Corinthus* the ſon of Pelops. It was ſituated in the ſouth part of the Iſthmus which joins the Peloponneſus, now the Morea, to the continent. It conſiſted of a citadel built upon an eminence, and thence named *Acrocorinthus*; beſides which it had two maritime towns ſubject to it, named *Lecheum* and *Cenchrea*. The whole ſtate extended ſcarce half a degree in length or breadth; but ſo advantageouſly were the abovementioned ports ſituated, that they might have gained the Corinthians a ſuperiority, if not a command, over all Greece, had not their advantageous ſituation inclined them to commerce rather than war. For their citadel was almoſt impregnable; and, commanding both the Ionian and Ægean ſeas, they could eaſily cut off all communication from one half of Greece with the other; for which reaſon this city was called one of the fetters of Greece.

But as the genius of the Corinthians led them to commerce rather than martial exploits, their city became the fineſt in all Greece. It was adorned with the moſt ſumptuous buildings, as temples, palaces, theatres, porticoes, &c. all of them enriched with a beautiful kind of columns, which from the city were called *Corinthian*. But though the Corinthians ſeldom or never engaged in a war with a view of enlarging, but rather of defending, their little ſtate, they did not forget to cultivate a good diſcipline both in time of peace and of war. Hence many brave and exrienced generals have been furniſhed by Corinth to the other Grecian cities, and it was not uncommon for the latter to prefer a Corinthian general to any of their own.

This city continued to preſerve its liberty till the year before Chriſt 146, when it was pillaged and burnt by the Romans. It was at that time the ſtrongeſt place in the world; but the inhabitants were ſo diſheartened by a preceding defeat, and the death of their general, that they had not preſence of mind enough even to ſhut their gates. The Roman conſul, Mummius, was ſo much ſurpriſed at this, that at firſt he could ſcarce believe it; but afterwards fearing an ambuſcade, he advanced with all poſſible caution. As he met with no reſiſtance, his ſoldiers had nothing to do but deſtroy the few inhabitants who had not fled, and plunder the city. Such of the men as had ſtaid, were all put to the ſword, and the women were ſold for ſlaves. After this the city was ranſacked by the greedy ſoldiers, and the ſpoils of it are ſaid to have been immenſe. There were more veſſels of all ſorts of metal, more fine pictures, and ſtatues done by the greateſt maſters in Corinth, than in any other city in the world. All the princes of Europe and Aſia, who had any taſte in painting and ſculpture, furniſhed themſelves here with their richeſt moveables: here were caſt the fineſt ſtatues for temples and palaces, and all the liberal arts brought to their greateſt perfection. Many ineſtimable pieces of the moſt famous painters and ſtatuaries fell into the hands of the ignorant ſoldiers, who either deſtroyed them or parted with them for a trifle. Polybius the hiſtorian was an eye-witneſs to this barbariſm of the Romans. He had the mortification to ſee two of them playing at dice on a famous picture of Ariſtides, which was accounted one of the wonders of the world. The piece was a Bacchus, ſo exquiſitely done, that it was proverbially ſaid of any extraordinary performance, "It is as well done as the *Bacchus of Ariſtides*." This maſterly piece of painting, however, the ſoldiers willingly exchanged for a more convenient table to play upon: but when the ſpoils of Corinth were put up to ſale, Attalus king of Pergamus offered for it 600,000 ſeſterces, near L. 5000 ſterling. Mummius was ſurpriſed at ſuch a high price offered for a picture, and imagined there muſt be ſome magical virtue it. He therefore interpoſed his authority, and carried it to Rome, notwithſtanding the complaints of Attalus. Here this famous picture was lodged in the temple of Ceres, where it was at laſt deſtroyed by fire, together with the temple. Another extraordinary inſtance of the ſtupidity of Mummius is, that when the pictures were put on board the tranſports, he told the maſters of the veſſels very ſeriouſly, that if any of the things were either loſt or ſpoiled, he would oblige them to find others at their own coſt; as if any other pieces could have ſupplied the loſs of thoſe ineſtimable originals, done by the greateſt maſters in Greece. When the city was thoroughly pillaged, fire was ſet to all the corners of it at the ſame time. The flames grew more violent as they drew near the centre, and at laſt uniting there made one prodigious conflagration. At this time the famous metalline mixture is ſaid to have been made, which could never afterwards be imitated by art. The gold, ſilver, and braſs, which the Corinthians had concealed, were melted, and ran down the ſtreets in ſtreams, and when the flames were extinguiſhed, a new metal was found, compoſed of ſeveral different ones, and greatly eſteemed in after ages.

The town lay deſolate until Julius Cæſar ſettled there a Roman colony; when, in moving the rubbiſh and digging, many vaſes were found of braſs or earth finely emboſſed. The price given for theſe curioſities excited induſtry in the new inhabitants. They left no burying-place unexamined; and Rome, it is ſaid, was filled with the furniture of the ſepulchres of Corinth.

Strabo was at Corinth ſoon after its reſtoration by the Romans. He deſcribes the ſite as follows. "A lofty mountain, in perpendicular height as much as three ſtadia and a half (near half a mile), the aſcent 30 ſtadia (3¾ miles), ends in a pointed ſummit called *Acrocorinthus*. Of this the portion to the north is the moſt ſteep; beneath which lies the city on a level area, at the foot of the Acrocorinthus. The circuit of the city alone has been 40 ſtadia (5 miles), and as much of it as was unſheltered by the mountain has been walled about. Within the incloſure was comprehended alſo the Acrocorinthus, where the mountain was capable of receiving a wall; and as we aſcended, the veſtiges were plain; ſo that the whole circumference exceeded 85 ſtadia (near 11 miles). On the other ſides the mountain is leſs ſteep, but riſes very high, and is viſible all around. Upon the ſummit is a ſmall temple of Venus; and below it the ſpring Pirene, which does not overflow, but is always full of pellucid and potable water. They ſay it unites with ſome other hidden veins, and forms the ſpring at the mountain foot, running into the city, and affording a ſufficient ſupply for the uſe of the inhabitants. In the city is plenty of wells, and in the Acrocorinthus, as they ſay, for we did not ſee any. There they relate the winged horſe Pegaſus was taken as he was drinking, by Bellerophon. Below Pirene is the Siſyphéum, ſome temple or palace of white ſtone, the remains not inconſiderable. From the ſummit is beheld to the north Parnaſſus and Helicon, lofty mountains covered with ſnow; and below both, to the weſt, the Criſſean gulph bounded by Phocis, by Bœotia and the Megaris, and by Corinthia and Sicyonia oppoſite to Phocis. Beyond all theſe are the mountains called the *Oneian*, ſtretching as far as Bœotia and Cithæron from the Scironian rocks on the road to Attica." Strabo ſaw likewiſe Cleonæ from thence. Cenchreæ was then a village. Lechæum had ſome inhabitants.

New Corinth had flouriſhed 217 years when it was viſited by Pauſanias. It had then a few antiquities, many temples and ſtatues, eſpecially about the Agora or market place, and ſeveral baths. The emperor Hadrian introduced water from a famous ſpring at Stymphalus in Arcadia; and it had various fountains alike copious and ornamental. The ſtream of one iſſued from a dolphin, on which was a brazen Neptune; of another, from the hoof of Pegaſus, on whom Bellerophon was mounted. On the right hand, coming along the road leading from the market-place toward Sicyon, was the Odéum and the theatre, by which was a temple of Minerva. The old Gymnaſium was at a diſtance. Going from the market-place toward Lechæum was a gate, on which were placed Phæton and the Sun in gilded chariots. Pirene entered a fountain of white marble, from which the current paſſed in an open channel. They ſuppoſed the metal called *Corinthian braſs* to have been immerged while red hot in this water. On the way up to the Acrocorinthus were temples, ſtatues, and altars; and the gate next Tenea, a village with a temple of Apollo ſixty ſtadia, or ſeven miles and a half diſtant, on the road to Mycenæ. At Lechæum was a temple and a brazen image of Neptune. At Cenchreæ were temples; and by the way from the city a grove of cypreſs-trees, ſepulchres, and monuments. Oppoſite was *the Bath of Helen*, water tepid and ſalt, flowing plentifully from a rock into the ſea. Mummius had ruined the theatre of Corinth, and the munificence of the great Athenian Atticus Herodes was diſplayed in an edifice with a roof inferior to few of the moſt celebrated ſtructures in Greece.

The Roman colony was reſerved to ſuffer the ſame calamity as the Greek city, and from a conqueror more terrible than Mummius, Alaric the ſavage deſtroyer of Athens and univerſal Greece. In a country haraſſed with frequent wars, as the Peloponneſus has ſince been, the Acrocorinthus was a poſt too conſequential to be neglected. It was beſieged and taken in 1459 by Mahomet II.; the deſpots or lords of the Morea, brothers of the Greek emperor who was killed in defending Conſtantinople, refuſing payment of the arrears of the tribute, which had been impoſed by Sultan Morat, in 1447. The country became ſubject to the Turks, except ſuch maritime places as were in the poſſeſſion of the Venetians; and many of the principal inhabitants were carried away to Conſtantinople. Corinth, with the Morea, was yielded to the republic at the concluſion of the war in 1698, and again by it to the Turks in 1715.

Corinth retains its old name, and is of conſiderable extent, ſtanding on high ground, beneath the Acrocorinthus, with an eaſy deſcent toward the gulph of Lepanto; the houſes ſcattered or in parcels, except in the Bazar or market-place. Cypreſſes, among which tower the domes of moſques, with corn-fields, and gardens of lemon and orange-trees, are interſperſed. The air is reputed bad in ſummer, and in autumn exceedingly unhealthy. Wheler relates, that from the top of the Acrocorinthus or Citadel, he enjoyed one of the moſt agreeable proſpects which this world can afford. He gueſſed the walls to be about two miles in compaſs, incloſing moſques, with houſes and churches moſtly in ruins. An hour was conſumed in going up on horſeback. It was a mile to the foot of the hill, and from thence the way was very ſteep, with many traverſes. The families living below were much infeſted by corſairs, and on every alarm flocked up to the caſtle.

According to Dr Chandler, Corinth has preſerved but few monuments of its Greek or Roman citizens. The chief remains, he informs us, are at the ſouth-weſt corner of the town, and above the bazar or market; 11 columns ſupporting their architraves, of the Doric order, fluted, and wanting in height near half the common proportion to the diameter. Within them, toward the weſtern end, is one taller, though not entire, which it is likely contributed to ſuſtain the roof. They have been found to be ſtone, not marble; and appear brown, perhaps from a cruſt formed on the outſide. The ruin he judges to be of very remote antiquity, and a portion of a fabric erected not only before the Greek city was deſtroyed, but before the Doric order had attained to maturity. He ſuſpects it to have been the Siſyphéum mentioned by Strabo. North of the Bazar ſtands a large maſs of brick-work, a remnant, it may be conjectured, of a bath or of the Gymnaſium.

The inhabitants are moſt of them Chriſtians of the Greek church, who are allowed liberty of conſcience by the Turks. E. Long. 28. 13. N. Lat. 38. 14.

CORINTH, (the iſthmus of), in the Morea, is a neck of land which joins the Morea to Greece, and reaches from the gulph of Lepanto to that of Egina. Julius Cæſar, Caligula, and Nero, attempted to cut a channel through it, but in vain; and they therefore afterwards built a wall acroſs it, which they called *Hexamilium*, becauſe it was ſix miles in length. This was demoliſhed by Amurat II. and afterwards rebuilt by the Venetians, but was levelled a ſecond time by Mahomet II.

CORINTHIAN, in general, denotes ſomething belonging to Corinth: thus we ſay, Corinthian braſs, Corinthian order, &c.

CORINTHIAN *Braſs*. See BRASS and CORINTH.

CORINTHIAN Order, in architecture, the fourth order of architecture, according to Scamozzi; but Mr Le Clerc makes it the fifth, being the moſt noble and delicate of all the other five. See ARCHITECTURE, n° 47.

CORIO (Bernardine), an hiſtorian, born of an illuſtrious family at Milan, in the year 1460. He was ſecretary of ſtate to that duchy; and the Duke of Lavis Storza appointed him to write the hiſtory of Milan. He died in 1500. The beſt edition of his hiſtory is that of 1503, in folio. It is printed in Italian, and is very ſcarce.

CORIOLANUS (C. Marcius), a famous Roman captain, took Corioli a town of the Volſci, whence he had his ſurname: at laſt, diſguſting the people, he was baniſhed Rome by the tribune Decius. He went to the Volſci, and, perſuading them to take up arms againſt the Romans, they encamped within four miles of the city. He would not liſten to propoſals of peace till he was prevailed upon by his wife Veturia, and his mother Volumnia, who were followed by all the Roman ladies in tears. He was put to death by the Volſci as a traitor that had made them quit their conqueſt: upon which the Roman ladies went into mourning; and in the ſame place where his blood was ſpilled there was a temple conſecrated to Feminine Virtue.

CORIS, in botany: A genus of the monogynia order, belonging to the pentandria claſs of plants; and in the natural method ranking with thoſe of which the order is doubtful. The corolla is monopetalous and irregular; the calyx prickly; the capſule quinquevalved ſuperior. There is only one ſpecies, *viz.* the monſpelienſis, or blue maritime coris. There are two varieties of this plant, one with a red, and the other with a white flower; but theſe are only accidental, and ariſe from the ſame ſeeds. They grow wild about Montpelier, and in moſt places in the ſouth of France: they ſeldom grow above ſix inches high, and ſpread near the ſurface of the ground like heath; and in June, when they are full of flowers, make a very pretty appearance. They may be propagated by ſowing their ſeeds in a bed of freſh earth, and afterwards removing the young plants, ſome into pots, and others into a warm border. They generally bear our winter colds well enough, but ſevere froſts will ſometimes deſtroy them; for which reaſon it is proper to keep ſome of them in pots, which ſhould be put under a hot-bed frame in winter. As they ſeldom produce good ſeeds in this country, they may, in want of theſe, be propagated by ſlips and cuttings, which will take root if planted on a very gentle hot-bed, ſhaded from the ſun, and duly watered.

CORIS is alſo uſed in the Eaſt-Indies for a kind of ſhells which paſs for money.

CORISPERMUM, TICKSEED: A genus of the digynia order, belonging to the monandria claſs of plants; and in the natural method ranking under the 12th order, *Holoraceæ*. There is no calyx; two petals, and one oval naked ſeed. There are two ſpecies; but none of them are remarkable for their beauty or any other quality.

CORITANI, (anc. geog.) a people of Britain, occupying widely the inland parts, as Northampton, Leiceſter, Rutland, Lincoln, Nottingham, and Derby ſhires, (Camden).

CORK, the bark of a tree of the ſame name, a ſpecies of Quercus. See QUERCUS.

To take off the bark they make an inciſion from the top to the bottom of the tree, and at each extremity another round the tree, perpendicular to the firſt. When ſtripped from the tree, which does not therefore die, the bark is piled up in a pond or ditch, and loaded with heavy ſtones to flatten it, and reduce it into tables: hence it is taken to be dried; and when ſufficiently dry, put in bales for carriage. If care be not taken to ſtrip the bark, it ſplits and peels off itſelf; being puſhed up by another bark formed underneath.

The bark of cork, as well as the acorn, are of ſome uſe in medicine; being both reputed aſtringents, after being burnt and powdered when uſed externally; but the chief employ of the former is, to put in ſhoes, ſlippers, &c. and to ſtop bottles. The Spaniards burn it to make that kind of light black we call *Spaniſh black*, uſed by painters. Cups made of cork, are ſaid by ſome to be good for hectical perſons to drink out of. The Egyptains made coffins of cork; which being lined with a reſinous compoſition, preſerved dead bodies uncorrupted. The Spaniards line ſtone-walls with it, which not only renders them very warm, but corrects the moiſture of the air.

*Foſſil-*CORK, a name given to a kind of ſtone. It ſeems to be a ſpecies of amianthus, conſiſting of flexible fibres looſely interwoven, and ſomewhat reſembling vegetable cork. It is the lighteſt of all ſtones; by fire it is fuſible, and forms a black glaſs. It poſſeſſes the general qualities of amianthus. See that article.

Cork, in Latin *comitatus Corcagienſis*, a county of the province of Munſter in Ireland. It is the moſt populous and conſiderable county of the kingdom next to that of Dublin; containing near a million of acres, and being divided into 15 baronies. It is bounded on the north-eaſt by the county of Waterford; on the weſt by Kerry; by Limeric on the north; and by the ſea on the ſouth and ſouth-eaſt. Including Deſmond it is 85 miles in length and 50 in breadth; but is very unequal both ways. Though a conſiderable part of the country is boggy, mountainous, and barren; yet by the induſtry of the inhabitants it is pretty well cultivated and improved, and contains ſeveral good towns and harbours.

Cork, a city of Ireland, and capital of the county of that name. It is an epiſcopal ſee; and is the largeſt and moſt populous of any in the kingdom, Dublin alone excepted. It is ſituated on the river Lee, 15 miles from its mouth. It is a place of great trade, the harbour here being one of the fineſt in the world. Though ſmaller veſſels can come up to the key, yet the larger generally ride at a place called *Paſſage*. This city, together with its liberties, makes a county. It was built, or rather fortified, by the Danes, in the ninth century. The greateſt part of it ſtands on a marſhy iſland ſurrounded by the river Lee, which alſo runs through the city, and divides it into ſeveral canals. On this account ſome have thought the air very moiſt and unwholeſome. Complaints have alſo been made againſt the water as impure; but, from comparing the bills of mortality with thoſe of other cities, it appears that the city of Cork is far from being unhealthy. This hath been accounted for from the influx of the tide, by which a ſtagnation of air is prevented. The firſt charter of Cork was beſtowed by Henry III. and afterwards ratified by Edward I. Edward II. and Edward III. Edward IV. granted a new charter; and the city received many favours from the ſucceeding monarchs. King James I. gave the citizens a new and ample charter; and king Charles I. what is called the Great Charter, by which, among others, a clauſe in king James's charter was enforced, making this city a county of itſelf. The ſee of Cork is reputed worth L. 2700 a-year. The chapter conſiſts of a dean, chanter, chancellor, treaſurer, archdeacon, and twelve prebendaries. The church is dedicated to St Barr or Finbarr; and the dioceſe is divided into five deaneries. There is very little to be found in ancient writers concerning the foundation of the Cathedral of Cork; yet it is generally aſcribed to St Barr in the ſeventh century. Many of its biſhops have been great benefactors to it. Through length of time, the church became quite ruinous; but it hath lately been completely rebuilt, and is now an elegant modern ſtructure. To defray the expence, the parliament laid a tax on all coals conſumed in the city of Cork. The deanery is reputed to be worth L. 400 a-year.

Cork is much improved and enlarged, ſeveral broad ſtreets have been lately added, by filling up the canals that formerly ran through them, and are now built up with elegant houſes; the parade is very ſpacious, and is adorned with an equeſtrian ſtatue of king George II. It hath the largeſt export in the kingdom, particularly of beef, hides, tallow, butter, fiſh, and other proviſions. It is partly ſituated on ſeveral iſlands, formed by the river Lee, which are banked and quayed in, ſomewhat like the towns in Holland; and partly on riſing grounds, on the north and ſouth ſides of the river. The earl of Marlborough beſieged and took it from king James's army in 1690; when the duke of Grafton, who ſerved as a volunteer, was ſlain in an attack. It contains about 8600 houſes, and upwards of 70,000 inhabitants. It hath twelve companies of foot quartered in the barracks. Beſides a ſtately cathedral, built from the foundation, between 1725 and 1735, by the produce of a duty upon coals, as above noticed, it is adorned with ſeveral handſome pariſh churches. It has alſo an elegant exchange for the merchants, a new and beautiful cuſtom-houſe, a town-hall, ſeveral fine hoſpitals, and various other public ſtructures. The city poſſeſſes an annual revenue of about 1300l. out of which the mayor enjoys for his ſalary and the ſupport of his dignity 500l. The wealth and grandure of Cork ariſe from its capacious and commodious haven, where almoſt any number of ſhips may lie with eaſe and ſafety. According to ſome accounts, when there has been no war, 1200 veſſels have reſorted hither in a year. Ships from England, bound to all parts of the Weſt Indies, take in here a great part of their proviſions; and on the ſame account the haven of Cork is viſited by thoſe alſo of moſt other nations. The ſlaughtering ſeaſon continues from the month of Auguſt to the latter end of January; in which ſpace it has been computed, that they kill and cure ſeldom fewer than 100,000 head of black cattle. The reſt of their exports conſiſt of butter, candles, hides, raw and tanned, linen cloth, pork, calves, lambs, and rabbit-ſkins, tallow, wool for England, linen and woollen yarn, and worſted. The merchants of Cork carry on a very extenſive trade to almoſt all parts of the known world; ſo that their commerce is annually increaſing. The produce of the cuſtoms ſome years ſince exceeded 60,000l. and the number of ſhips that they employ is double to what it was forty years ago. The only thing that ſeemed to be wanting to the ſecurity of the port of Cork was ſupplied in the earl of Cheſterfield's memorable adminiſtration, by building a fort on the great iſland, to command the entrance of the haven. The outlets of Cork are cheerful and pleaſant. The country around the city, on both ſides of the river, is hilly and pictureſque; and the harbour called the *Cove*, is one of the beſt in the world; the entrance is ſafe, and the whole navy of England might ride in it, ſecure from every wind that blows. Ships of burden, however, are obliged to unload at Paſſage, five miles and a half from Cork, the channel not admitting veſſels of above 150 tons.

Cork Jacket, or *Waiſtcoat*, is an invention of one Mr Dubourg, a gentleman very fond of ſwimming, but ſubject to the cramp, which led him to conſider of ſome method by which he might enjoy his favourite diverſion with ſafety. The waiſtcoat is compoſed of four pieces of cork, two for the breaſts and two for the back; each pretty near in length and breadth to the quarters of a waiſtcoat without flaps;

the whole is covered with coarſe canvas, with two holes to put the arms through: there is a ſpace left between the two back-pieces, and the ſame betwixt each back and breaſt-piece, that they may ſit the eaſier to the body. Thus the waiſtcoat is only open before, and may be faſtened on the wearer with ſtrings, or, if it ſhould be thought more ſecure, with buckles and leather ſtraps. This waiſtcoat does not weigh above 12 ounces, and may be made up for about 5 or 6 ſhillings expence. Mr Dubourg tried his waiſtcoat in the Thames, and found that it not only ſupported him on the water, but that two men could not ſink him, tho' they uſed their utmoſt efforts for that purpoſe. If thoſe who uſe the ſea occaſionally, and eſpecially thoſe who are obliged to be almoſt conſtantly there, were to have thoſe waiſtcoats, it would be next to impoſſible that they ſhould be drowned. It would alſo be of vaſt ſervice to thoſe that, for the ſake of health, bathe in the ſea; and even the moſt delicate and timorous young lady might by the help of one of theſe jackets venture into a rough ſea. See *Air-Jacket, and Bamboo-Habit*.

CORMANDEL. See Coromamdel.

COR-MASS, the name of a grand proceſſion, ſaid to have been eſtabliſhed at Dunkirk during the dominion of Charles V. and renewed on St John's day, the twenty-fourth of June. After the celebration of high maſs, the proceſſion, conſiſting of the ſeveral tradeſmen of the town, begins. Each perſon has a burning taper of wax in his hand; and after each company comes a pageant, followed by the patron-ſaint, uſually of ſolid ſilver, richly wrought and adorned. The companies are followed by muſic; and after the muſicians, the friars in the habits of their order, the ſecular prieſts, and then the abbot magnificently adorned and preceded by the hoſt. Machines likewiſe of various fantaſtical forms and devices, and as variouſly accoutred, form a part of the ſhow on this occaſion: which is deſcribed as one of the moſt ſuperb and magnificent in the world, by an eye-witneſs, in 1735.

CORMORANT, a corruption of corvorant, in ornithology. See Pelicanus.

CORN, in country affairs, the grain or ſeeds of plants ſeparated from the ſpica or ear, and uſed for making bread.

There are ſeveral ſpecies, of corn, ſuch as wheat, rye, and barley, millet and rice, oats, maize and lentils, peaſe, and a number of other kinds; each of which has its uſefulneſs and propriety.

Europe, in every part of it; Egypt, and ſome of the cantons of Africa, particularly the coaſts of Barbary; and ſome parts of America cultivated by the Europeans, particularly New England, New France, and Acadia; are the places which produce corn. Other countries have maize and rice in lieu of it; and ſome parts of America, both in the iſlands and continents, ſimple roots, ſuch as potatoes and manioc.—Egypt was anciently the moſt fertile of all other countries in corn; as appears both from ſacred and profane hiſtory. It furniſhed a good part of the people ſubject to the Roman empire, and was called the *dry nurſe of Rome and Italy*. Britain, France, and Poland, ſeem now in the place of Egypt, and with their ſuperfluities ſupport a good part of Europe.

For the firſt diſcovery and culture of corn, authors are much divided: the common opinion is, that in the firſt ages men lived on the ſpontaneous fruits of the earth; as acorns, and the nut or maſt produced by the beech; which, they ſay, took its name *fagus*, from the Greek φαγω, *I eat*. It is added, that they had not either the uſe of corn, nor the art of preparing or making it eatable.

Ceres has the credit of being the firſt that ſhowed the uſe of corn, on which account ſhe was placed among the gods; others give the honour to Triptolemus; others ſhare it between the two, making Ceres the firſt diſcoverer, and Triptolemus the firſt planter and cultivator of corn. Diodorus Siculus aſcribes the whole to Iſis; on which Polydore Virgil obſerves, he does not differ from the reſt; Iſis and Ceres being, in reality, the ſame. The Athenians pretend it was among them the art began; and the Cretans or Candiots, Sicilians, and Egyptians, lay claim to the ſame. Some think the title of the Sicilians beſt ſupported, that being the country of Ceres: and authors add, ſhe did not teach the ſecret to the Athenians, till ſhe had firſt inſtructed her own countrymen. Others ſay, Ceres paſſed firſt into Attica, thence into Crete, and, laſt of all, into Sicily: many of the learned, however, maintain it was in Egypt the art of cultivating corn firſt began; and it is certain there was corn in Egypt and the Eaſt long before the time of Ceres.

Corn is very different from fruits, with reſpect to the manner of its preſervation; and is capable of being preſerved in public granaries for preſſing occaſions, and of being kept for ſeveral centuries.—A little time after the ſiege of Mentz, under Henry II. of France, in the year 1578, the duc d'Eſpernon laid up vaſt ſtores of corn in the citadel; which was preſerved in good plight to the year 1707, when the French king and his retinue paſſing that way, eat bread baked thereof.

The chief thing that contributes to the preſervation of corn is, a cruſt which forms on its ſurface, by the germination of the grain next underneath, to the thickneſs of an inch and a half. On that at Mentz people walked, without it giving the leaſt way. At Sedan was a granary cut in a rock, wherein a heap of corn was preſerved a hundred and ten years: it was covered with a cruſt a foot thick.

For the preſervation of corn, the firſt method is to let it remain in the ſpike; the expedient that was for conveying it to the iſlands and provinces of America. The inhabitants of thoſe countries ſave it in the ear, and raiſe it to maturity by that precaution: but this method of preſerving it is attended with ſeveral inconveniencies in Britain; corn is apt to rot or ſprout, if any the leaſt moiſture is in the heap; the rats likewiſe infeſt it, and the want of ſtraw alſo obliges us to ſeparate the grain from the ear. The ſecond is to turn out and winnow it frequently; or to pour it through a trough or mill-hopper, from one floor to another; being thus moved and aired every 15 days, for the firſt 6 months, it will require leſs labour for the future, if lodged in a dry place; but if through neglect, mites ſhould be allowed to ſlide into the heap, they will ſoon reduce the corn to a heap of duſt: this muſt be avoided by moving the corn anew, and rubbing the places adjacent with oils and herbs, whoſe ſtrong odour may chace them away; for which garlic and dwarf-elder are very effectual: they may likewiſe be expoſed to the open ſun, which immediately kills them. When the corn has been preſerved from all impurities for the ſpace of two years, and has exhaled all its fires, it may be kept for 50 or even 100 years, by lodging it in pits covered with ſtrong planks, cloſely joined together: but the ſafer way is to cover the heap with quicklime, which ſhould be diſſolved by ſprinkling it over with a ſmall quantity of water; this cauſes the grains to ſhoot to the depth of two or three fingers; and incloſes them within an incruſtation, as abovementioned, through which neither air nor inſects can penetrate.

Indian Corn or maize. See Zea.

Corn-Butterfly, method of deſtroying it. See Agriculture, n° 80.

Corn-Crake. See Rallus.

Corn-Mill, a water-engine for grinding of corn. See Mechanics.

CORNS, in ſurgery, hard excreſcences, conſiſting of indurations of the ſkin ariſing on the toes, and ſometimes on the ſides of the feet, where they are much expoſed to the preſſure of the ſhoes. By degrees they preſs themſelves farther down between the muſcular fibres on theſe parts, and by their irritation occaſion extreme pain. Many cures have been preſcribed, but the total removal of them is always found to be attended with great difficulty. It has been recommended to ſoften them with plaſters, and then to pull them up by the roots, to apply cauſtic, &c. A piece of raw beef laid on by way of plaſter, and frequently ſhifted, is alſo ſaid to be effectual; but the beſt cure is to bathe them frequently in warm water, and pare away as much as poſſible of the indurated ſkin without drawing blood.

Corn, in farriery. See Farriery.

CORNAGE, an ancient tenure, the ſervice whereof was to blow a horn when any invaſion of the Scots was perceived. This tenure was very frequent in the northern counties near the Picts wall; but by ſtat. 12. Car. II. all tenures are converted into free and common ſocage.—An old rental calls cornage, *newtgeldt*, q. d. *neat-geld*. Lord Coke ſays, in old books it is called *horngeld*.

CORNARISTS, in eccleſiaſtical hiſtory, the diſciples of Theodore Cornhert, an enthuſiaſtic ſecretary of the ſtates of Holland. He wrote at the ſame time againſt the Catholics, Lutherans, and Calviniſts. He maintained that every religious communion needed reformation; but he added, that no perſon had a right to engage in accompliſhing it, without a miſſion ſupported by miracles. He was alſo of opinion, that a perſon might be a good Chriſtian without being a member of any viſible church.

CORNARIUS, or Haguenbot, (John), a celebrated German phyſician, born at Zwickow in Saxony. His preceptor made him change his name of Haguenbot to that of Cornarius, under which he is moſt known. At 20 years of age he taught grammar, and explained the Greek and Latin poets and orators to his ſcholars; and at 23 was licentiate in medicine. He found fault with moſt of the remedies provided by the apothecaries; and obſerving, that the greateſt part of the phyſicians taught their pupils only what is to be found in Avicenna, Raſis, and the other Arabian phyſicians, he carefully ſought for the writings of the beſt phyſicians of Greece, and employed about 15 years in tranſlating them into Latin, eſpecially the works of Hippocrates, Aetius, Eginetes, and a part of thoſe of Galen. Meanwhile he practiſed phyſic with reputation at Zwickow, Francfort, Marpurg, Nordhauſen, and Gena, where he died of an apoplexy in 1558, aged 58. He alſo wrote ſome medicinal treatiſes; publiſhed editions of ſome poems of the ancients on medicine and botany; and tranſlated ſome of the works of the fathers, particularly thoſe of Baſil, and a part of thoſe of Epiphanius.

CORNARO (Lewis), a Venetian of noble extraction, memorable for having lived healthful and active to above 100 years of age by a rigid courſe of temperance. By the ill conduct of ſome of his relations he was deprived of the dignity of a noble Venetian; and ſeeing himſelf excluded from all employments under the republic, he ſettled at Padua. In his youth he was of a weak conſtitution; and by irregular indulgence reduced himſelf, at about 40 years of age, to the brink of the grave, under a complication of diſorders; at which extremity he was told that he had no other chance for his life, but by becoming ſober and temperate. Being wiſe enough to adopt this wholeſome council, he reduced himſelf to a regimen of which there are very few examples. He allowed himſelf no more than 12 ounces of food and 14 ounces of liquor each day; which became ſo habitual to him, that when he was above 70 years of age, the experiment of adding two ounces to each by the advice of his friends, had like to have proved fatal to him. At 83, he wrote a treatiſe which has been tranſlated into Engliſh, and often printed, intitled, *Sure and certain Methods of attaining a Long and Healthful Life;* in which he relates his own ſtory, and extols temperance to a degree of enthuſiaſm. At length, the yolk of an egg became ſufficient for a meal, and ſometimes for two, until he died with much eaſe and compoſure in 1566. The writer of the Spectator, n° 195. confirms the fact from the authority of the Venetian ambaſſador at that time, who was a deſcendant of the Cornaro family.

CORNAVII (Ptolemy), a people of Britain, beginning in the very heart of the iſland, and extending to Cheſter. Now *Warwick, Worceſter, Salop, Stafford* ſhires, and *Cheſhire* (Camden).

CORNEA tunica, in anatomy, the ſecond coat of the eye; ſo called from its ſubſtance reſembling the horn of a lantern, in Latin *cornu*. See Anatomy, n° 142.

CORNEILLE (Peter), a celebrated French poet, was born at Rouen in the year 1606. He was brought up to the bar, which he attended for ſome little time; but formed with a genius too elevated for ſuch a profeſſion, and having no turn for buſineſs, he ſoon deſerted it. An affair of gallantry occaſioned his writing his firſt piece, intitled *Melite;* which had prodigious ſucceſs. Encouraged by the applauſe of the public, he wrote the Cid, and the other tragedies that have immortalized his name. In his dramatic works he diſcovers a majeſty, a ſtrength and elevation of genius, ſcarce to be found in any other of the French poets; and, like the immortal Shakeſpeare, ſeems better acquainted with nature than with the rules of critics. Corneille was received into the French academy

demy in 1647, and died dean of that academy in 1684, aged 78. Beſides his dramatic pieces, he wrote a tranſlation, in French verſe, of the "Imitation of Jeſus Chriſt," &c. The beſt edition of his works is that of 1682, in 4 vols 12mo.

Corneille (Thomas), brother of the former, was a member of the French academy and of that of inſcriptions. He diſcovered in his youth a great inclination to poetry; and at length publiſhed ſeveral dramatic pieces in 5 vols 12mo, ſome of which were applauded by the public, and acted with ſucceſs. He alſo wrote, 1. A tranſlation of Ovid's Metamorphoſes, and of ſome of Ovid's Epiſtles; 2. Remarks on Vauglas; 3. A Dictionary of Arts, 2 vols folio; and, 4. An univerſal, geographical, and hiſtorical Dictionary, in 3 vols folio.

Corneille (Michael), a celebrated painter, was born at Paris in the year 1642; and was inſtructed by his father, who was himſelf a painter of great merit. Having gained a prize at the academy, young Corneille obtained a penſion from Louis XIV.; and was ſent to Rome, where that prince had founded a ſchool for young artiſts of genius. Having ſtudied there ſome time, he gave up his penſion, and applied to the antique with great care. He is ſaid to have equalled Carache in drawing, but in colouring he was deficient. Upon his return from Rome, he was choſen profeſſor in the academy of Paris; and was employed by the above prince in all the great works he was carrying on at Verſailles and Trianon, where are ſtill to be ſeen ſome noble efforts of his genius.

CORNEL-tree, in botany. See Cornus.

CORNELIA, daughter of Scipio Africanus, was the mother of Tiberius and Caius Gracchus. She was courted by a king, but ſhe preferred being the wife of a Roman citizen to that of a monarch. Her virtues have been deſervedly commended, as well as the wholeſome principles ſhe inculcated in her two ſons. When a Campanian lady made once a ſhow of her jewels at Cornelia's houſe, and entreated her to favour her with a ſight of her own, Cornelia produced her two ſons, ſaying, "Theſe are the only jewels of which I can boaſt."

Cornelia Lex, de civitate, was enacted, in the year of Rome 670, by L. Corn. Sylla. It confirmed the Sulpician law, and required that the citizens of the eight newly elected tribes ſhould be divided among the 35 ancient tribes.—Another, *de judiciis*, in 673, by the ſame. It ordained, that the prætor ſhould always obſerve the ſame invariable method in judicial proceedings, and that the proceſs ſhould not depend upon his will.—Another, *de ſumptibus*, by the ſame. It limited the expences which generally attended funerals.—Another, *de religione*, by the ſame, in 677. It reſtored to the college of prieſts the privilege of chooſing the prieſts, which by the Domitian law had been lodged in the hands of the people.—Another, *de municipiis*, by the ſame; which revoked all the privileges which had been ſome time before granted to the ſeveral towns that had aſſiſted Marius and Cinna in the civil wars.—Another, *de magiſtratibus*, by the ſame; which gave the power of bearing honours, and being promoted before the legal age, to thoſe who had followed the intereſt of Sylla; while the ſons and partizans of his enemies, who had been proſcribed, were deprived of the privilege of ſtanding for any office in the ſtate.—Another, *de magiſtratibus*, by the ſame, in 673. It ordained, that no perſon ſhould exerciſe the ſame office within ten years diſtance, or be inveſted with two different magiſtracies in one year.—Another, *de magiſtratibus*, by the ſame, in 673. It diveſted the tribunes of the privilege of making laws, interfering, holding aſſemblies, and receiving appeals. All ſuch as had been tribunes were incapable of holding any other office in the ſtate by that law.—Another, *de majeſtate*, by the ſame in 670. It made it treaſon to lend an army out of a province, or engage in a war without orders, to influence the ſoldiers to ſpare or ranſom a captive general of the enemy, to pardon the leaders of robbers or pirates, or for the abſence of a Roman citizen to a foreign court without previous leave. The puniſhment was *aquæ & ignis interdictio*.—Another by the ſame. It gave the power to a man accuſed of murder, either by poiſon, weapons, or falſe accuſations, and the ſetting fire to buildings, to chooſe whether the jury that tried him ſhould give their verdict *clam* or *palam*, *viva voce* or by ballot. Another by the ſame; which made it *aquæ & ignis interdictio* to ſuch as were guilty of forgery, concealing and altering of wills, corruption, falſe accuſations, and the debaſing or counterfeiting of the public coin. All ſuch as were acceſſary to this offence were deemed as guilty as the offender.—Another, *de pecuniis repetundis*; by which a man convicted of peculation or extortion in the provinces was condemned to ſuffer the *aquæ & ignis interdictio*.—Another by the ſame; which gave the power to ſuch as were ſent into the provinces with any government, of retaining their command and appointment without a renewal of it by the ſenate, as was before obſerved.—Another by the ſame; which ordained, that the lands of proſcribed perſons ſhould be common, eſpecially thoſe about Volaterræ and Feſulæ in Etruria, which Sylla divided among his ſoldiers.—Another by C. Cornelius tribune of the people, in 686. It ordained, that no perſon ſhould be exempted from any law according to the general cuſtom, unleſs 200 ſenators were preſent in the ſenate; and no perſon thus exempted could hinder the bill of his exemption from being carried to the people for their concurrence.—Another by Naſſica, in 582, to make war againſt Perſeus, ſon of Philip king of Macedonia, if he did not give proper ſatisfaction to the Roman people.

CORNELIAN. See Carnelian.

CORNER, in a general ſenſe, the ſame with Angle.

CORNET, in the military art of the ancients, an inſtrument much in the nature of a trumpet; which when it only ſounded, the enſigns were to march alone without the ſoldiers; whereas, when the trumpet only ſounded, the ſoldiers were to move without the enſigns. The cornets and buccinæ ſounded the charge and retreat; and the cornets and trumpets ſounded during the courſe of the battle. See Plate CL.

Cornet, in modern military œconomy, denotes an officer in the cavalry who bears the enſign or colours of a troop.

The cornet is the third officer in the company, and commands in the abſence of the captain and leutenant.

He takes his title from his enſign, which is ſquare; and is ſuppoſed to be called by that name from *cornu*, becauſe placed on the wings, which form a kind of points or horns of the army.—Others derive the name from *coronet;* alleging, that it was the ancient cuſtom for theſe officers to wear coronets or garlands on their heads.

CORNEUS, the name by which Linnæus calls a kind of tin-ore, found in black columns, with irregular ſides, and terminating in priſms.

CORNICHE, CORNISH, or CORNICE, in architecture, the uppermoſt member of the entablature of a column as that which crowns the order. See ARCHITECTURE, Chap. I. and the Plates.

CORNICHE, is alſo uſed, in general, for all little projectures in maſonry or joinery, even where there are no columns, as the corniche of a chimney, beaufet, &c.

CORNICHE-Ring, a piece of ordnance, is that next from the muzzle-ring, backward.

CORNICULARIUS, in antiquity, an officer in the Roman army, whoſe buſineſs was to aid and aſſiſt the military tribune in quality of a lieutenant.

The *cornicularii* went the rounds in lieu of the tribune, viſited the watch, and were nearly what the aids major are in the French army.

The denomination *cornicularius* was given them from a little horn, called *corniculum*, which they uſed in giving orders to the ſoldiers: though Salmaſius derives it from *corniculum*, the creſt of an head-piece; it being an obſervation of Pliny, that they wore iron or braſs horns on their helmets; and that theſe were called *cornicula*.

In the *Notitia Imperii* we find a kind of ſecretary or regiſter of the ſame name. His buſineſs was to attend the judge, and enter down his ſentences and deciſions. The critics derive the word, in this ſenſe, from *corniculum*, a little horn to put ink in.

CORNICULUM (anc. geog.), a town of the Sabines, to the eaſt of Cruſtumerium, towards the Anio. It was burnt down by Tarquin; but reſtored again, after the expulſion of the kings, (Florus). Now in ruins, called *il Monte Gennaro*, (Holſtenius).

CORNISH DIAMOND, a name given by many people to the cryſtals found in digging the mines of tin in Cornwal. See CORNWAL, p. 462. col. 2.

CORNIX, in ornithology, the trivial name of a ſpecies of CORVUS.

CORNU. See HORN.

CORNU Ammonis, in natural hiſtory, foſſile ſhells, called alſo *ſerpent-ſtones*, or *ſnake-ſtones*.

They are found of all ſizes, from the breadth of a ſixpence, to more than two feet in diameter; ſome of them rounded, others greatly compreſſed, and lodged in different ſtrata of ſtones and clays; ſome again are ſmooth, and others ridged in different manners, their ſtriæ and ridges being either ſtraight, irregularly crooked, or undulated. See *SNAKE-Stone*.

CORNU Cervi. See HARTSHORN.

CORNUCOPIA, among the ancient poets, a horn out of which proceeded plenty of all things; by a particular privilege which Jupiter granted his nurſe, ſuppoſed to be the goat Amalthea. The fable is thus interrupted: That in Lybia there is a little territory ſhaped not unlike a bullock's horn, exceeding fertile, given by king Ammon to his daughter Amalthea, whom the poets feign to have been Jupiter's nurſe.

In architecture and ſculpture, the cornucopia, or horn of plenty, is repreſented under the figure of a large horn, out of which iſſue fruits, flowers, &c. On medals, F. Joubert obſerves, the cornucopia is given to all deities.

CORNUCOPIÆ, in botany: A genus of the digynia order, belonging to the triandria claſs of plants; and in the natural method ranking under the 4th order, *Gramina*. The involucrum is monophyllous, funnel-ſhaped, crenated, and multiflorous; the calyx bivalved; corolla one valved.

CORNUS, CORNEL-TREE, CORNELIAN CHERRY, or DOG-WOOD: A genus of the monogynia order, belonging to the tetrandria claſs of plants; and in the natural method ranking under the 47th order, *Stellatæ*. The involucrum is moſt frequently tetraphyllous; the petals above the receptacle of the fruit four; the fruit itſelf a bilocular kernel.

Species. Of this genus there are five ſpecies; the moſt remarkable are the following. 1. The mas, or cornelian cherry-tree, hath an upright tree-ſtem, riſing 20 feet high, branching, and forming a large head, garniſhed with oblong leaves, and ſmall umbels of yellowiſh-green flowers at the ſides and ends of the branches, appearing early in the ſpring, and ſucceeded by ſmall, red, cherry-like, eatable, acid, fruit. 2. The ſanguinea, bloody-twig, or common dog-wood: hath an upright tree-ſtem, branching 10 or 12 feet high, having blood-red ſhoots, garniſhed with oblong pointed nervous leaves two inches long; and all the branches terminated by umbellate white flowers ſucceeded by black berries: of this there is a kind with variegated leaves. 3. The florida, or Virginian dogwood, hath a tree-ſtem branching 12 or 15 feet high, and fine red ſhoots garniſhed with large heart-ſhaped leaves; and the branches terminated by umbellate white flowers, having a large involucrum ſucceeded by dark red berries. Of this ſpecies there are ſeveral varieties, chiefly diſtinguiſhed by the colour of their berries, which are red, white, or blue.

Culture. All the ſpecies may be propagated by ſeeds, which ought to be ſown in autumn, otherwiſe they will lie a year in the ground. When the plants come up, they ſhould be duly watered in dry weather, and kept clean from weeds. The following autumn they may be tranſplanted into the nurſery; and having remained there two or three years, they may then be removed to the places where they are to remain. They may alſo be propagated by ſuckers, of which they produce great plenty, or by laying down the young branches.

CORNUTIA, in botany: A genus of the angioſpermia order, belonging to the didynamia claſs of plants; and in the natural method ranking under the 40th order, *Perſonatæ*. The calyx is quinquedentated; the ſtamina larger than the corolla; the ſtyle very long; the berry monoſpermous. There is but one ſpecies, *viz.* the pyramidata, with a blue pyramidal flower, and hoary leaves. It grows plentifully in ſeveral of the iſlands of the Weſt Indies, alſo at Campeachy, and at La Vera Cruz. It riſes to the height of 10 or 12 feet, with rude branches, the leaves being placed oppoſite. The flowers are produced in ſpikes at the end

Cornwal.

end of the branches, and are of a fine blue colour. They uſually appear in autumn, and will ſometimes remain in beauty for two months or more. It is propagated either by ſeeds or cuttings, and makes a fine appearance in the ſtove; but is too tender to bear the open air in this country.

CORNWAL, the moſt weſterly county of England, bounded by the Engliſh channel on the ſouth, St George's channel on the weſt, the Briſtol channel on the north, and on the eaſt by the river Tamar, which ſeparates it from Devonſhire. Its name is ſuppoſed by ſome to be compounded of *carn*, ſignifying "a rock" in the Britiſh language, and *Gauls*, or *Waules*, the name the Saxons gave to the Britons. Others, however, think it is derived from the Latin *cornu*, or the Britiſh *kern*, "a horn;" on account of its running out into the ſea ſomewhat in the form of a horn. Hither the ancient Britons (as well as in Wales) retired on the intruſion of the Saxons, where they oppoſed their further conqueſts. In this part of the iſland they formed a kingdom that exiſted for many years after, under different princes, amongſt whom were Ambroſius Aurelius, and the juſtly celebrated Arthur; nor were they ſubdued till the middle the 7th century, from which time Cornwal was conſidered as ſubject to the Weſt Saxon kings, who begun their ſovereignty in 519, and continued it till 828, under 18 ſovereigns, the laſt of whom was the great Egbert, who ſubdued all the others; and by uniting them, formed the kingdom of England, when this country was included in the county of Devon, then the 9th diviſion; and that accounts for Alfred's not mentioning Cornwal, which on forming the circuits after the Norman conqueſt, is included in the weſtern circuit. In 1337, Edward III. erected it into a dukedom, and inveſted with it *Edward the Black Prince*. But this, according to the expreſs words of the grant, is limited to the firſt-born ſon and heir, on which account Richard II. was created duke of Cornwal by charter. So was Henry V. by his father Henry IV. Henry IV. delivered the duchy to his ſon prince Edward, and Edward IV. created his ſon Edward V. duke of Cornwal, as did Henry VII. his ſon, afterwards Henry VIII. upon the death of his elder brother Arthur. James I. created his ſon Henry duke of Cornwal, which title on his deceaſe came to his brother Charles. The eldeſt ſons of ſucceeding kings have enjoyed this title by inheritance. Theſe not only appoint the ſheriff, but all writs, deeds, &c. are in their name, and not in the king's; and they have alſo peculiar royalties and prerogative diſtinct from the crown, for which they appoint the officers. This county is 80 miles long, 40 broad, and 250 in circumference; containing 960,000 acres, and 126,000 inhabitants. It is divided into 9 hundreds; has 27 market towns, *viz.* Launceſton, Truro, Falmouth, Helſton, Saltaſh, Bodmyn, St Ives, Tregony, Camelford, Fowey, St Germains, Penryn, Callington, St Auſtle, Eaſt Looe, Padſtow, St Colomb, Penſance, Grampound, Leſkard, Leſtwithiel, St Mawes, St Michael, Newport, Market Jew, Stratton, and Redruth; 1230 villages, 161 pariſhes, 89 vicarages, provides 640 men to the militia, and pays 8 parts of the land-tax. Its chief rivers are the Tamer, Fale, Cober, Looe, Camel, Fowe, Haile, Lemara, Kenſe, and Aire. Its principal capes or head-lands are the Land's-end, the Lizard, Cape Cornwal, Deadman's-head, Rame-head, &c. and a cluſter of iſlands, 145 in number, called the *Scilly Iſles*, ſuppoſed formerly to have been joined to the main land, though now 30 miles diſtant; abounding with antiquities, particularly druidical.

Cornwal.

As Cornwal is ſurrounded by the ſea on all ſides except the eaſt, its climate is ſomewhat different from that of the other parts of Britain. The reaſons of this difference will be eaſily underſtood from what is obſerved concerning the climate of America. The ſummers in Cornwal are leſs hot, and the winters leſs cold than in other parts of England, and the ſpring and harveſt are obſerved to be more backward. High and ſudden winds are alſo more common in this than in other counties of England. The county is rocky and mountainous; but the mountains are rich in metals, eſpecially tin and copper. The valleys are very pleaſant and fertile, yielding great plenty both of corn and paſture. The lands near the ſea-coaſt are manured and fertilized with ſea-weed, and a kind of ſand formed by the particles of broken ſhells as they are daſhed againſt each other by the ſea. Cattle of all ſorts are ſmaller here than in the other counties of England; and the wool of the ſheep, which are moſtly without horns, is very fine, and the fleſh, both of them and of the black cattle, extremely delicate. The county is well ſupplied with fiſh from the ſea and the many rivers with which it is watered. The moſt noted of the ſea-fiſh is the pilchard; of which prodigious quantities are caught from July to November, and exported to different parts, eſpecially to Spain. It is ſaid that a million have been ſometimes taken at a ſingle draught. The natives are remarkable for their ſtrength and activity, as well as their dexterity in wreſtling, in which exerciſe the Corniſh hug is highly extolled.

This county abounds in mines of different metals and ſemimetals; but the principal produce is tin. The Phenicians early viſited theſe coaſts for this article, ſome think 400 or 450 years before Chriſt; and the mines continued to be wrought with various ſucceſs at different periods. In the time of king John they appear to have yielded no great emolument; the right of working them being wholly in the king as earl of Cornwal, and the mines farmed by the Jews for 100 marks; and according to this proportion the 10th of it, L.6. 13s. 4d. is at this day paid by the crown to the biſhop of Exeter. In the time of Richard king of the Romans and earl of Cornwal, the tin-mines were immenſely rich, the Jews being farmed out to him by his brother Henry III. what intereſt they had was at his diſpoſal. The Spaniſh tin-mines being ſtopped by the Moors, and none diſcovered in Germany, the Malabar coaſt, or the Spaniſh Weſt Indies, Cornwal and its earls had all the trade of Europe for it. The Jews being baniſhed the kingdom, 18 Edw. I. they were again neglected till the gentlemen of Blackmore, lords of ſeven tithings beſt ſtored at that time with tin, obtained of Edmund earl of Cornwal, ſon of Richard king of the Romans, a charter under his own ſeal, with more explicit grants of privileges, courts, pleas, parliaments, and the toll-tin or $\frac{1}{15}$th of all the tin raiſed. At this time too the right of bounding or dividing tin-grounds into ſeparate partitions for the encouragement of ſearching for it ſeems to have been firſt appointed, or at leaſt adjuſted. This charter was confirmed 33 Edward I. and the Corniſh ſeparated from the Devonſhire tinners. Their laws, particularly recited in Plowden's Commentaries, p. 237, were further explained, 50 Edw. III. confirmed and enlarged by parliament, 8 Rich. II. 3 Ed. IV. 1 Ed. VI. 1 and 2 P. and M. and 2 Eliz. and the whole ſociety divided into four parts under one general warden, to do juſtice in law and equity, from whoſe ſentence lies an appeal to the duke of Cornwal in council, or for want of a duke of Cornwall to the crown. The lord-warden appoints a vice-warden to determine all ſtannary diſputes every month: he alſo conſtitutes four ſtewards, one for each of the precincts before mentioned, who hold their courts every three weeks, and decide by juries of ſix perſons, with an appeal reſerved to the vice-warden, lord warden, and lord of the prince's council. In difficult caſes the lord-warden, by commiſſion, iſſues his precept to the four principal towns of the ſtannary diſtricts, who each chooſe ſix members, and theſe twenty-four ſtannators conſtitute the parliament of tinners. Each ſtannator chooſes an aſſiſtant, making a kind of ſtanding council in a different apartment to give information to the prince. Whatever is enacted by the body of tinners muſt be ſigned by the ſtannators, the lord-warden, or his deputy, and by the duke or the king, and thenceforward has with regard to tin affairs all the authority of an act of the whole legiſlature. Five towns are appointed in the moſt convenient parts of the country for the tinners to bring their tin to every quarter of a year. Theſe are Leſkard, Leſtwithiel, Truro, Helſton, and Penſance, the laſt added by Charles II. for the conveniency of the weſtern tinners. In the time of Henry VIII. there were but two coinages, at Midſummer and Michaelmas: two more at Chriſtmas and Lady-day were added, for which the tinners pay an acknowledgement called *Poſt groats*, or 4 *d.* for every hundred of white tin then coined. The officers appointed by the duke aſſay it; and if well purified ſtamp it by a hammer with the duchy ſeal, the arms of Richard earl of Cornwal, a lion rampant G. crowned O. within a bordure of bezants S.; and this is a permiſſion to the coiner to ſell, and is called *coining the tin.* Every hundred of white tin ſo coined pays to the duke 4s. The tin of the whole county, which, in Carew's time, in the laſt century, amounted to 30 or 40,000 l. yearly, has for 24 years laſt paſt amounted one year with another to L. 180,000 or 190,000 ſterling. Of this the duke of Cornwal receives for his 4s. duty on every hundred of white tin above L. 10,000 yearly: the bounders or proprietors of the ſoil about $\frac{1}{6}$th at a medium clear, or about L. 30,000 yearly; the remainder goes to the adventures in the mine, who are at all the charge of working. Tin is found collected and fixed in lodes and floors, or in grains and bunches in the natural rock, or looſe and detached in ſingle ſeparate ſtones called *ſhodes* or *ſtreams*, or in a continued courſe of ſuch ſtones called the *beuheyl* or *living ſtream*, or in an arenaceous pulverized ſtate. It is moſt eaſily diſcovered by tracing the lodes by the ſcattered fragments of them called *ſhodes*, by leave of the lord of the ſoil or the bounder. The tin being divided among the lords and adventurers, is ſtamped and worked at the mill; and being thus dreſſed is carried under the name of *black tin* to the melting-houſe, where it is melted by Welſh pit-coal, and poured into blocks of 320lb. weight, and carried to the coinage town. Mundic, a ſcarce metal or mineral ore, of a white, braſſy, or brown colour, is found in large quantities, intermixed with tin, copper, and lead, and ſometimes by itſelf. Iron ore is found in Cornwal, but the working it does not anſwer. There is no richer copper, nor a greater variety any where than in this county. Silver, if really found here in the reigns of Edward I. and II. has been rarely found ſince, nor do the lead-mines anſwer. Very late diſcoveries have proved that Cornwal has more gold than was formerly imagined. What is called the *Corniſh diamond* is a figured cryſtal generally hexagonal and pyramidical, or columnar, or both, of a fine clear water, and of all the baſtard diamonds in Britain eſteemed the beſt, and ſome of different colours, black, yellow, &c. The clearer theſe are, the better they will bear engraving for ſeals.

In privileges and language Cornwal ſeems to be another kingdom. By 21 Elizabeth it was ordered that all duty on Corniſh cloth exported ſhould be remitted to every Engliſhman within the duchy of Cornwal. This was firſt granted by the black prince, in conſideration of their paying 4s. for the coinage of every hundred of tin: whereas Devonſhire pays no more than 8d. They have alſo by grant from Richard earl of Cornwal, confirmed 45 Henry III. freedom to take ſand out of the ſea and carry it through the country for manure; whereupon in the following reign, on an inquiſition made, we find a complaint that Saltaſh had lately taken 12s. yearly for each barge that carried ſand up the Tamar; whereas nothing ought to be demanded. They ſtill continue this ancient method of improving their land, carrying it ten miles up into the country, and great part of the way on horſes backs. Mr Ray ſuppoſes the virtue of this ſand depends chiefly on the ſalt mixed with it, which is ſo copious that in many places ſalt is boiled up out of a lixivium made of the ſea ſand; and the reaſon why ſand when it has lain long in the ſun and wind proves leſs enriching and uſeful is, that the dews and rain evaporate great part of its ſalt. They had likewiſe a privilege of trading to all parts of the world, granted them by Charles I. in recompence of their loyalty.

The number of boroughs in this ſmall county was ſurpriſingly increaſed by Edward VI. who added ſeven to the original ſix, Mary two, Elizabeth ſix, making in all 21, ſending 40 members beſides the county two. Eight of theſe boroughs had an immediate or remote connection with the demeſne lands of the duchy; the reſt belonged to religious houſes, or powerful families, or were old boroughs, which had legal immunities granted to them by their princes or lords.

The Corniſh language is a dialect of that which till the Saxons came in was common to all Britain, and more anciently to Ireland and Gaul; but the inhabitants of the iſland being diſperſed before thoſe conqueſts, and driven into Wales and Cornwal, and thence into Bretagne, the ſame language, for want of frequent intercourſe, became differently pronounced and written, and in different degrees mixed with different languages. Hence came the Welſh, the Corniſh, and the Armoric dialects, whoſe radicals are ſo much alike that they are known and admitted by the inhabitants of either country; but the grammar ſo varied that they cannot converſe. The Corniſh is reckoned the moſt pleaſing of the three. It was ſpoken ſo generally down to the reign of Henry VIII. that Dr John Moreman, vicar of Mynhinet, is ſaid to have been the firſt who taught his pariſhioners the Lord's prayer, the creed, and ten commandments in Engliſh, and at the Reformation the natives deſired the ſervice in Engliſh. The older people in ſome pariſhes retained their original language to the middle of the laſt century: and the laſt ſermon was preached in it in 1678. When Mr Ray was there, 1662, he could find but one perſon who could write this language; and it is now ſo nearly extinct, that Mr Barrington, in 1768, could only find one old woman who could ſcold in it, and ſhe is ſince dead.

CORODY. See REVENUE.

COROLLA, among botaniſts, the moſt conſpicuous part of a flower, ſurrounding the organs of generation, and compoſed of one or more flower-leaves, moſt commonly called *petals* to diſtinguiſh them from the leaves of the plant; according as there is one, two, or three of theſe petals, the corolla is ſaid to be monopetalous, dipetalous, tripetalous, &c.

COROLLARY is a conſequence drawn from ſomething already advanced or demonſtrated: thus, it being demonſtrated that a triangle which has two equal ſides, has alſo two angles equal: this corollary will follow, that a triangle which has three ſides equal, has alſo its three angles equal.

COROLLISTÆ, a name by which Linnæus diſtinguiſhes thoſe ſyſtematic botaniſts who have arranged vegetables from the regularity, figure, number, and other circumſtances, of the petals, or beautiful coloured leaves of the flower. The beſt ſyſtems of this kind are thoſe of Rivinus and Tournefort. The former proceeds upon the regularity and number of the petals; the latter, with much more certainty, on their regularity and figure.

COROLLULA, a term uſed by botaniſts to expreſs the little partial flowers which make up the compound ones.

COROMANDEL, the eaſtern coaſt of the peninſula on this ſide the Ganges in Aſia. It is bounded on the north by Golconda, on the eaſt by the bay of Bengal, on the ſouth by Madura, and on the weſt by Biſnagar. This coaſt ſo much reſembles that of Orixa, that the Abbé Raynal chooſes to conſider them as one, and gives to both the general name of *Coromandel*. Here an exceſſive heat reigns from the beginning of May to the end of October. It begins at nine in the morning, and continues till nine in the evening. During the night it is allayed by a ſea-breeze from the ſouth-eaſt; and moſt commonly this refreſhing gale begins at three in the afternoon. The air is leſs inflamed during the reſt of the year, though in all ſeaſons it is very hot. It rains almoſt continually during the months of November and December. This immenſe tract is covered with a parched ſand for the extent of two miles, and ſometimes only one mile along the coaſt.

This country was at firſt neglected by the Europeans for many reaſons. It was ſeparated by inacceſſible mountains from Malabar, where theſe bold adventurers endeavoured to ſettle themſelves. Spices and aromatics, which were the principal objects of their attention, were not to be found there. In ſhort, civil diſſentions had baniſhed from it tranquillity, ſecurity, and induſtry. At that period the empire of Biſnagar, to which this vaſt country was ſubject, was falling to ruin. The governments of Viſapour, the Carnatic, Golconda, and Orixa, threw off their dependence, and aſſumed the title of kings. Thoſe of Madura, Tanjore, Myſore, Gingi, and ſome others, likewiſe uſurped the ſovereign authority, though they retained their ancient title of *Naick*. This revolution had juſt happened when the Europeans appeared on the coaſt of Coromandel. The foreign trade was at that time inconſiderable; it conſiſted only of diamonds from Golconda, which were carried to Calicut and Surat, and from thence to Ormus or Suez, whence they were circulated through all Europe and Aſia. Maſſulipatan, the richeſt and moſt populous city of theſe countries, was the only market that was known for linens; they were purchaſed at a great fair annually holden there by the Arabian and Malayan veſſels that frequented that bay, and by caravans arrived from diſtant parts. The linens were exported to the ſame places with the diamonds. The fondneſs for the manufactures of Coromandel which began to prevail here, inſpired all the European nations trading to the Indian ſeas with the reſolution of forming ſettlements there. They were not diſcouraged either by the difficulty of conveying goods from the inland parts of the country, where there was no navigable river; by the total want of harbours, where the ſea at one ſeaſon of the year is not navigable; by the barrenneſs of the coaſts, for the moſt part uncultivated and uninhabited; nor by the tyranny and fluctuating ſtate of the government. They thought that ſilver would be induſtriouſly ſought after; that Pegu would furniſh timber for building, and Bengal corn for ſubſiſtence; that a proſperous voyage of nine months would be more than ſufficient to complete their ladings; and that by fortifying themſelves they ſhould be ſecure againſt the attacks of the weak tyrants that oppreſſed theſe countries.

The firſt European colonies were eſtabliſhed near the ſhore. Some of them obtained a ſettlement by force; moſt of them were formed with the conſent of the ſovereigns; and all were confined to a very narrow tract of land. The boundaries of each were marked out by a hedge of thorny plants, which was their only defence. In proceſs of time fortifications were raiſed; and the ſecurity derived from them, added to the lenity of the government, ſoon increaſed the number of coloniſts. The ſplendor and independence of theſe ſettlements ſeveral times raiſed the jealouſy of the princes in whoſe dominions they were formed; but their attempts to demoliſh them proved abortive. Each colony increaſed in proſperity in proportion to the riches and the wiſdom of the nation that founded it. None of the companies that exerciſed an excluſive privilege beyond the Cape of Good Hope had any concern in the trade of diamonds. This was always left to private merchants, and by degrees fell entirely into the hands of the Engliſh, or the Jews

Coromandel.

and Armenians that lived under their protection. At preſent this grand object of luxury and induſtry is much reduced. The revolutions that have happened in Indoſtan have prevented people from reſorting to theſe rich mines; and the anarchy in which this unhappy country is plunged, leaves no room to hope that they will be again attended to. The whole of the commerical operations on the coaſt of Coromandel is confined to the purchaſe of cottons. The manufacturing of the white cottons bought there, differs ſo little from the Britiſh, that it would be neither intereſting nor inſtructive to enter into a minute deſcription of it The proceſs uſed in making their printed cottons, which was at firſt ſervilely followed in Europe, has ſince been rendered more ſimple, and brought to greater perfection by the manufacturers. The painted cottons which are bought there, have not yet been attempted to be imitated. Nature has not given to Europeans the wild fruits and drugs neceſſary for the compoſition of thoſe bright and indelible colours which conſtitute the principal merit of the Indian manufactures; nor has ſhe furniſhed them with the waters that ſerve to fix them. The Indians do not univerſally obſerve the ſame method in painting their cottons; either becauſe there are ſome niceties peculiar to certain provinces, or becauſe different ſoils produce different drugs for the ſame uſes. We ſhould tire the patience of our readers were we to trace the ſlow and painful progreſs of the Indians in the art of painting their cottons. It is natural to believe that they owe it to length of time, rather than to the fertility of their genius. What ſeems to authoriſe this conjecture is, that they have ſtopped in their improvements, and have not advanced a ſingle ſtep in the arts for many ages; whereas the Europeans have proceeded with amazing rapidity. From the rapid advances of the arts in the United States we may ſoon expect to ſee that branch flouriſh in this country. Indeed, were we to conſider only the want of invention in the Indian, we ſhould be tempted to believe, that, from time immemorial, they have received the arts they cultivate from ſome more induſtrious nation; but when it is remembered that theſe arts have a peculiar dependence on the materials, gums, colours, and productions of India, we cannot but be convinced that they are natives of that country. It may appear ſomewhat ſurpriſing that cottons painted with all ſorts of colours ſhould be ſold at ſo moderate a price, that they are almoſt as cheap as thoſe that have only two or three. But it muſt be obſerved, that the merchants of the country ſell to all the companies a large quantity of cottons at a time; and that the demand for cottons painted with various colours makes but a ſmall article in their aſſortments, as they are not much eſteemed in Europe.

Though cottons of all ſorts are in ſome degree manufactured through the whole country of Indoſtan, which extends from Cape Comorin to the banks of the Ganges; it is obſervable, that the fine ſorts are made in the eaſtern part, the common ones in the centre, and the coarſe ones in the moſt weſtern parts. Manufactures are eſtabliſhed in the European colonies, and upon the coaſt: they are more frequent at the diſtance of five or ſix leagues from the ſea, where cotton is more cultivated, and proviſions are cheaper. The purchaſes made there are carried 30 or 40 leagues farther in the country. The Indian merchants ſettled in the European factories have always the management of this buſineſs. The quantity and quality of the goods wanted are ſettled with theſe people: the price is fixed according to the patterns: and at the time a contract is made, a third or a fourth part of the money agreed on is advanced. This arrangement is owing to the neceſſity theſe merchants themſelves are under of advancing money to the workmen by the partners or agents who are diſperſed through the whole country: of keeping a watchful eye upon them for fear of loſing what they have advanced; and of gradually leſſening the ſum, by calling for the cottons as faſt as they are worked off. Without theſe precautions, nothing could be depended on in an oppreſſive government, where the weaver cannot work on his own account, either becauſe his circumſtances will not permit, or becauſe he dares not venture to diſcover them for fear of exactions. The companies that have either ſucceſs or good management, conſtantly keep the ſtock for one year in advance in their ſettlements. By this method they are ſure of having the quantity of goods they have occaſion for, and of the quality they chooſe, at the moſt convenient time; not to mention that their workmen, and their merchants, who are kept in conſtant employment, never leave them. Such nations as want money and credit cannot begin their mercantile operations till the arrival of their ſhips. They have only five or ſix months at moſt to execute the orders ſent from Europe. The goods are manufactured and examined in haſte; and they are even obliged to take ſuch as are known to be bad, and would be rejected at any other time. The neceſſity they are under of completing their cargoes, and fitting out their veſſels before hurricanes come on, leaves no room for nicety of inſpection. It would be a miſtake to imagine that the country agents could be prevailed upon to order goods to be made on their account, in hopes of ſelling them with a reaſonable advantage to the company with whom they are engaged. For, beſides that the generality of them are not rich enough to embark in ſo large an undertaking, they would not be certain of finding their account in it. If the company that employ them ſhould be hindered by unforeſeen accidents from ſending the uſual number of ſhips, theſe merchants would have no vent for their commodities. The Indians, the form of whoſe dreſs requires different breadths and lengths from thoſe of the cottons fabricated for our uſe, would not purchaſe them; and the other European companies would be provided, or certain of being provided with whatever the extent of their trade required, and their money enabled them to purchaſe. The plan of procuring loans, which was contrived to remedy this inconvenience, never has, nor can be uſeful. It has been a cuſtom, time immemorial, in Indoſtan, for every citizen who borrows money, to give a written inſtrument to his creditor. This deed is of no force in a court of judicature, unleſs it is ſigned by three witneſſes, and bears the day of the month and the year when it was made, with the rate of intereſt agreed upon by the parties. If the borrower fails to fulfil his engagements, he may be arreſted by the lender himſelf. He is never impriſoned, becauſe there is no fear of his making his eſcape. He would not even eat, without obtaining leave of his creditor. The Indians make a three-fold diviſion of intereſt: one kind they call *vice;* another neither *vice* nor *virtue;* and a third, they ſay, is *virtue.* The firſt is four *per cent.* a month; the ſecond two; and the third one. The laſt is, in their opinion, an act of beneficence that only belongs to the moſt heroic minds. Yet, though the Europeans, who are forced to borrow, meet with this treatment, it is plain they cannot avail themſelves of the indulgence without being involved in ruin.

The foreign trade of Coromandel is not in the hands of the natives. In the weſtern part, indeed, there are Mohammedans known by the name of *Chalias,* who, at Naour and Porto-Nuovo, ſend out ſhips to Acken, Merguy, Siam, and the eaſtern coaſt. Beſides veſſels of conſiderable burden employed in theſe voyages, they have ſmaller embarkations for the coaſting trade for Ceylon and the pearl fiſhery. The Indians of Maſſulipatan turn their attention another way. They import from Bengal white callicoes, which they dye or print, and ſell them again at the places from whence they had them, at 35 or 40 *per cent.* advantage. Excepting theſe tranſactions, which are of very little conſequence, the whole trade is veſted in the Europeans, who have no partners but a few Banians and Armenians ſettled in their colonies. The quantity of callicoes exported from Coromandel to the different ports of India, may be computed at 3500 bales. Of theſe the French carry 800 to Malabar, Mocha, and the iſle of France; the Engliſh, 1200 to Bombay, Malabar, Sumatra, and the Philippine Iſlands; and the Dutch 1500 to their different ſettlements. Except 500 bales deſtined for Manila, each of the value of 100 guineas, the others are of ſuch an ordinary kind that they do not exceed 30 guineas at prime coſt; ſo that the whole number of bales do not amount to more than about L. 150,000.

Coromandel furniſhes Europe with 9500 bales: 800 of which are brought by the Danes, 2500 by the French, 3000 by the Engliſh, and 3200 by the Dutch. A conſiderable part of theſe callicoes are dyed blue, or ſtriped blue and red for the African trade. The others are fine muſlins, printed callicoes, and handkerchiefs from Maſſulipatan, or Paliacate. It is proved by experience that each of theſe bales coſts only about L. 42 Sterling; conſequently they ought to bring in to the manufactory where they are wrought near L. 360,000. The payments are not entirely made in ſpecie, either in Europe or Aſia; we give in exchange, cloths, iron, lead, copper, coral, and ſome other articles of leſs value. On the other hand, Aſia pays with ſpices, pepper, rice, ſugar, corn, and dates. All theſe articles taken together may amount to about L. 210,000; and from this calculation it follows, that Coromandel receives annually from Europe about L. 300,000 in money. The Britiſh, who have acquired the ſame ſuperiority on this coaſt that they have elſewhere, have formed on it ſeveral ſettlements.

CORONA, among anatomiſts, denotes that edge of the glans penis where the preputium begins.

Corona, or *Halo,* in optics, a luminous circle, ſurrounding the ſun, the moon, the planets, or fixed ſtars. Sometimes theſe circles are white, and ſometimes coloured, like the rainbow. Sometimes one only is viſible, and ſometimes ſeveral concentric coronas make their appearance at the ſame time. Thoſe which have been ſeen about Sirius and Jupiter were never more than three, four, or five degrees in diameter; thoſe which ſurround the moon are, alſo, ſometimes no more than three or five degrees; but theſe, as well as thoſe which ſurround the ſun, are of very different magnitudes, *viz.* of 12° 0′, 22° 35′, 30° 0′, 38° 0′, 41° 2′, 45° 0′, 46° 24′, 47° 0′, and 90°, or even larger than this. Their diameters alſo ſometimes vary during the time of obſervation, and the breadths both of the coloured and white circles are very different, *viz.* of 2, 4, or 7 degrees.

The colours of theſe coronas are more dilute than thoſe of the rainbow; and they are in a different order, according to their ſize. In thoſe which Newton obſerved in 1692, they were in the following order, reckoning from the inſide. In the innermoſt were blue, white, and red; in the middle were purple, blue, green, yellow, and pale red; in the outermoſt, pale blue and pale red. Mr Huygens obſerved red next the ſun, and a pale blue outwards. Sometimes they are red on the inſide and white on the outſide. M. Weidler obſerved one that was yellow on the inſide and white on the outſide. In France, one was obſerved in 1683, the middle of which was white; after which followed a border of red; next to it was blue, then green, and the outermoſt circle was a bright red. In 1728, one was ſeen of a pale red outwardly, then followed yellow, and then green, terminated by a white.

Theſe coronas are very frequent. In Holland, M. Muſchenbroeck ſays, 50 may be ſeen in the day-time, almoſt every year; but they are difficult to be obſerved, except the eye be ſo ſituated, that not the body of the ſun, but only the neighbouring parts of the heavens can be ſeen. Mr Middleton ſays, that this phenomenon is very frequent in North America; for that there is generally one or two about the ſun every week, and as many about the moon every month. Halos round the ſun are very frequent in Ruſſia. M. Æpinus ſays, that from the 23d of April 1758, to the 20th of September, he himſelf had obſerved no leſs than 26, and that he has ſometimes ſeen twice as many in the ſame ſpace of time.

Coronas may be produced by placing a lighted candle in the midſt of ſteam in cold weather. Alſo, if glaſs windows be breathed upon, and the flame of a candle be placed ſome feet from it, while the ſpectator is alſo at the diſtance of ſome feet from another part of a window, the flame will be ſurrounded with a coloured halo. And if a candle be placed behind a glaſs receiver, when air is admitted into the vacuum within it, at a certain degree of denſity, the vapour with which it is loaded will make a coloured halo round the flame. This was obſerved by Otto Guericke. In December 1756, M. Muſchenbroeck obſerved, that when the glaſs windows of his room were covered with a thin plate of ice on the inſide, the moon appearing through it was ſurrounded with a large and variouſly coloured halo; and, opening the window, he found that it aroſe intirely from that thin plate of ice, for none was ſeen except through it.

Similar, in ſome reſpects, to the halo, was the remarkable appearance which M. Bouguer deſcribes, as obſerved by himſelf and his companions on the top of Mount Pichinca, in the Cordilleras. When the ſun was juſt riſing behind them, ſo as to appear white, each of them ſaw his own ſhadow projected upon it, and no other. The diſtance was ſuch, that all the parts of the ſhadow were eaſily diſtinguiſhable, as the arms, the leg, and the head; but what ſurpriſed them moſt was, that the head was adorned with a kind of glory, conſiſting of three or four ſmall concentric crowns, of a very lively colour, each exhibiting all the varieties of the primary rainbow, and having the circle of red on the outſide. The intervals between theſe circles continued equal, though the diameters of them all were conſtantly changing. The laſt of them was very faint, and at a conſiderable diſtance was another great white circle, which ſurrounded the whole. As near as M. Bouguer could compute, the diameter of the firſt of theſe circles was about $5\frac{2}{3}$ degrees, that of the ſecond 11, that of the third 17, and ſo on; but the diameter of the white circle was about 76 degrees. This phenomenon never appeared but in a cloud conſiſting of frozen particles, and never in drops of rain like the rainbow. When the ſun was not in the horizon, only part of the white circle was viſible, as M. Bouguer frequently obſerved afterwards.

Similar alſo to this curious appearance was one that was obſerved by Dr M'Fait in Scotland. This gentleman obſerved a rainbow round his ſhadow in the miſt, when he was upon an eminence above it. In this ſituation the whole country round ſeemed, as it were, buried under a vaſt deluge, and nothing but the tops of diſtant hills appeared here and there above the flood; ſo that a man would think of diving down into it with a kind of horror. In thoſe upper regions the air, he ſays, is at that time very pure and agreeable to breathe in. At another time he obſerved a double range of colours round his ſhadow in theſe circumſtances. The colours of the outermoſt range were broad and very diſtinct, and every where about two feet diſtant from the ſhadow. Then there was a darkiſh interval, and after that another narrower range of colours, cloſely ſurrounding the ſhadow, which was very much contracted. This perſon ſeems to think that theſe ranges of colours are cauſed by the inflection of the rays of light, the ſame that occaſioned the ring of light which ſurrounds the ſhadows of all bodies, obſerved by M. Maraldi, and this author*. But the prodigious variety with which theſe appearances are exhibited ſeems to ſhow that many of them do not reſult from the general laws of reflexion, refraction, or inflection, belonging to tranſparent ſubſtances of a large maſs; but upon the alternate reflexion and tranſmiſſion of the different kinds of rays, peculiar to ſubſtances reduced to the form of thin plates, or conſiſting of ſeparate and very minute parts. But where the dimenſions of the coronas are pretty conſtant, as in the uſual and larger halo, which is about half the diameter of the rainbow, they may, perhaps, be explained on the general principles of refraction only.

Deſcartes obſerves, that the halo never appears when it rains: from which he concludes that this phenomenon is occaſioned by the refraction of light in the round particles of ice, which are then floating in the atmoſphere; and though theſe particles are flat when they fall to the ground, he thought they muſt be protuberant in the middle, before their deſcent; and according to this protuberancy he imagined that the diameter of the halo would vary.—In treating of meteors, Gaſſendi ſuppoſed that a halo is the ſame thing with the rainbow, the rays of light being in both caſes twice refracted and once reflected within each drop of rain or vapour, and that all the difference there is between them ariſes from their different ſituation with reſpect to the obſerver. For, whereas, when the ſun is behind the ſpectator, and conſequently the rainbow before him, his eye is in the centre of the circle; when he views the halo, with his face towards the ſun, his eye is in the circumference of the circle; ſo that according to the known principles of geometry, the angle under which the object appears in this caſe, muſt be juſt half of what it is in the other. Though this writer ſays a great deal upon the ſubject, and endeavours to give reaſons why the colours of the halo are in a different order to thoſe of the rainbow, he does not deſcribe the progreſs of the rays of light from the ſun to the eye of the ſpectator when a halo is formed by them, and he gives no figures to explain his ideas.

Dechales, alſo, endeavours to ſhow that the generation of the halo is ſimilar to that of the rainbow. If, ſays he, a ſphere of glaſs or cryſtal, AB, (n° 1.) full of water, be placed in the beams of the ſun ſhining from C, there will not only be two circles of coloured light on the ſide next the ſun, and which conſtitute the two rainbows; but there will alſo be another on the part oppoſite to the ſun, the rays belonging to which meeting at E, afterwards diverge, and form the coloured circle G, as will be viſible, if the light that is tranſmitted through the globe be received on a piece of white paper. The colours alſo will appear to an eye placed in any part of the ſurface of the cone FEG. Meaſuring the angle FEH, he found it to be 23 degrees. They were only the extreme rays of this cone that were coloured like thoſe of the rainbow.

Plate CL.

This experiment he thought ſufficiently illuſtrated the generation of the halo; ſo that whenever the texture of the clouds is ſuch, as not entirely to intercept the rays of the ſun or moon, and yet have ſome degree of denſity, there will always be an halo round them, the colours of the rainbow appearing in thoſe drops which are 23 degrees diſtant from the ſun or moon. If the ſun be at A, and the ſpectator in B, the halo will be the circle DFE, DBE being 46 degrees, or twice 23.

The reaſon why the colours of the halo are more dilute than thoſe of the rainbow, he ſays, is owing principally to their being formed not in large drops of rain, but in very ſmall vapour; for if the drops of water were large, the cloud would be ſo thick, that the rays of the ſun could not be regularly tranſmitted through them; and, on the other hand, he had obſerved, that when the rainbow is formed by very thin vapours, the colours hardly appear. As for thoſe circles of colours which are ſometimes ſeen round candles, it was his opinion that they are owing to nothing but moiſture on the eye of the obſerver; for that he could never produce this appearance by means of vapour only, if he wiped his eyes carefully; and he had obſerved that ſuch circles are viſible to ſome perſons and not to others, and to the ſame perſons at one time and not another.

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* *Edin. Eſſays*, Vol. i. p. 198.

The moſt conſiderable of all the theories reſpecting halos, and that which has met with moſt favourable and the longeſt reception, is that of Mr Huygens. Sir Iſaac Newton mentions it with reſpect, and Dr Smith, in his Complete Syſtem of Optics, does not ſo much as hint at any other. The occaſion of M. Huygens publiſhing his thoughts on this ſubject, was the appearance of a halo at Paris, on the 12th of May 1667, of which he gave an account in a paper read at the Royal Academy in that city, which was afterwards tranſlated, and publiſhed in the Engliſh Philoſophical Tranſactions, and which may be ſeen in Lowthorp's Abridgement, Vol. II. p. 189. But this article contains nothing more than the heads of a diſcourſe, which he afterwards compoſed, but never quite finiſhed, on this ſubject; and which has been tranſlated, with ſome additions, by Dr Smith, from whom the following account is chiefly extracted.

Our philoſopher had been firſt engaged to think particularly upon this ſubject, by the appearance of five ſuns at Warſaw, in 1658; preſently after which, he ſays, he hit upon the true cauſe of halos, and not long after of that of mock ſuns alſo.

To prepare the way for the following obſervations, it muſt be remarked, that if we can conceive any kind of bodies in the atmoſphere, which, according to the known laws of optics, will, either by means of reflection or refraction, produce the appearance in queſtion, when nothing elſe can be found that will do it, we muſt acquieſce in the hypotheſis, and ſuppoſe ſuch bodies to exiſt, even though we cannot give a ſatisfactory account of their generation. Now, two ſuch bodies are aſſumed by Mr Huygens; one of them a round ball, opaque in the centre, but covered with a tranſparent ſhell; and the other is a cylinder, of a ſimilar compoſition. By the help of the former he endeavours to account for halos, and by the latter for thoſe appearances which are called mock ſuns. Thoſe bodies which Mr Huygens requires, in order to explain theſe phenomena, are not, however, a mere aſſumption; for ſome ſuch, though of a larger ſize than his purpoſe requires, have been actually found, conſiſting of ſnow within and ice without. They are particularly mentioned by Deſcartes.

The balls with the opaque kernel, which he ſuppoſed to have been the cauſe of them, he imagines not to exceed the ſize of a turnip-ſeed; but, in order to illuſtrate this hypotheſis, he gives a figure of one, of a larger ſize, in ABCDEF, (n° 3.) repreſenting the kernel of ſnow in the middle of it. If the rays of light, coming from GH, fall upon the ſide AD, it is manifeſt they will be ſo refracted at A and D, as to bend inwards; and many of them will ſtrike upon the kernel EF. Others, however, as GA and HD, will only touch the ſides of the kernel; and being again refracted at B and C, will emerge in the lines BK, CK, croſſing each other in the point K, whoſe neareſt diſtance from the globule is ſomewhat leſs than its apparent diameter. If, therefore, BK and CK be produced towards M and L, (n° 4.) it is evident that no light can reach the eye placed within the angle LKM, but may fall upon it when placed out of that angle, or rather the cone repreſented by it.

For the ſame reaſon, every other of theſe globules will have a ſhadow behind it, in which the light of the ſun will not be perceived. If the eye be at N, and that be conceived to be the vertex of a cone, the ſides of which NR, NQ, are parallel to the ſides of the former cone KL, KM, it is evident that none of the globules within the cone QNR can ſend any rays of the ſun to the eye at N. But any other globule out of this cone, as X, may ſend thoſe rays, which are more refracted than XZ, to the eye; ſo that this will appear enlightened, while thoſe within the cone will appear obſcure. It is evident from this, that a certain area, or ſpace, quite round the ſun, muſt appear dark; and that the ſpace next to this area will appear luminous, and more ſo in thoſe parts that are neareſt to the obſcure area; becauſe, he ſays, it may eaſily be demonſtrated, that thoſe globules which are neareſt to the cone QNR exhibit the largeſt image of the ſun. It is plain, alſo, that a corona ought to be produced in the ſame manner whatever be the ſun's altitude, becauſe of the ſpherical figure of the globules

To verify this hypotheſis, our philoſopher adviſe us to expoſe to the ſun a thin glaſs bubble, filled with water, and, having ſome opaque ſubſtance in the centre of it; and he ſays we ſhall find, that we ſhall not be able to ſee the ſun through it, unleſs at a certain diſtance from a place oppoſite to the centre of it; but as ſoon as we do perceive the light; the image of the ſun will immediately appear the brighteſt, and coloured red, for the ſame reaſon as in the rainbow.

Theſe coronas, he ſays, often appear about the moon; but the colours are ſo weak as to appear only white. Such white coronas he had alſo ſeen about the ſun, when the ſpace within them appeared ſcarce darker than that without. This he ſuppoſes to happen where there are but few of thoſe globules in the atmoſphere; for the more plentiful they are, the more lively the colours of the halo appear; at the ſame time alſo the area within the corona will be the darker. The apparent diameter of the corona, which is generally about 45 degrees, depends upon the ſize of the dark kernel; for the larger it is with reſpect to the whole globule, the larger will be the dark cone behind it.

The globules that form theſe halos, Mr Huygens ſuppoſes to have conſiſted of ſoft ſnow, and to have been rounded by continual agitation in the air, and thawed on their outſides by the heat of the ſun.

To make the diameter of the halo 45 degrees, he demonſtrates that the ſemidiameter of the globule muſt be to the ſemidiameter of the kernel of ſnow very nearly as 1000 to 480; and that to make a corona of 100 degrees, it muſt be as 1000 to 680.

Mr Weidler, in his Commentary on parhelia, publiſhed at Wirtemburgh in 1733, obſerves that it is very improbable that ſuch globules as Mr Huygens's hypotheſis requires, with nuclei of ſuch preciſe proportion, ſhould exiſt; and if there were ſuch bodies, he thinks they would be too ſmall to produce the effects aſcribed to them. Beſides, he obſerves that appearances exactly ſimilar to halos are not uncommon, where fluid vapours alone are concerned; as when a candle is placed behind the ſteam of boiling water in froſty weather, or in the midſt of the vapour iſſuing copiouſly from a bath, or behind a receiver when the air is ſo much rarefied as to be incapable of ſupporting the water it contains. The rays of the ſun twice reflected and twice refracted within ſmall drops of water are ſufficient, he ſays, without any opaque kernel, to produce all the appearances of the halos that have the red light towards the ſun, as may be proved by experiment. That the diameter of the halos is generally half of that of the rainbow, he accounts for as Gaſſendi did before him.

M. Marriotte accounts for the formation of the ſmall coronas by the tranſmiſſion of light through aqueous vapours, where it ſuffers two refractions, without any intermediate reflection. He ſhows that light which comes to the eye, after being refracted in this manner, will be chiefly that which falls upon the drop nearly perpendicular; becauſe more rays fall upon any given quantity of ſurface in that ſituation, fewer of them are reflected with ſmall degrees of obliquity, and they are not ſo much ſcattered after refraction. The red will always be uttermoſt in theſe coronas, as conſiſting of rays which ſuffer the leaſt refraction. And whereas he had ſeen, when the clouds were driven briſkly by the wind, halos round the moon, varying frequently in their diameter, being ſometimes of two, ſometimes of three, and ſometimes of four degrees; ſometimes alſo being coloured, ſometimes only white, and ſometimes diſappearing entirely; he concluded that all theſe variations aroſe from the different thickneſs of the clouds, through which ſometimes more and ſometimes leſs light was tranſmitted. He ſuppoſed, alſo, that the light which formed them might ſometimes be reflected, and at other times refracted. As to thoſe coronas which conſiſt of two orders of colours, he imagined that they were produced by ſmall pieces of ſnow, which when they begin to diſſolve, form figures which are a little convex towards their extremities. Sometimes, alſo, the ſnow will be melted in different ſhapes; and in this caſe, the colours of ſeveral halos will be intermixed and confuſed; and ſuch, he ſays, he had ſometimes obſerved round the ſun.

M. Marriotte then proceeds to explain the larger coronas, namely thoſe that are about 45 degrees in diameter, and for this purpoſe he has recourſe to equiangular priſms of ice, in a certain poſition with reſpect to the ſun; and he takes pains to trace the progreſs of the rays of light for this purpoſe: but this hypotheſis is very improbable. In ſome caſes he thought that theſe large coronas were cauſed by hail-ſtones, of a pyramidal figure; becauſe after two or three of them had been ſeen about the ſun, there fell the ſame day ſeveral ſuch pyramidal hail-ſtones. M. Mariotte explains parhelia by the help of the ſame ſuppoſitions. See PARHELIA.

Sir Iſaac Newton does not appear to have given any particular attention to the ſubject of halos, but he has hinted at his ſentiments concerning them occaſionally; by which we perceive that he conſidered the larger and leſs variable appearances of this kind as produced according to the common laws of refraction, but that the leſs and more variable appearances depend upon the ſame cauſe with the colours of thin plates.

He concludes his explication of the rainbow with the following obſervation on halos and parhelias. "The light which comes through drops of rain by two refractions, without any reflection, ought to appear the ſtrongeſt at the diſtance of about 26 degrees from the ſun, and to decay gradually both ways as the diſtance from him increaſes. And the ſame is to be underſtood of light tranſmitted through ſpherical hail-ſtones: and if the hail be a little flatted, as it often is, the tranſmitted light may be ſo ſtrong, at a little leſs diſtance than that of 26 degrees, as to form a halo about the ſun or moon; which halo, as often as the hail-ſtones are duly figured, may be coloured, and then it muſt be red within by the leaſt refrangible rays, and blue without by the moſt refrangible ones; eſpecially if the hail-ſtones have opaque globules of ſnow in their centres to intercept the light within the halo, as Mr Huygens has obſerved, and make the inſide of it more diſtinctly defined than it would otherwiſe be. For ſuch hail-ſtones, though ſpherical, by terminating the light by the ſnow, may make a halo red within, and colourleſs without, and darker within the red than without, as halos uſe to be. For of thoſe rays which paſs cloſe by the ſnow, the red-making ones will be the leaſt refracted, and ſo come to the eye in the ſtraighteſt lines."

Some farther thoughts of Sir Iſaac Newton's on the ſubject of halos we find ſubjoined to the account of his experiments on the colours of thick plates of glaſs, which he conceived to be ſimilar to thoſe which are exhibited by thin ones. "As light reflected by a lens quick-ſilvered on the back ſide makes the rings of the colours above deſcribed, ſo (he ſays) it ought to make the like ring in paſſing through a drop of water. At the firſt reflexion of the rays within the drop, ſome colours ought to be tranſmitted, as in the caſe of a lens, and others to be reflected back to the eye. For inſtance, if the diameter of a ſmall drop or globule of water be about the 500dth part of an inch, ſo that a red-making ray, in paſſing through the middle of this globule, has 250 fits of eaſy tranſmiſſion within the globule, and all the red-making rays which are at a certain diſtance from this middle ray round about it have 249 fits within the globule, and all the like rays at a certain farther diſtance round about it have 248 fits, and all thoſe at a certain farther diſtance 247 fits, and ſo on, theſe concentric circles of rays, after their tranſmiſſion, falling on a white paper, will make concentric rings of red upon the paper: ſuppoſing the light which paſſes through one ſingle globule ſtrong enough to be ſenſible, and in like manner the rays of other colours will make rings of other colours. Suppoſe now that in a fair day the ſun ſhould ſhine through a thin cloud of ſuch globules of water or hail, and that the globules are all of the ſame ſize, the ſun ſeen through this cloud ought to appear ſurrounded with the like concentric rings of colours, and the diameter of the firſt ring of red ſhould be $7\frac{1}{4}$ degrees, that of the ſecond $10\frac{1}{4}$, that of the third $12^{\circ}\ 33'$, and according as the globules of water are bigger or leſs, the ring ſhould be leſs or bigger."

This curious theory our author informs us was confirmed by an obſervation which he made in 1692. He ſaw by reflexion, in a veſſel of ſtagnating water, three halos, crowns, or rings of colours about the ſun, like three little rainbows concentric to his body. The colours of the firſt, or innermoſt crown, were blue next the ſun, red without, and white in the middle, between the blue and red. Thoſe of the ſecond crown were purple and blue within, and pale red without, and green in the middle. And thoſe of the third were pale blue within, and pale red without. Theſe crowns incloſed one another immediately, ſo that their colours proceeded in this continual order from the ſun outward; blue, white, red; purple, blue, green, pale yellow, and red; pale blue, pale red. The diameter of the ſecond crown, meaſured from the middle of the yellow and red on one ſide of the ſun, to the middle of the ſame colour on the other ſide, was $9\frac{1}{3}$ degrees or thereabouts. The diameters of the firſt and third he had not time to meaſure; but that of the firſt ſeemed to be about five or ſix degrees, and that of the third about twelve. The like crowns appear ſometimes about the moon: for in the beginning of the year 1664, on February 19th at night, he ſaw two ſuch crowns about her. The diameter of the firſt, or innermoſt, was about three degrees, and that of the ſecond about five degrees and a half. Next about the moon was a circle of white; and next about that the inner crown, which was of a bluiſh green within, next the white, and of a yellow and red without; and next about theſe colours were blue and green on the inſide of the outer crown, and red on the outſide of it.

At the ſame time there appeared a halo at the diſtance of about 22° 35′ from the centre of the moon. It was elliptical; and its long diameter was perpendicular to the horizon, verging below fartheſt from the moon. He was told that the moon has ſometimes three or more concentric crowns of colours encompaſſing one another next about her body. The more equal the globules of water or ice are to one another, the more crowns of colours will appear, and the colours will be the more lively. The halo, at the diſtance of $22\frac{1}{2}$ degrees from the moon, is of another ſort. By its being oval, and more remote from the moon below than above, he concludes that it was made by refraction in ſome kind of hail or ſnow floating in the air in an horizontal poſture, the refracting angle being about 50 or 60 degrees. Dr Smith, however, makes it ſufficiently evident, that the reaſon why this halo appeared oval, and more remote from the moon towards the horizon, is a deception of ſight, and the ſame with that which makes the moon appear larger in the horizon.

Dr Kotelnihow, having, like Dr Halley, made very accurate obſervations to determine the number of poſſible rainbows, conſiders the coloured halo which appears about a candle as the ſame thing with one of theſe bows which is formed near the body of the ſun, but which is not viſible on account of his exceſſive ſplendor.

Laſtly, M. Muſchenbroeck concludes his account of coronas with obſerving, that ſome denſity of vapour, or ſome thickneſs of the plates of ice, divides the light in its tranſmiſſion through the ſmall globules of water, or their interſtices, into its ſeparate colours: but what that denſity was, or what was the ſize of the particles which compoſed the vapour, he could not pretend to determine.

CORONA, among botaniſts, the names given by ſome to the circumference or margin of a radiated compound flower. It correſponds to the radius of Linnæus; and is exemplified in the flat, tongue-ſhaped petals which occupy the margin of the daiſy or ſunflower.

CORONA Auſtralis, or *Meridionalis*, Southern Crown, a conſtellation of the ſouthern hemiſphere, whoſe ſtars in Ptolemy's catalogue are 13, in the Britiſh catalogue 12.

CORONA Borealis, the Northern Crown, or Garland, in aſtronomy, a conſtellation of the northern hemiſphere, whoſe ſtars in Ptolemy's catalogue are eight, in Tycho's as many, and in Mr Flamſtead's 21.

CORONA Imperialis, in conchyology, a name given by ſome authors to a kind of voluta, differing from the other ſhells of that family, by having its head ornamented with a number of points, forming a ſort of crown. See VOLUTA.

CORONAL, in anatomy, the firſt ſuture of the ſkull. See ANATOMY, n° 13.

CORONALE os, the ſame with the os frontis. See ANATOMY, n° 12.

CORONARY VESSELS, in anatomy, certain veſſels which furniſh the ſubſtance of the heart with blood.

CORONARY Arteries, are two arteries ſpringing out of the aorta, before it leaves the pericardium. See ANATOMY, n° 122, and 123.

CORONARY Vein, a vein diffuſed over the exterior ſurface of the heart. See ANATOMY, n° 122.

Stomachic CORONARY, a vein inſerted into the trunk of the ſplenic vein, which, by uniting with the meſenteric, forms the vena porta. See ANATOMY, n° 123

CORONARIÆ, in botany, the 10th order of plants in Linnæus's Fragments of a natural method. Under this name, inſtead of the more obvious one *liliaceæ*, Linnæus collects a great number of genera, moſt of which furniſh very beautiful garden-flowers, *viz.* albuca, cyanella, fritillaria, helonias, hyacinthus, hypoxis, lilium, melanthium, ornithogalum, ſcilla, tulipa, agave, aletris, aloe, anthericum, aſphodelus, bromelia, burmannia, hemerocallis, polianthes, tillandſia, veratrum, yucca.

CORONATION, the ceremony of inveſting with a crown, particularly applied to the crowning of kings, upon their ſucceeding to the ſovereignty. See KING.

CORONÆ (anc. geog.), a town of Bœotia, near mount Helicon, and the lake Copais, ſituated on an eminence; famous for the defeat of the Athenians and Bœotians by Ageſilaus.—Another Coronæ of Theſſaly, having Narthacium to the eaſt, and Lamia near the Sperchius, to the north, (Ptolemy).

CORONE (anc. geog.), a town of Meſſenia, ſituated on the ſea giving name to the Sinus Coronæus, (Pliny), now *Golfo di Coron*. Pauſanias takes it to be the *Aepea* of Homer; but Strabo *Thuria*, and Pliny *Pedaſus*, now *Coron*, in the territory of Belvidere, in the Morea. E. Long. 22. Lat. 36. 30.

CORONELLI (Vincent), a famous geographer, born at Venice. His ſkill in the mathematics having brought him to the knowledge of the count d'Eſtrees, his eminence employed him in making globes for Louis XIV. With this view Coronelli ſpent ſome time at Paris; and left a great number of globes there, which are eſteemed. In 1685, he was made coſmographer to the republic of Venice: and four years after, public profeſſor of geography. He founded an academy of coſmography at Venice; and died in that city in 1718. He publiſhed above 400 geographical charts, an abridgement of coſmography, ſeveral books on geography, and other works.

CORONER *(coronator)*, an ancient officer in England, ſo called becauſe he hath principally to do with pleas of the crown, or ſuch wherein the king is more immediately concerned. And in this light, the lord chief juſtice of the king's bench is the principal coroner in the kingdom; and may, if he pleaſes, exerciſe the juriſdiction of a coroner in any part of the realm. But there are alſo particular coroners for every county of England; uſually four, but ſometimes ſix, and ſometimes fewer. This officer is of equal authority with the ſheriff; and was ordained, together with him, to keep the peace when the earls gave up the wardſhip of the county.

He is choſen by all the freeholders of the county court; and by the ſtatute of Weſtminſter 1. it was enacted, that none but lawful and diſcreet knights ſhould be choſen: but it ſeems now ſufficient if a man have lands enough to be made a knight, whether he be really knighted or not: for the coroner ought to have an eſtate ſufficient to maintain the dignity of his office, and anſwer any fines that may be made upon him for his miſbehaviour; and, if he hath not enough to anſwer, his fine ſhall be levied on the county, as a puniſhment for electing an inſufficient officer. Now, indeed, through the culpable neglect of gentlemen of property, this office has been ſuffered to fall into diſrepute, and get into low and indigent hands; ſo that although formerly no coroners would be paid for ſerving their country, and they were by the aforeſaid ſtatute of Weſtminiſter 1. expreſsly forbidden to take a reward under pain of great forfeiture to the king; yet for many years paſt they have only deſired to be choſen for the ſake of their perquiſites; being allowed fees for their attendance by ſtatute 3 Hen. VII. c. 1. which Sir Edward Coke complains of heavily, though ſince his time thoſe fees have been much enlarged.

The coroner is choſen for life; but may be removed, either by being made ſheriff or choſen verderor, which are offices incompatible with the other; and by the ſtatute 25 Geo. II. c. 29. extortion, neglect, or miſbehaviour, are alſo made cauſes of removal.

The office and power of a coroner are alſo, like thoſe of the ſheriff, either judicial or miniſterial; but principally judicial. This is in great meaſure aſcertained by ſtatute 4 Edw. I. *De officio coronatoris;* and conſiſts, firſt, in inquiring, when any perſon is ſlain, or dies ſuddenly, or in priſon, concerning the manner of his death. And this muſt be *ſuper viſum corporis*; for if the body is not found, the coroner cannot ſit. He muſt alſo ſit at the very place where the death happened. And his inquiry is made by a jury from four, five or ſix of the neighbouring towns, over whom he is to preſide. If any be found guilty by this inqueſt of murder, he is to commit to priſon for farther trial, and is alſo to enquire concerning their lands, goods, and chattels, which are forfeited thereby; but whether it be murder or not, he muſt inquire whether any deodand has accrued to the king, or the lord of the franchiſe, by this death; and muſt certify the whole of this inquiſition to the court of king's-bench, or the next aſſizes. Another branch of his office is to inquire concerning ſhipwrecks; and certify whether wreck or not, and who is in poſſeſſion of the goods. Concerning treaſure-trove, he is alſo to inquire concerning the finders, and where it is, and whether any one be ſuſpected of having found and concealed a treaſure; "and that may well be perceived (ſaith the old ſtatute of Edw. I.), where one liveth riotouſly, haunting taverns, and hath done ſo of long time;" whereupon he might be attached and held to bail upon this ſuſpicion only.

The miniſterial office of the coroner is only as the ſheriff's ſubſtitute. For when juſt exception can be taken to the ſheriff, for ſuſpicion of partiality (as that he is intereſted in the ſuit, or of kindred to either plaintiff or defendant), the proceſs muſt then be awarded to the coroner, inſtead of the ſheriff, for execution of the king's writs.

CORONET. See CROWN.

CORONET, or cornet, of a horſe, the loweſt part of the paſtern, which runs round the coffin, and is diſtinguiſhed by the hair joining and covering the upper part of the hoof.

CORONILLA, *jointed podded* COLUTEA: A genus of the decandria order, belonging to the diadelphia claſs of plants; and in the natural method ranking under the 32d order, *Papilionaceæ*. The calyx is bilabiated, with two ſegments above coalited; the vexillum ſcarce any longer than the alæ; the legumen much contracted between the ſeeds. To this genus Linnæus alſo joins the emerus, or ſcorpion ſena; though Mr Miller makes it a diſtinct ſpecies. There are 11 ſpecies, all of them plants of conſiderable beauty, with very bright yellow flowers. All of them, however, are rather too tender for this climate, except the emerus. This ſpecies riſes with a ſhrubby ſtem, branching numerouſly ſix or eight feet high, cloſely garniſhed with winged leaves of three pair of lobes, terminated by an odd one; and, at the ſides of the branches, numerous long flower-ſtalks, each ſupporting two or three large yellow flowers of the papilionaceous kind, ſucceeded by longiſh pods; it is eaſily propagated by ſeeds, and likewiſe by layers or cuttings. The leaves of this plant are eſteemed laxative, and uſed as a ſubſtitute for common ſena in ſome parts of Europe. A dye is procured by fermentation from the leaves, like that of indigo.

CORONOID, and CONDYLOID, proceſſes. See ANATOMY, n° 26.

CORPORA CAVERNOSA, in anatomy, two ſpongious bodies, called alſo *corpora nervoſa* and *corpus ſpongioſum*. See ANATOMY, p. 738, col. 2.

CORPORA Pyramidalia, are two protuberances of the under part of the *cerebellum*, about an inch long; ſo called from their reſemblance to a pyramid. See ANATOMY, n° 134.

CORPORA Striata. See ANATONY, p. 758, col. 1.

CORPORAL, an inferior officer under a ſergeant, in a company of foot, who has charge over one of the diviſions, places and relieves centinels, and keeps good order in the corps de garde: he alſo receives the word from the inferior rounds, which paſſes by his corps de garde. This officer carries a fuſee, and is commonly an old ſoldier: there are generally three corporals in each company.

Corporal *of a Ship of War*, an officer under the maſter at arms, employed to teach the officers the exerciſe of ſmall arms, or of muſketry; to attend at the gang-way, on entering ports, and obſerve that no ſpirituous liquors are brought into the ſhip, unleſs by expreſs leave from the officers. He is alſo to extinguiſh the fire and candles at eight o'clock in winter and nine in ſummer, when the evening gun is fired; and to walk frequently down in the lower decks in his watch, to ſee that there are no lights but ſuch as are under the charge of proper centinels.

Corporal *(Corporale)*, is alſo an ancient church-term, ſignifying the ſacred linen ſpread under the chalice in the euchariſt and maſs, to recieve the fragments of the bread, if any chance to fall. Some ſay, it was pope Euſebius who firſt enjoined the uſe of the corporal; others aſcribe it to St Silveſter. It was the cuſtom to carry corporals, with ſome ſolemnity, to fires, and to heave them againſt the flames, in order to extinguiſh them. Philip de Comines ſays, the pope made Louis XI. a preſent of the corporale, whereon my lord St Peter ſung maſs.

CORPORATION, a body politic or incorporate, ſo called, becauſe the perſons or members are joined into one body, and are qualified to take, grant, &c.

Blackſt. Comment.

Of corporations there is a great variety ſubſiſting, for the advancement of religion, of learning, and of commerce; in order to preſerve entire and for ever thoſe rights and immunities, which, if they were granted only to thoſe individuals of which the body corporate is compoſed, would upon their death be utterly loſt and extinct. To ſhow the advantages of theſe incorporations, let us conſider the caſe of a college in either of the univerſities, founded *ad ſtudendum et orandum*, for the encouragement and ſupport of religion and learning. If this was a mere voluntary aſſembly, the individuals which compoſe it might indeed read, pray, ſtudy, and perform ſcholaſtic exerciſes together, ſo long as they could agree to do ſo: but they could neither frame, nor receive, any laws or rules of their conduct; none at leaſt which would have any binding force, for want of a coercive power to create a ſufficient obligation. Neither could they be capable of retaining any privileges or immunities: for, if ſuch privileges be attacked, which of all this unconnected aſſembly has the right or ability to defend them? And, when they are diſperſed by death or otherwiſe, how ſhall they transfer theſe advantages to another ſet of ſtudents, equally unconnected as themſelves? So alſo, with regard to holding eſtates or other property, if land be granted for the purpoſes of religion or learning to 20 individuals not incorporated, there is no legal way of continuing the property to any other perſons for the ſame purpoſes, but by endleſs conveyances from one to the other, as often as the hands are changed. But when they are conſolidated and united into a corporation, they and their ſucceſſors are then conſidered as one perſon in law: as one perſon, they have one will, which is collected from the ſenſe of the majority of the individuals: this one will may eſtabliſh rules and orders for the regulation of the whole, which are a ſort of municipal laws of this little republic; or rules and ſtatutes may be preſcribed to it at its creation, which are then in the place of natural laws: the privileges and immunities, the eſtates and poſſeſſions, of the corporation, when once veſted in them, will be for ever veſted, without any new conveyance to new ſucceſſions; for all the individual members that have exiſted from the foundation to the preſent time, or that ſhall ever hereafter exiſt, are but one perſon in law, a perſon that never dies: in like manner as the river Thames is ſtill the ſame river, though the parts which compoſe it are changing every inſtant.

The honour of originally inventing theſe political conſtitutions entirely belongs to the Romans. They were introduced, as Plutarch ſays, by Numa; who finding, upon his acceſſion, the city torn to pieces by the two rival factions of Sabines and Romans, thought it a prudent and politic meaſure to ſubdivide theſe two into many ſmaller ones, by inſtituting ſeparate ſocieties of every manual trade and profeſſion. They were afterwards much conſidered by the civil law, in which they were called *univerſitates*, as forming one whole out of many individuals; or *collegia*, from being gathered together: they were adopted alſo by the canon law, for the maintenance of eccleſiaſtical diſcipline; and from them the ſpiritual corporations are derived. But our laws have conſiderably refined and improved upon the invention, according to the uſual genius of the Engliſh nation: particularly with regard to ſole corporations, conſiſting of one perſon only, of which the Roman lawyers had no notion; their maxim being that "tres faciunt collegium:" though they held, that if a corporation, originally conſiſting of three perſons, be reduced to one, "ſi univerſitas ad unum redit," it may ſtill ſubſiſt as a corporation, "et ſtet nomen univerſitatis."

As to the ſeveral ſorts of corporations, the firſt diviſion of them is into *aggregate* and *ſole*. Corporations aggregate conſiſt of many perſons united together into one ſociety, and are kept up by a perpetual ſucceſſion of members, ſo as to continue for ever: of which kind are the mayor and commonalty of a city, the head and fellows of a college, the dean and chapter of a cathedral church. Corporations ſole conſiſt of one perſon only and his ſucceſſors, in ſome particular ſtation, who are incorporated by law, in order to give them ſome legal capacities and advantages, particularly that of perpetuity, which in their natural perſons they could not have had. In this ſenſe the king is a ſole corporation: ſo is a biſhop: ſo are ſome deans and prebendaries, diſtinct from their ſeveral chapters: and ſo is every parſon and vicar. And the neceſſity, or at leaſt, uſe of this inſtitution will be very apparent, if we conſider the caſe of a parſon of a church. At the original endowment of pariſh-churches, the freehold of the church, the church-yard, the parſonage-houſe, the glebe, and the tithes of the pariſh, were veſted in the then parſon by the bounty of the donor, as a temporal recompence to him for his ſpiritual care of the inhabitants, and with intent that the ſame emoluments ſhould ever afterwards continue as a recompence for the ſame care. But how was this to be effected? The freehold was veſted in the parſon; and, if we ſuppoſe it veſted in his natural capacity, on his death it might deſcend to his heir, and would be liable to his debts and incumbrances;

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branches: or at beſt the heir might be compellable, at ſome trouble and expence, to convey theſe rights to the ſucceeding incumbent. The law therefore has wiſely ordained, that the parſon, *quatenus* parſon, ſhall never die, any more than the king; by making him and his ſucceſſors a corporation. By which means all the original rights of the parſonage are preſerved entire to the ſucceſſor: for the preſent incumbent, and his predeceſſor who lived ſeven centuries ago, are in law one and the ſame perſon; and what was given to the one was given to the other alſo.

Another diviſion of corporations, either ſole or aggregate, is into *eccleſiaſtical* and *lay*. Eccleſiaſtical corporations are where the members that compoſe it are entirely ſpiritual perſons; ſuch as biſhops; certain deans and prebendaries; all archdeacons, parſons, and vicars; which are ſole corporations: deans and chapters at preſent, and formerly prior and convent, abbot and monks, and the like, bodies aggregate. Theſe are erected for the furtherance of religion, and perpetuating the rights of the church.—Lay corporations are of two ſorts, *civil* and *eleemoſynary*. The civil are ſuch as are erected for a variety of temporal purpoſes. The king, for inſtance, is made a corporation to prevent in general the poſſibility of an *interregnum* or vacancy of the throne, and to preſerve the poſſeſſions of the crown entire; for, immediately upon the demiſe of one king, his ſucceſſor is in full poſſeſſion of the regal rights and dignity. Other lay corporations are erected for the good government of a town or particular diſtrict, as a mayor and commonalty, bailiff and burgeſſes, or the like: ſome for the advancement and regulation of manufactures and commerce; as the trading companies of London and other towns: and ſome for the better carrying on of divers ſpecial purpoſes; as church-wardens, for conſervation of the goods of the pariſh; the college of phyſicians and company of ſurgeons in London, for the improvement of the medical ſcience; the royal ſociety for the advancement of natural knowledge; and the ſociety of antiquarians for promoting the ſtudy of antiquities. The eleemoſynary ſort are ſuch as are conſtituted for the perpetual diſtribution of the free alms, or bounty, of the founder of them to ſuch perſons as he has directed. Of this kind are all hoſpitals for the maintenance of the poor, ſick, and impotent; and all colleges, both *in* univerſities and *out* of them: which colleges are founded for two purpoſes: 1. For the promotion of piety and learning by proper regulations and ordinances. 2. For imparting aſſiſtance to the members of thoſe bodies, in order to enable them to proſecute their devotion and ſtudies with greater eaſe and aſſiduity. And all theſe eleemoſynary corporations are, ſtrictly ſpeaking, lay, and not eccleſiaſtical, even though compoſed of eccleſiaſtical perſons, and although they in ſome things partake of the nature, privileges, and reſtrictions of eccleſiaſtical bodies.

Having thus marſhalled the ſeveral ſpecies of corporations, let us next proceed to conſider, 1. How corporations in general may be created. 2. What are their powers, capacities, and incapacities. And, 3. How they may be diſſolved.

I. Corporations, by the civil law, ſeem to have been created by the mere act and voluntary aſſociation of members; provided ſuch convention was not contrary to law, for then it was *ilicitum collegium*. It does not appear that the prince's conſent was neceſſary to be actually given to the foundation of them; but merely that the original founders of theſe voluntary and friendly ſocieties (for they were little more than ſuch) ſhould not eſtabliſh any meetings in oppoſition to the laws of the ſtate.

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But in England the king's conſent is abſolutely neceſſary to the erection of any corporation, either impliedly or expreſsly given. The king's implied conſent is to be found in corporations which exiſt by force of the common law, to which former kings are ſuppoſed to have given their concurrence; common law being nothing elſe but cuſtom, ariſing from the univerſal agreement of the whole community. Of this ſort are the king himſelf, all biſhops, parſons, vicars, church-wardens, and ſome others; who by common law have ever been held (as far as our books can ſhow us) to have been corporations, *virtute officii*: and this incorporation is ſo inſeparably annexed to their offices, that we cannot frame a complete legal idea of any of theſe perſons, but we muſt alſo have an idea of a corporation, capable to tranſmit his rights to his ſucceſſors, at the ſame time. Another method of implication, whereby the king's conſent is preſumed, is as to all corporations by preſcription, ſuch as the city of London and many others, which have exiſted as corporations, time whereof the memory of man runneth out to the contrary; and therefore are looked upon in law to be well created. For though the members thereof can ſhow no legal charter of incorporation, yet in caſes of ſuch high antiquity the law preſumes there once was one; and that by the variety of accidents, which a length of time may produce, the charter is loſt or deſtroyed. The methods by which the kings conſent is expreſsly given, are either by act of parliament or charter. By act of parliament, of which the royal aſſent is a neceſſary ingredient, corporations may undoubtedly be created: but it is obſervable, that moſt of thoſe ſtatutes, which are uſually cited as having created corporations, do either confirm ſuch as have been before created by the king; as in the caſe of the college of phyſicians, erected by charter 10 Hen. VIII. which charter was afterwards confirmed in parliament; or, they permit the king to erect a corporation *in futuro* with ſuch and ſuch powers; as is the caſe of the bank of England, and the ſociety of the Britiſh fiſhery. So that the immediate creative act is uſually performed by the king alone, in virtue of his royal prerogative.

All the other methods therefore whereby corporations, exiſt, by common law, by preſcription and by act of parliament, are for the moſt part reducible to this of the king's letters patent, or charter of incorporation. The king's creation may be performed by the words *creamus, erigimus, fundamus, incorporamus*, or the like. Nay it is held, that if the king grants to a ſet of men to have *gildam mercatoriam*, "a mercantile meeting or aſſembly," this is alone ſufficient to incorporate and eſtabliſh them for ever.

The king (it is ſaid) may grant to a ſubject the power of erecting corporations, though the contrary was formerly held: that is, he may permit the ſubject to name the perſons and powers of the corporation at his pleaſure, but it is really the king that erects, and the ſubject is but the inſtrument; for though none but the king can make a corporation, yet *qui facit per alium, facit per ſe*. In this manner the chancellor of the univerſity of Oxford has power by charter to erect corporations; and has actually often exerted it in the erection of ſeveral matriculated companies, now ſubſiſting, of tradeſmen ſubſervient to the ſtudents.

When a corporation is erected, a name muſt be given to it; and by that name alone it muſt ſue and be ſued, and do all legal acts.

II. After a corporation is ſo formed and named, it acquires many powers and rights, which we are next to conſider. Some of theſe are neceſſarily and inſeparably incident to every corporation; which incidents, as ſoon as a corporation is duly erected, are tacitly annexed of courſe. As, 1. To have perpetual ſucceſſion. This is the very end of its incorporation: for there cannot be a ſucceſſion for ever without an incorporation; and therefore all aggregate corporations have a power neceſſarily implied of electing members in the room of ſuch as go off. 2. To ſue or be ſued, implead or be impleaded, grant or receive, by its corporate name, and do all other acts as natural perſons may. 3. To purchaſe lands, and hold them, for the benefit of themſelves and their ſucceſſors: which two are conſequential to the former. 4. To have a common ſeal. For a corporation, being an inviſible body, cannot manifeſt its intentions by any perſonal act or oral diſcourſe: it otherwiſe acts and ſpeaks only by its common ſeal. For though the particular members may expreſs their private conſents to any act, by words, or ſigning their names, yet this does not bind the corporation; it is the fixing of the ſeal, and that only, which unites the ſeveral aſſents of the individuals who compoſe the community, and makes one joint aſſent of the whole. 5. To make by-laws or private ſtatutes for the better government of the corporation; which are binding upon themſelves, unleſs contrary to the laws of the land, and then they are void. But no trading company is with us allowed to make by-laws which may affect the king's prerogative or the common profit of the people, under penalty of L. 40, unleſs they be approved by the chancellor, treaſurer, and chief juſtices, or the judges of aſſize in their circuits: and even though they be ſo approved, ſtill, if contrary to law, they are void. Theſe five powers are inſeparably incident to every corporation, at leaſt to every corporation aggregate: for two of them, though they may be practiſed, yet are very unneceſſary to a corporation ſole; viz. to have a corporate ſeal to teſtify his ſole aſſent, and to make ſtatutes for the regulation of his own conduct.

Corporations have a capacity to purchaſe lands for themſelves and ſucceſſors; but they are excepted out of the ſtatute of wills; ſo that no deviſe of lands to a corporation by will is good; except for charitable uſes, by ſtatute 43 Eliz. c. 4. which exception is again greatly narrowed by the ſtatute 9 Geo. II. c. 36. And alſo, by a great variety of ſtatutes, their privilege even of purchaſing from any living granter is much abridged; ſo that now a corporation, either eccleſiaſtical or lay, muſt have a licence from the king to purchaſe, before they can exert that capacity which is veſted in them by the common law: nor is even this in all caſes ſufficient. Theſe ſtatutes are generally called the ſtatutes of *mortmain*. See MORTMAIN.

The general duties of all bodies politic, conſidered in their corporate capacity, may, like thoſe of natural perſons, be reduced to this ſingle one; that of acting up to the end or deſign, whatever it be, for which they were created by their founder.

III. How corporations may be diſſolved. Any particular member may be disfranchiſed, or loſe his place in the corporation, by acting contrary to the laws of the ſociety, or the laws of the land: or he may reſign it by his own voluntary act. But the body politic may alſo itſelf be diſſolved in ſeveral ways; which diſſolution is the civil death of the corporation: and in this caſe their lands and tenements ſhall revert to the perſon, or his heirs, who granted them to the corporation: for the law doth annex a condition to every ſuch grant, that if the corporation be diſſolved, the granter ſhall have the lands again, becauſe the cauſe of the grant faileth. The grant is indeed only during the life of the corporation; which may endure for ever; but when that life is determined by the diſſolution of the body politic, the granter takes it back by reverſion, as in the caſe of every other grant for life. The debts of a corporation, either to or from it, are totally extinguiſhed by its diſſolution; ſo that the members thereof cannot recover, or be charged with them, in their natural capacities: agreeable to that maxim of the civil law, *Si quid univerſitati debetur, ſingulis non debetur; nec, quod debet univerſitas, ſinguli debent.*

A corporation may be diſſolved, 1. By act of parliament, which is boundleſs in its operations. 2. By the natural death of all its members, in caſes of an aggregate corporation. 3. By ſurrender of its franchiſes into the hands of the king, which is a kind of ſuicide. 4. By forfeiture of its charter, through negligence or abuſe of its franchiſes; in which caſe the law judges that the body politic has broken the condition upon which it was incorporated, and thereupon the incorporation is void. And the regular courſe is to bring an information in nature of a writ of *quo warranto*, to inquire by what warrant the members now exerciſe their corporate power, having forfeited it by ſuch and ſuch proceedings. The exertion of this act of law, for the purpoſes of the ſtate, in the reigns of king Charles and king James II. particularly by ſeizing the charter of the city of London, gave great and juſt offence; though perhaps, in ſtrictneſs of law, the proceedings in moſt of them were ſufficiently regular: but the judgment againſt that of London was reverſed by act of parliament after the revolution; and by the ſame ſtatute it is enacted, that the franchiſes of the city of London ſhall never more be forfeited for any cauſe whatſoever. And becauſe by the common law corporations were diſſolved, in caſe the mayor or head officer was not duly elected on the day appointed in the charter or eſtabliſhed by preſcription, it is now provided, that for the future no corporation ſhall be diſſolved upon that account; and ample directions are given for appointing a new officer, in caſe there be no election, or a void one, made upon the charter or preſcriptive day.

CORPORATION Act, is that which prevents any perſon from being legally elected into any office relating to the government of any city or corporation, unleſs within a twelvemonth before he has received the ſacrament of the Lord's ſupper, according to the rites of the church of England; and which enjoins him to take the oaths of allegiance and ſupremacy when he takes the oath of office; otherwiſe his election is void.

CORPOREAL, thoſe qualities which denominate a body. See INCORPOREAL.

CORPOREITY, the quality of that which is corporeal, or his body; or that which conſtitutes or denominates it ſuch.—The corporeity of God was the capital error of the Anthropomorphites. Some authors reproach Tertullian with admitting a corporeity in the Deity: but it is manifeſt, by *body* he means no more than *ſubſtance*.—The Mahometans reproach the Samaritans at this day, with a belief of the corporeity of God. Many of the ancients believed the corporeity of angels.

CORPSE, a dead body.

If any one, in taking up a dead body, ſteals the ſhrowd, or other apparel, it will be felony. Stealing only the corpſe itſelf is not felony; but it is puniſhable as a miſdemeanor by indictment at common law.

CORPS, in architecture, is a term borrowed from the French, ſignifying any part that projects or advances beyond the naked of a wall; and which ſerves as a ground for ſome decoration or the like.

Corps de Bataille, is the main body of an army drawn up for battle.

Corps de Garde, a poſt in an army, ſometimes under covert, ſometimes in the open air, to receive a body of ſoldiery, who are relieved from time to time, and are to watch in their turns, for the ſecurity of a quarter, a camp, ſtation, &c.—The word is alſo uſed for the men who watch therein. It is uſual to have, beſide the great, a little corps de garde, at a good diſtance before the lines; to be the more readily advertiſed of the approach of the enemy.

CORPULENCY, the ſtate of a perſon too much loaded with fleſh or fat.

Corpulency is the occaſion of various diſeaſes, and particularly the apoplexy. It was held infamous among the ancient Lacedæmonians.

Sennertus mentions a man that weighed 600 pounds, and a maid 36 years of age who weighed 450. Bright of Malden, who died at the age of 29 years in 1750, weightd 616 pounds. Chiapin Vitelli, Marquis of Cerona, a noted Spaniſh general in his time, from an exceſſive corpulency, is ſaid to have reduced himſelf, by drinking of vinegar, to ſuch a degree of leanneſs, that he could fold his ſkin ſeveral times round him.

Caſtile ſoap, in the form of a bolus, an electuary, pills, or diſſolved in a gill or more ſoft water, from one to four drachms, taken at bed-time, is ſtrongly recommended with a view of reducing corpulency, in a diſcourſe on its nature, cauſes, and cure, by Malcolm Flemyng, M. D. Lond. 1760. See MEDICINE-*Index*.

CORPUS, in anatomy, is applied to ſeveral parts of the animal ſtructure: as *corpus colloſum*, *corpus cavernoſum*, &c. See ANATOMY, p. 739, and p. 740.

CORPUS is alſo uſed in matters of learning, for ſeveral works of the ſame nature collected and bound together. Gratian made a collection of the canons of the church, called *corpus canonum*. The *corpus* of the civil law is compoſed of the digeſt, code, and inſtitutes. We have alſo a *corpus* of the Greek poets; and another of the Latin poets.

Corpus Chriſti, a feſtival of the church of England, kept on the next Thurſday after Trinity-ſunday, inſtituted in honour of the euchariſt; to which alſo one of the colleges in Oxford is dedicated.

CORPUSCLE, in Phyſics, a minute particle, or phyſical atom, being ſuch as a natural body is made up of. By this word is not meant the elementary particles, nor the hypoſtatical principles of chemiſts; but ſuch particles, whether of a ſimple or compound nature, whoſe parts will not be diſſolved nor diſſipated by ordinary degrees of heat.

CORPUSCULAR PHILOSOPHY, that way of philoſophiſing which endeavours to explain things, and to account for the phenomena of nature, by the motion, figure, reſt, poſition, &c. of the corpuſcles, or the minute particles of matter.

Mr Boyle ſums up the chief principles of the corpuſcular hypotheſis, which now flouriſhes under the mechanical philoſophy in theſe particulars:

1. They ſuppoſe that there is but one catholic or univerſal matter, which is an extended, impenetrable, and diviſible ſubſtance, common to all bodies, and capable of all forms. 2. That this matter, in order to form the vaſt variety of natural bodies, muſt have motion in ſome or all its aſſignable parts; and that this motion was given to matter by God the Creator of all things, and has all manner of directions and tendencies. 3. Matter muſt alſo be actually divided into parts, and each of theſe primitive particles, fragments, or atoms of matter, muſt have its proper magnitude or ſize, as alſo its peculiar figure or ſhape. 4. They ſuppoſe alſo, that theſe differently ſized and ſhaped particles may have as different orders and poſitions, whereof great variety may ariſe in the compoſition of bodies.

CORRADINI DE SEZZA (Peter Marcellinus), a learned civilian and cardinal, born at Sezza, in 1658, acquired the eſteem and confidence of Clement XI. and died at Rome in 1743. He was the author of a learned and curious work entitled "Verus Latium profanum & ſacrum," 2 vols folio; and a hiſtory of Sezza, in 4to.

CORRADO (Sebaſtian), an Italian grammarian of the 16th century, taught the Greek and Latin tongues at Reggio, where he formed an academy of polite literature; and at length removed to Bologna, in order to be profeſſor of thoſe languages. He wrote ſeveral works, the moſt eſteemed of which are, "Queſtura in qua Ciceronis Vita refertur," an excellent performance; and, "de Linguâ Latinâ." He died in 1556.

CORRECTION, in printing, the act of retrenching the faults in a work; or the reading which the corrector gives the firſt proofs, to point out and amend the faults, to be rectified by the compoſitor.

The corrections are placed on the margin of each page, right againſt the line where the faults are found. There are different characters uſed to expreſs different corrections, as D or ₰, *dele*, for any thing to be effaced or left out. When any thing is to be inſerted, the place is marked in the line with a caret ‸, and the inſertion added in the margin. When a word, ſyllable, &c. is to be altered, it is eraſed out of the proof, and that to be put in its room written in the margin; always obſerving, if there be ſeveral miſtakes in the ſame line, that the corrections in the margin be ſeparated by little bars, or ſtrokes, | . If a ſpace be omitted, its place is marked with a caret, and the margin with ※. If a ſpace be wrong placed, as in the middle of a word, the two parts are connected with a cu‿rve, and the ſame character put in the margin. If a letter be inverted, it is expreſſed on the margin with ɔ. If any thing be tranſpoſed, it is marked thus: *The ſhorteſt* |*are the*| *follies* |*beſt*; for *the ſhorteſt follies are the beſt*; and in the margin is added *tr.* in a circle. If Roman characters are to be changed for Italic, or *vice verſa*, a line is drawn under them thus, and *Roman* or *Italic* added in the margin; if to capitals, a double line. If a word or ſentence is entirely omitted, the place is marked with a caret, and in the margin is inſerted the word *out*. If the letters of a word ſtand too far aſunder, a line is drawn under them, and in the margin is put a crooked line or hook, thus ‿.

CORRECTOR, in general, denotes ſomething that mends the faults or bad qualities of others.

Corrector of the Staple in Britain, a clerk belonging to the ſtaple, whoſe buſineſs is to write down and record the bargains that merchants make there.

Corrector, in medicine or pharmacy, an ingredient in a compoſition, which guards againſt or abates the force of another.

CORREGIDOR, the name of an officer of juſtice in Spain, and countries ſubject to the Spaniſh government. He is the chief judge of a town or province.

CORREGGIO. See Allegri.

CORRELATIVE, ſomething oppoſed to another in a certain relation. Thus, father and ſon are correlatives. Light and darkneſs, motion and reſt, are correlative and oppoſite terms.

CORRIGIOLA, in botany: A genus of the trigynia order, belonging to the pentandria claſs of plants; and in the natural method ranking under the 54th order, *Miſcellaneæ*. The calyx is pentaphyllous; the petals five; and one three-cornered ſeed.

CORROBORANTS, or Corroborative *Medicines*. See Strengtheners.

CORROSION, in a general ſenſe, the action of gnawing away, by degrees, the continuity of the parts of bodies.

Corrosion, in chemiſtry, an action of bodies, by means of proper menſtruums, that produces new combinations, and a change of their form, without converting them to fluidity.

CORROSIVE sublimate mercury. See Chemistry-*Index*.

CORRUGATOR muscle. See Anatomy, *Table of the Muſcles*.

CORROSIVES, in ſurgery, are medicines which corrode whatever part of the body they are applied to: ſuch are burnt alum, white precipitate of mercury, white vitriol, red precipitate of mercury, butter of antimony, lapis infernalis, &c.

CORRUPTICOLÆ, a ſect who roſe out of the Monophyſites in Egypt about the year 519, under their chief Severus, the pretended patriarch of Alexandria.

Their diſtinguiſhing doctrine, whence they derived their name, was, that the body of Jeſus Chriſt was *corruptible*; that the fathers had owned it; and that to deny it was to deny the truth of our Saviour's paſſion.

On the other hand, Julian of Halicarnaſſus, another Eutychian, a refugee, as well as Severus, in Alexandria, maintained that the body of Jeſus Chriſt had been always incorruptible; that to ſay it was corruptible, was to make a diſtinction between Jeſus Chriſt and the Word, and by conſequence to make two natures in Jeſus Chriſt.

The people of Alexandria were divided between the two opinions; and the partiſans of Severus were called *corrupticolæ*, q. d. worſhippers of ſomething *corruptible*: ſometimes they were denominated *corruptibles*; and the adherents of Julian *incorruptibiles* or *phantaſiaſtæ*. The clergy and ſecular powers favoured the firſt; the monks and the people the latter.

CORRUPTION, the deſtruction, extinction, or at leaſt ceſſation for a time, of the proper mode of exiſtence of any natural body. See Putrefaction.

Corruption of Blood, in law, one of the conſequences of an attainder; and is both upwards and downwards; ſo that an attainted perſon can neither inherit lands or other hereditaments from his anceſtors, nor retain thoſe he is already in poſſeſſion of, nor tranſmit them by deſcent to any heir; but the ſame ſhall eſcheat to the lord of the fee, ſubject to the king's ſuperior right of forfeiture; and the perſon attainted ſhall alſo obſtruct all deſcents to his poſterity, wherever they are obliged to derive a title through him to a remoter anceſtor. See Attainder.

This is one of thoſe notions which our laws have adopted from the feodal conſtitutions, at the time of the Norman conqueſt; as appears from its being unknown in thoſe tenures which are indiſputably Saxon, or Gavel kind: wherein, though by treaſon, according to the ancient Saxon laws, the land is forfeited to the king, yet no corruption of blood, no impediment of deſcents, enſues; and on judgment of mere felony, no eſcheat accrues to the lord. But, by the law of England, derived as above, a man's blood is ſo univerſally corrupted by attainder, that his ſons can neither inherit to him nor to any other anceſtor, at leaſt on the part of their attainted father.

Blackſt. Comment.

This corruption of blood cannot be abſolutely removed but by authority of parliament. The king may excuſe the public puniſhment of an offender; but cannot aboliſh the private right which has accrued, or may accrue, to individuals as a conſequence of the criminal's attainder. He may remit a forfeiture in which the intereſt of the crown is alone concerned: but he cannot wipe away the corruption of blood; for therein a third perſon hath an intereſt, the lord who claims by eſcheat. If therefore a man hath a ſon, and is attainted, and afterwards pardoned by the king; this ſon can never inherit to his father, or father's anceſtors; becauſe his paternal blood, being once thoroughly corrupted by his father's attainder, muſt continue ſo: but if the ſon had been born after the pardon, he might inherit; becauſe, by the pardon, the father is made a new man, and may convey new inheritable blood to his after-born children.

This corruption of blood, thus ariſing from feudal principles, but perhaps extended farther than even theſe principles will warrant, has been long looked upon as a peculiar hardſhip: becauſe the oppreſſive parts of the feudal tenures, being now in general aboliſhed, it ſeems unreaſonable to reſerve one of their moſt inequitable conſequences; namely, that the children ſhould not only be reduced to preſent poverty (which, however ſevere, is ſufficiently juſtified upon reaſons of public policy), but alſo be laid under future difficulties of inheritance, on account of the guilt of their anceſtors. And therefore in moſt (if not all) of the new felonies treated by Parliament ſince the reign of Henry VIII. it is declared that they ſhall not extend to any corruption of blood: and by the ſtatute 7 Anne c. 21. (the operation of which is poſtponed by the ſtatute 17 Geo. II. c. 39.) it is enacted, that, after the death of the late pretender and his ſons, no attainder for treaſon ſhall extend to the diſinheriting any heir, nor the prejudice of any perſon, other than the offender himſelf: which proviſions have indeed carried the remedy farther than was required by the hardſhip above complained of; which is only the future obſtruction of deſcents, where the pedigree happens to be deduced through the blood of an attainted anceſtor.

CORSAIR, a pirate or perſon who ſcours the ſeas, eſpecially the Mediterranean, with a veſſel armed for war, without commiſſion from any prince or power, to plunder merchant-veſſels. The word comes from the Italian *corſare*, of *corſo*, or *à curſibus*, by reaſon of their courſes, or excurſions—The name is commonly given to the piratical cruiſers of Barbary, who had their riſe about the beginning of the 16th century.

A *corſair* is diſtinguiſhed from a *privateer* in this, that the latter does it under a commiſſion, and only attacks the veſſels of thoſe at war with the ſtate whence his commiſſion is derived. The puniſhment of a corſair is to be hanged, without remiſſion; whereas privateers are to be treated as priſoners of war. All corſair veſſels are good prizes.

CORSELET, a little cuiraſs; or, according to others, an armour or coat made to cover the whole body, anciently worn by the pike-men, uſually placed in the front and flanks of the battle, for the better reſiſting the enemy's aſſaults, and guarding the ſoldiers placed behind them.

CORSICA, (anc. geog.) an iſland ſituated in that part of the Mediterranean anciently called the *Sea of Liguria*, in length from north to ſouth 150 miles, and where broadeſt 50, (Pliny). The ancient inhabitants were the Phocenſes, (Herodotus); from which they removed to Maſſilia. To them ſucceeded the Ligurians and Hiſpani, as appears from the ſimilitude of rites and cuſtoms: afterwards two Roman colonies, one by Marius, the other by Sylla. To the ſouth it is ſeparated from Sardinia by a narrow ſtrait called Ταφρος, or *Foſſa*, (Pliny); ſixty ſtadia or about ſeven miles in breadth, (Strabo). It was famous for its barren rocks, its woods, and its honey; which laſt was reckoned noxious, from the great plenty of yew-trees, according to Diodorus Siculus and Virgil. *Corſi* was the name of the people, (Livy); *Cyrnaeus*, the epithet, (Virgil).—The iſland ſtill retains its ancient name *Corſica;* ſituated between 8 and 10 degrees of eaſt longitude, and between 41 and 43 degrees of north latitude. It was formerly ſubject to Genoa; though the natives for many years diſputed their right. The iſland is now in the hands of the French; and have lately, in conſequence of the revolution in France, been admitted to a participation of all the rights and privileges of free citizens.

CORSNED, or MORSEL of EXECRATION, a ſpecies of trial or purgation * anciently in uſe in Britain, and which probably aroſe from an abuſe of revelation in the dark ages of ſuperſtition. It conſiſted of a piece of cheeſe or bread, about an ounce in weight, which was conſecrated with a form of exorciſm; deſiring of the Almighty that it might cauſe convulſions and paleneſs, and find no paſſage if the man was really guilty; but might turn to health and nouriſhment if he was innocent; as the water of jealouſy among the Jews was, by God's eſpecial appointment, to cauſe the belly to ſwell, and the thigh to rot, if the woman was guilty of adultery. This corſned was then given to the ſuſpected perſon, who at the ſame time alſo received the holy ſacrament: if indeed the corſned was not, as ſome have ſuſpected, the ſacramental bread itſelf; till the ſubſequent invention of tranſubſtantiation preſerved it from profane uſes with a more profound reſpect than formerly. Our hiſtorians aſſure us, that Godwin, Earl of Kent, in the reign of King Edward the Confeſſor, abjuring the death of the king's brother, at laſt appealed to his corſned, "per *buccellam deglutiendam abjuravit*," which ſtuck in his throat and killed him. This cuſtom has been long ſince gradually aboliſhed, though the remembrance of it ſtill ſubſiſts in certain phraſes of abjuration retained among the common people; as, "I will take the ſacrament upon it; May this morſel be my laſt;" and the like.

* See *Trial.*

CORT (Cornelius), a celebrated engraver, was born at Hoorn in Holland in 1536. After having learned the firſt principles of drawing and engraving, he went to Italy to complete his ſtudies, and viſited all the places famous for the works of the great maſters. At Venice he was courteouſly received by Titian; and engraved ſeveral plates from the pictures of that admirable painter. He at laſt ſettled at Rome, where he died 1578, aged 42. According to Baſan, he was "the beſt engraver with the burin or graver only that Holland ever produced. We find in his prints," adds he, "correctneſs of drawing, and an exquiſite taſte." He praiſes alſo the taſte and lightneſs of touch with which he engraved landſcapes, and that without the aſſiſtance of the point. It is no ſmall honour to this artiſt, that Agoſtino Carracci was his ſcholar, and imitated his ſtyle of engraving rather than that of any other maſter. His engravings are very numerous (151 according to Abbé Marolles), and by no means uncommon.

CORTES *of* SPAIN, a term purely Spaniſh, ſignifying the *courts*, i. e. the ſtates, or aſſembly of the ſtates, at Madrid.

CORTES, or CORTEZ, (Ferdinand), a Spaniſh general, famous for the conqueſt of Mexico, and other victories over the natives of South America; but infamous for the cruelties he committed upon the vanquiſhed, without regard to rank, age, or ſex. It probably was on this account he was but coolly received on his return to Europe by his royal maſter Charles le Quint: it is even aſſerted that the emperor aſked him who he was? to which Cortez replied; "I am the man who have given you more provinces than your anceſtors have left you towns." Died in 1554, aged 63. See Mexico.

CORTEX, in botany; the rind or coarſe outer bark of plants. The organization of the outer and inner barks, which differ principally in the fineneſs of their texture, is particularly explained under the article Plants.

Wounds of the bark, and its ſeparations from the wood, whether naturally or artificially made, are eaſily cured, and made to unite again by proper care. If ſections be made in the rinds of the aſh and ſycamore of a ſquare figure, three ſides cut, and the fourth uncut, and the whole be afterwards bound round with a pack-thread, it will all unite again, only leaving a ſcar in each of the three ſides where it was cut. If ſeveral parts of the bark of either of theſe trees be cut off, and entirely ſeparated from the tree; ſome ſhallower, leaving a part of the bark on, and others deeper, to the wood itſelf; theſe pieces being again put into their places, and bound on with pack-thread, will not indeed unite, but a freſh bark will grow in their places, and thruſt them away: but if they be firſt carefully laid on in the exact direction in which they originally grew, and then the whole part beyond the wound on every ſide covered with a large plaſter of diachylon, or the like, and this bound over with pack-thread to keep all firmly in their places, the pieces of bark, whether cut off ſhallower or deep down to the very wood of the tree, will firmly unite themſelves to the places where they originally grew. This cure will be performed in about three weeks: but the outer rind of the ſeparated pieces will not be plump, but ſomewhat ſhrivelled; the edges alſo will recede ſomewhat from their original place; ſo that there remains a ſort of ſcar all round. Theſe experiments are beſt made in the ſpring ſeaſon; for in the autumn and winter, the ſap ariſing but weakly, the parts that ſhould unite wither before that is brought about. The ſucceſs of theſe experiments has made ſome think that the whole branch of a tree ſeparated and bound on again might unite with the reſt. But the experiments that have been made in the moſt favourable manner for ſuch a trial have all proved vain, the branch cut off withering always in a few days, however well united and carefully kept on.

Cortex *Peruvianus*. See Cinchona.

Cortex *Winteranus*. See Wintera.

CORTONA (Pietro da). See Berretini.

Cortona, a very ancient town of Italy, mentioned by many of the Roman hiſtorians. It was originally called *Corton*, and lay to the northward of the lake Thraſymenus. It ſtill retains the name of Cortona. E. Long. 13. 0. N. Lat. 43. 15.

CORTONESE (Pietro Palo). See Gobbo.

CORTUSA, bear's-ear sanicle: A genus of the monogynia order, belonging to the pentandria claſs of plants, and in the natural method ranking under the 21ſt order, *Preciæ*. The corolla is wheel-ſhaped, with its throat like an elevated ring; the capſule unilocular, oval, and quinquevalved at the top. There are two ſpecies, both of them very low, flowery, herbaceous perennials, crowned by umbels of monopetalous, wheel-ſhaped flowers, of a fine red colour. They are natives of montainous rocky parts abroad, ſo muſt have a dry lean ſoil; or they may be kept in pots of dry ſandy earth placed in the ſhade, and in ſummer muſt be duly watered; and their propagation here is by ſlipping the roots in October.

CORRUNNA, or Groyne, a port-town of Gallicia in Spain, ſituated on a fine bay of the Atlantic ocean, about 32 miles north of Compoſtella: W. Long. 9. 0. and N. Lat. 43. 0.

CORUS, Omer, Homer, or Chomer, in the Jewiſh antiquities, a meaſure containing 10 baths or 75 gallons and 5 pints, as a meaſure of things liquid, and 32 pecks and 1 pint, as a meaſure for things dry. The *corus* or *omer* was moſt commonly a meaſure for things dry; and the greateſt that was uſed among the Jews. It contained, according to the rabbins 10 ephahs or 30 ſata or ſeahs. *Corus* is the moſt uſual term in the hiſtorical writers, and *omer* or *chomer* among the prophets.

Corus is alſo uſed in ſome of the old writers for eight buſhels or a quarter; *decem* coros *tritici, ſive decem quarteria*.

CORUSCATION, a glittering or gleam of light iſſuing from any thing. It is chiefly uſed for a flaſh of lightning darting from the clouds in time of thunder.

There is a method of producing artificial coruſcations or ſparkling fiery meteors, which will be viſible not only in the dark but at noon-day, and that from two liquors actually cold. The method is this. Fifteen grains of ſolid phoſphorus are to be melted in about a drachm of water; when this is cold, pour upon it about two ounces of oil of vitriol; let theſe be ſhaken together, and they will at firſt heat, and afterwards they will throw up fiery balls in great number, which will adhere like ſo many ſtars to the ſides of the glaſs, and continue burning a conſiderable time; after this, if a ſmall quantity of oil of turpentine is poured in without ſhaking the vial, the mixture will of itſelf take fire, and burn very furiouſly. The veſſel ſhould be large and open at the top.

Artificial coruſcations may alſo be produced by means of oil of vitriol and iron, in the following manner. Take a glaſs body capable of holding three quarts; put into this three ounces of oil of vitriol and twelve ounces of water; then warming the mixture a little, throw in, at ſeveral times, two ounces, or more, of clean iron filings: upon this an ebullition and white vapours will ariſe: then preſent a lighted candle to the mouth of the veſſel, and the vapour will take fire, and afford a bright fulmination or flaſh like lightning. Applying the candle in this manner ſeveral times, the effect will always be the ſame; and ſometimes the fire will fill the whole body of the glaſs, and even circulate to the bottom of the liquor; at others, it will only reach a little way down its neck. The great caution to be uſed in making this experiment is the making the vapour of a proper heat: for if too cold, few vapours will ariſe; and if made too hot, they will ariſe too faſt, and will only take fire in the neck of the glaſs, without any remarkable corruſcation.

CORVORANT, formerly written CORMORANT. See PELICANUS.

CORVUS, the RAVEN or CROW kind, in ornithology; a genus of birds of the order of picæ, the diſtinguiſhing characteriſtics of which are theſe: The beak is convex and cultrated; the noſtrils are covered with briſtly feathers; the tongue is forked and cartilaginous; and the feet are of the walking kind. The ſpecies are 19. The moſt remarkable are:

1. The corax, or raven of Engliſh authors, weighs three pounds, and is about two feet two inches in length; the colour is black, finely gloſſed with a rich blue; the belly excepted, which is of a duſky colour. They are very docile, birds, and may be trained up to fowling like hawks; to fetch and carry like ſpaniels; they may be taught to ſpeak like parrots; and, what is moſt extraordinary of all, they may be taught to imitate the human voice in ſinging. They have a great propenſity to pilfer, often hiding things of value to the great loſs of the owner, without uſe to themſelves. They frequent the neighbourhood of great towns, where they are uſeful in devouring the carcaſes and filth which would otherwiſe prove a nuiſance. They, however, alſo deſtroy many living animals; ſuch as rabbits, young ducks, and chickens, and not unfrequently lambs which have been dropped in a weak ſtate. In clear weather they fly in pairs to a great height, making a deep loud noiſe, different from the common croaking. Their ſcent is remarkably good; and they are very long lived. The quills of ravens ſell for 12 s. *per* hundred, being of great uſe in tuning the lower notes of an harpſichord when the wires are ſet at a conſiderable diſtance from the ſticks.—The raven makes its neſt early in the ſpring, laying 5 or 6 eggs, of a pale bluiſh-green colour ſpotted with brown. With us it builds in trees; but in Greenland and Iceland makes its neſt in the holes of rocks, compoſing it of roots and twigs, together with the bones they have picked, and lining it with hair, moſs, &c. The fleſh of theſe birds, rank and unſavoury as we may well ſuppoſe it, is eaten in Greenland by many of the natives, who alſo uſe the ſkins as a warm under-covering.

2. The corone, or carrion-crow, in the form of its body agrees with the raven; alſo in its food, which is carrion and other filth. It will alſo eat grain and inſects; and like the raven will pick out the eyes: for which reaſon it was formerly diſtinguiſhed from the rook, which feeds entirely on grain and inſects, by the name of the *gor* or *gor-crow*. Virgil ſays that its croaking foreboded rain:

> Tum *cornix* plena pluviam vocat improba voce.

It was alſo thought a bird of bad omen, eſpecially if it happened to be ſeen on the left hand:

> Sæpe ſiniſtra cava prædixit ab ilice *cornix*.

England breeds more of this kind of birds than any other country in Europe. In the 24th of Henry VIII. they were grown ſo numerous, and thought to be ſo prejudicial to the farmer, that they were conſidered as an evil worthy of parliamentary redreſs; an act was paſſed for their deſtruction, in which rooks and choughs were included. Every hamlet was to provide crow-nets for ten years; and all the inhabitants were obliged at certain times to aſſemble during that ſpace to conſult of the proper means for extirpating them. But though the crow abounds thus in Britain, it is ſo rare in Sweden, that Linnæus ſpeaks of it only as a bird that he once knew killed there. It lays the ſame number of eggs as the raven, and of the ſame colour: immediately after deſerting their young they go in pairs. Both theſe birds are often found white or pied; an accident that befals black birds more frequently than any others. Mr Pennant ſays, he has obſerved one entirely of a pale brown colour, not only in its plumage, but even in its bill and feet. The crow weighs about 20 ounces. Its length is 18 inches; its breadth two feet two inches.

Concerning theſe birds, we have the following curious anecdote in Mr Edward's natural hiſtory*. "The reverend Mr Robinſon rector of Ouſby in Weſtmoreland and Cumberland, ſays, 'that birds are natural planters of all ſorts of wood and trees. They diſſeminate the kernels upon the earth, which like nurſeries brings them forth till they grow up to their natural ſtrength and perfection.' He ſays, 'About 25 years ago, coming from Roſecaſtle early in the morning, I obſerved a great number of crows very buſy at their work upon a declining ground of a moſſy ſurface: I went out of my way on purpoſe to view their labour, and I found they were planting a grove of oaks. The manner of their planting was thus: they firſt made little holes in the earth with their bills, going about and about till the hole was deep enough; and then they dropped in the acorn, and covered it with earth and moſs. The ſeaſon was at the latter end of autumn when all ſeeds are full ripe.' Mr Robinſon ſeems to think that Providence had given the crows this inſtinct ſolely for the propagation of trees; but I imagine it was given them principally for their own preſervation, by hiding proviſion in time of plenty, in order to ſupply them in a time of ſcarcity: for it is obſerved in tame pies and daws kept about houſes, that they will hide their meat when they have plenty of it, and fetch it from their hiding-places when they want. So that ſuch an inſtinct in theſe birds may anſwer a double purpoſe; both their own ſupport in times of need, and the propagation of the trees they plant: for wherever they hide a great number of nuts or grain in the earth, we cannot ſuppoſe they find them all again; but that as many will remain in the plot of ground they make uſe of, as can well grow by one another."

3. The frugilegus, or rook, is the corvus of Virgil; no other ſpecies of this kind being gregarious.

> *E paſtu decedens agmine magno*
> *Corvorum increpuit denſis exercitus alis*:

A very natural deſcription of the evening return of theſe birds to their neſts.

The rook differs not greatly in its form from the carrion crow: the moſt remarkable difference is in the noſtrils and root of the bill; which parts in the crow are well clothed with feathers, but in the rook are bare, or covered only with ſome briſtly hairs. This ariſes from its thruſting the bill into the earth continually, after the various worms and erucæ of inſects, on which it feeds; for it does not live on carrion, like the laſt ſpecies and ravens. Beſides inſects, it alſo feeds on all ſorts of grain, to ſome inconvenience perhaps to the huſbandman, but no doubt doubly repaid by the good done him in extirpating the maggot of the chaferbeetle, which in ſome ſeaſons deſtroys whole crops of corn by feeding on the roots. The rook is a gregarious bird, ſometimes being ſeen in immenſe flocks, ſo as to almoſt darken the air. Theſe flights they regularly perform morning and evening, except in breeding-time, when the daily attendance of both male and female is required for the uſe of incubation, or feeding the young; for it is obſerved that they do both by turns. As theſe birds are apt to form themſelves into ſocieties, ſuch places as they frequent during the breeding-time are called *rookeries*; and they generally chooſe a large clump of the talleſt trees for this purpoſe; but make ſo great a litter, and ſuch a perpetual chatter, that nothing but habit and a length of time can reconcile one to the noiſe. The eggs are like thoſe of crows, but leſs, and the ſpots larger. They begin to build in March, and after the breeding-ſeaſon forſake their neſt trees, going to rooſt elſe where, but have been obſerved to return to them in Auguſt: in October they repair their neſts. In Britain they remain the whole year; yet we are told that both in France and Sileſia they are birds of paſſage. Whether they migrate or not in Sweden, we are not told; but Linnæus talks of their building there. The young birds are accounted good eating, eſpecially if ſkinned and put in a pie.

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* Vol. V. Pref. xxv.

4. The cornix, or royſton crow, pretty much reſembles the rook, feeding on inſects, and flying together in great flocks. In England it is a bird of paſſage, viſiting that kingdom in the beginning of winter, and leaving it with the woodcocks. In the maritime parts they feed on crabs and ſhell-fiſh. They are very common in Scotland: in many parts of the Highlands, and in all the Hebrides, Orknies, and Shetland, it is the only ſpecies of genuine crow; the carrion and rook being unknown there. It breeds and continues in thoſe parts the whole year round. In the Highlands, they breed indifferently in all kinds of trees: lay ſix eggs: have a ſhriller note than the common crows; are much more miſchievous; pick out the eyes of lambs, and even of horſes when engaged in bogs. They are, therefore, in many places proſcribed, and rewards given for killing them. For want of other food theſe birds will eat cran-berries or other mountain berries.

Plate CXLIX. 5. The dauricus, or white-breaſted crow is in length about 12 inches; the bill is black; the head and throat are black, gloſſed with blue; the neck and breaſt white; the reſt of the body, wings, and tail, blue black; the legs of a lead-colour; the claws black. The ſpecimen figured by Buffon came from Senegal; but it is by no means confined to that quarter. Pallas deſcribes the ſame ſpecies, which he ſays come early in the ſpring in great flights from China, and the ſouthern Monguls country, into the parts about the lake Baikal, but moſt frequent about the towns and villages on the river Lena, in which part the jackdaws and Royſton crows are very ſeldom ſeen. It is ſaid they are likewiſe found in vaſt numbers in the iſland of Johann, where they live chiefly on inſects and fruits, and make their neſts in trees.

6. The monedula, or jack-daw, weighs nine ounces; the length thirteen inches, the breadth twenty-eight. The head is large in proportion to its body; which, Mr Willoughby ſays, argues him to be ingenious and crafty. The irides are white: the breaſt and belly are of a duſky hue inclining to aſh-colour: the reſt of the plumage is black, ſlightly gloſſed with blue: the claws are very ſtrong and hooked. It is a docile and loquacious bird. Jack-daws breed in ſteeples, old caſtles, and in high rocks, laying five or ſix eggs. Sometimes they have been known to breed in hollow-trees near a rookery, and join thoſe birds in their foraging parties. In ſome parts of Hampſhire, they make their neſts in rabbit holes; they alſo build in the interſtices between the upright and tranſum ſtones of Stonehenge; a proof of the prodigious height of that ſtupendous antiquity, for their neſts are placed beyond the reach of the ſhepherd boys, who are always idling about this ſpot. They are gregarious birds; and feed on inſects, grain, and ſeeds.—Theſe birds are frequently brought up tame: they have a practice of hiding that part of their food which they cannot eat; and often, alongſt with it, they ſecret ſmall valuables, thereby ſometimes occaſioning injurious ſuſpicions of theft in ſervants or others not guilty.

7. The glandarius, or jay, is one of the moſt beautiful of Britiſh birds. The weight is between ſix and ſeven ounces: the length 13 inches. The forehead is white ſtreaked with black; the head is covered with very long feathers, which it can erect at pleaſure into the form of a creſt: the whole neck, back, breaſt, and belly, are of a faint purple daſhed with grey; the covert-feathers of the wings are of the ſame colour. The firſt quill-feather is black; the exterior webs of the nine next are aſh-coloured; the interior webs duſky; the ſix next are black, but the lower ſides of their exterior webs are white tinged with blue; the two next wholly black; the laſt of a fine bay colour tipt with black. The leſſer coverts are of a light bay: the greater covert-feathers moſt beautifully barred with a lively blue, black, and white: the reſt are black: the rump is white. The tail conſiſts of twelve black feathers. The feet are of a pale brown; the claws large and hooked.—Jays build chiefly in woods, making their neſt of ſticks, fibres of roots, and tender twigs; and lay five or ſix eggs, of the ſize of a pigeon's, cinerous olive, marked with pale brown. The young keep with the old ones till the next pairing time in ſpring; when they chooſe each his mate to produce their future progeny. In general they feed on acorns, nuts, ſeeds, and fruits of all kinds; but will ſometimes deſtroy young chickens and eggs, and will alſo take away birds that have been caught in a trap or entangled with birdlime. They are often kept in cages, and will talk pretty well; but then loſe all their beauty ſo conſpicuous in the wild ſtate.

8. The caryocatactes, or nut-cracker, is ſomewhat leſs than the jack-daw: the bill is ſtrong, ſtraight, and black: the colour of the whole head and neck, breaſt and body, of a ruſty brown: the crown of the head and rump are plain; the other parts marked with triangular white ſpots: the wings are black; the coverts ſpotted in the ſame manner as the body: the tail is rounded at the end, black tipt with white: the vent-

feathers are white; the legs duſky. We find theſe birds ſcattered in many parts of Europe, but no where ſo plenty as in Germany; they are found alſo in Sweden and Denmark, where they frequent the mountainous parts. Sometimes they come in vaſt flocks into France, eſpecially Burgundy. They viſit England very ſeldom; are alſo found in North America, but not near the ſea-coaſts. One has been brought from Kamtſchatka by the late voyagers.—In manners this bird is ſaid to reſemble the jay, laying up a ſtore of acorns and nuts. In ſome parts it keeps chiefly in the pine foreſts, on the kernels of which it then feeds; but is ſaid frequently to pierce the trees like the woodpecker, for which the bill ſeems not unapt. It makes its neſts in holes of trees. Klein mentions two varieties, one ſmaller than the other; the largeſt, he ſays, breaks the nuts to pieces, and the other pierces them. Both feed at times on wild berries and inſects.

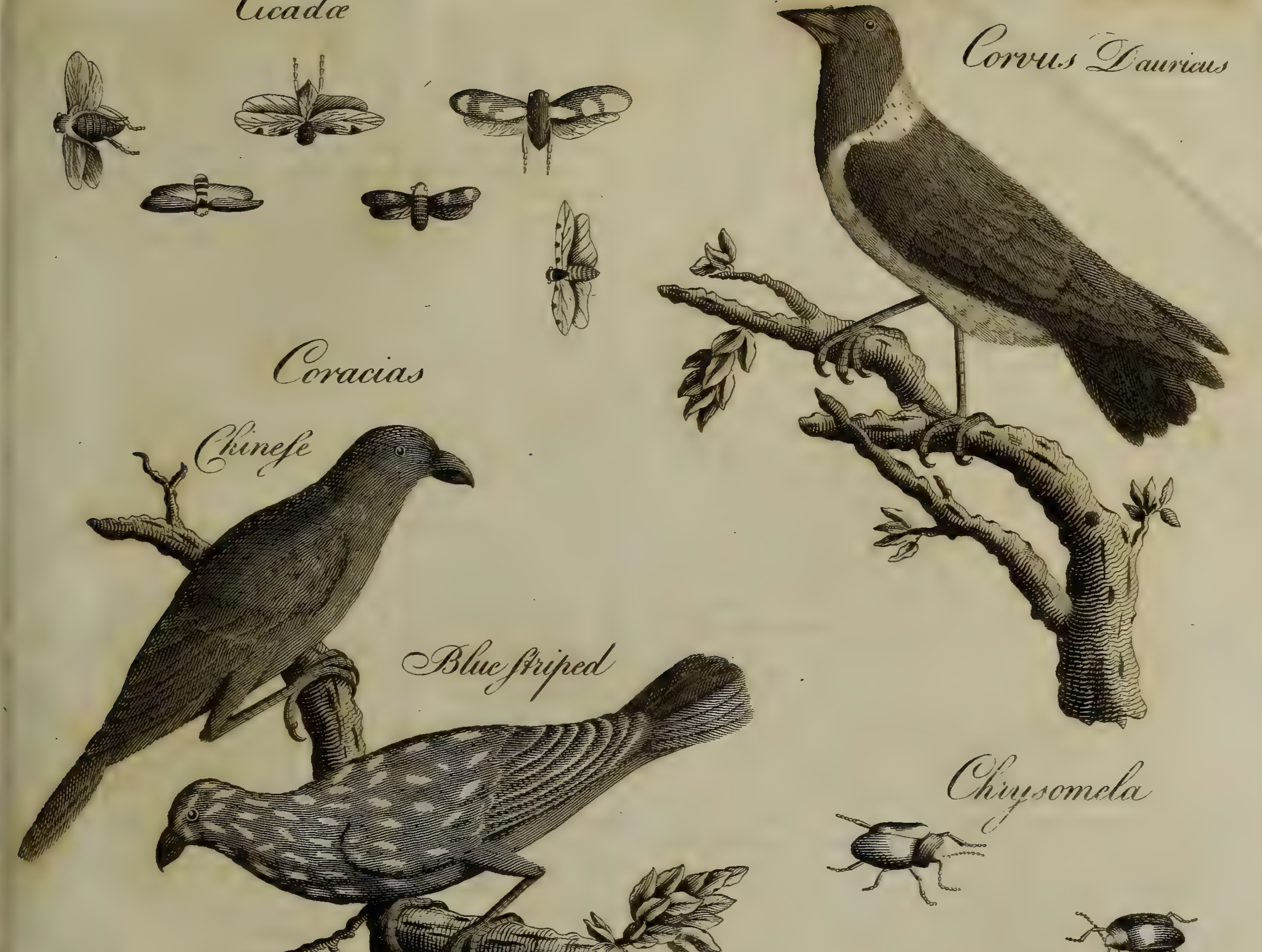
9. The pica, or magpie, is in length above 18 inches, and weighs 8 or 9 ounces. The bill is black: the irides are hazel; the ſcapulars, and all the under parts from the breaſt, are white; the reſt of the plumage, wings, and tail, black, gloſſed with green, purple, and blue, in different lights: the eleven firſt quills are white in the middle on the inner web, leſſening by degrees as they advance inwards: the tail is very cuneiform, the two middle feathers being near 11 inches in length, and the utmoſt only 5 inches and a half: the legs are black. We can form no judgement of the beauties of this bird, from thoſe dirty mutilated ſpecimens which we ſee expoſed daily in a wicker cage at every ſtall. It is only in a ſtate of nature that they can be found; and whoever views them in this ſtate, will do ſo with aſtoniſhment: for though the colours, at a diſtant view, ſeem to be mere black and white, yet the ſplendor that meets in every new ſituation the eye of the beholder, will oblige him to own that there is not a more beautiful bird in Britain. In theſe parts it is every where common. Mr Latham has been able to trace this bird no farther ſouth than Italy on the European continent; and to the north, Sweden, and Denmark. Forſter met with it at Madeira; and it is alſo ſeen in America, but not common, and is a bird of paſſage in thoſe parts. At Hudſon's Bay it is called by the Indians *Oue-ta-kee-aſke*; which ſignifies *Heart-Bird;* but for what reaſon does not appear. In manners it approaches to the crow, feeding almoſt on every thing in turn, both animal and vegetable; and like that will kill young ducks and chickens, and ſuck the eggs. It builds its neſt with art, making a thorny cover at top, leaving a hole on the ſide for admittance: lays ſix or ſeven pale greeniſh eggs, thickly ſpotted with black. It is a crafty bird in every ſtate, and if brought up young, becomes exceedingly familiar, and will talk a great many ſentences as well as imitate every noiſe within hearing, like a parrot, but not near ſo plain.

10. The graculus, or red-legged crow, is but thinly ſcattered over the northern world: no mention is made of it by any of the Fauniſts; nor do we find it in other parts of Europe except Britain and the Alps. It is produced in the iſland of Canadia in Aſia; and it viſits Egypt towards the end of the inundations of the Nile. Except in Egypt, it affects mountainous and rocky places; builds its neſt in high cliffs or ruined towers; and lays four or five eggs, white ſpotted with a dirty yellow. It feeds on inſects, and alſo on new-ſown corn. They commonly fly high, make a ſhriller noiſe than the jack-daw, and may be taught to ſpeak. It is a very tender bird, and unable to bear very ſevere weather; is of an elegant, ſlender-make; active, reſtleſs, and thieving; much taken with glitter, and ſo meddling as not to be truſted where things of conſequence lie. It is very apt to catch up bits of lighted ſticks; ſo that there are inſtances of houſes being ſet on fire by its means; on which account Cambden calls it *incendiaria avis*. It is found in Cornwall, Flintſhire, Caernarvonſhire, and Angleſea, in the rocky cliffs along the ſhores. It is alſo found in Scotland as far as Strathnavern, and in ſome of the Hebrides. Its colour is wholly black, beautifully gloſſed over with blue and purple: the legs and bill are of a bright orange colour inclining to red: the tongue is almoſt as long as the bill, and a little cloven: the claws are large, hooked, and black.

11. The criſtatus, or blue jay, is much ſmaller than the common jay. The bill is black and above an inch long: the head is creſted and blue: a ſtreak of the ſides of the head and throat are of a bluiſh white, and there is a ſpot of the ſame over the eye: hind part of the neck and back is blue; the wings and tail are the ſame; all the feathers of the laſt, except the two middle ones, tipped with white; the feathers of both it and the wings elegantly barred with black, and the greater coverts and ſecond quills tipped with white: the breaſt is of a bloſſom colour; the belly and under tail-coverts white: the legs are duſky brown: the tail is nearly as long as the reſt of the bird. The colours of the female are leſs bright than thoſe of the male.—This ſpecies is ſaid to be peculiar to North America, but not ſeen farther north than the town of Albany. It builds in ſwaps, and has a ſoft delicate note. Its food is hazel-nuts, cheſnuts, and ſuch like, which it breaks by placing between the feet, and pecking with the bill till the ſhell gives way. It is alſo very fond of maize; and being a gregarious bird, often unites into flocks of 20,000 at leaſt, which alighting on a field of 10 or 12 acres ſoon lay waſte the whole: hence it is reckoned the moſt deſtructive bird in this country. They will often take up with ſnails and vermin thro' neceſſity, but not while any thing they like better is to be got at. They are not accounted good to eat.

12. The canadenſis is in length 9 inches, and weighs two ounces. The bill is blackiſh, and not quite an inch long: the irides are black: the forehead and throat are of a dirty yellowiſh white; the hind-head and ſides of blackiſh brown: the upper parts of the body are brown; beneath pale aſh, paleſt on the breaſt: the quills and tail are brown, tipped with white: tail is a little wedged: the legs and claws are blackiſh. Theſe birds inhabit Canada; and are frequent near Hudſon's Bay, where they are called *Whiſkijohn* and *Whiſkijack*. They breed early in the ſpring; build in pine-trees; and have two, rarely three, young at a time. The eggs are blue. They are not gregarious. Their food is black moſs, worms, and fleſh. They are very bold pilfering birds, ſtealing from the traveller even ſalt meat, and devouring often the bait from the traps ſet for

Plate CXLIX


Cicadæ
Corvus Dauricus
Coracias
Chineſe
Blue ſtriped
Chryſomela
Coluber Punctatus
Crotalus Horridus
Scot. Philadª

for the martins, as ſoon as the perſons who ſet them turn their backs. They lay up ſtores for winter; at which time they are ſeldom ſeen unleſs near habitations. They do not bear confinement well. What natural note they have, we are not told; but they are ſaid to act the mocking bird, in imitating that of others.—There are near 30 other ſpecies.

Corvus *(Raven)*, in aſtronomy, a conſtellation of the ſouthern hemiſphere; whoſe ſtars in Ptolemy's Catalogue are 7; in Tycho's as many; in the Britannic Catalogue 9.

Corvus, in Roman antiquity, a military engine, or rather gallery, moveable at pleaſure by means of pullies; chiefly uſed in boarding the enemy's ſhips to cover the men. The conſtruction of the corvus was as follows: They erected on the prow of their veſſels a round piece of timber of about a foot and an half diameter, and about 12 feet long: on the top of which they had a block or pulley. Round this piece of timber they laid a ſtage or platform of boards, four feet broad, and about 18 feet long, which was well framed and faſtened with iron. The entrance was long-ways, and it moved about on the abovementioned upright piece of timber as on a ſpindle, and could be hoiſted up within ſix feet of the top: about this was a ſort of parapet knee-high, which was defended with upright bars of iron ſharpened at the end, and towards the top there was a ring, by the help of which and a pulley or tackle, they raiſed or lowered the engine at pleaſure. With this moveable gallery they boarded the enemy's veſſels (when they did not oppoſe ſide to ſide), ſometimes on their bow, and ſometimes on their ſtern, as occaſion beſt ſerved. When they had grappled the enemy with theſe iron ſpikes, if they happened to ſwing broadſide to broadſide, then they entered from all parts; but in caſe they attacked them on the bow, they entered two and two by the help of this machine, the foremoſt defending the foreparts, and thoſe that followed the flanks keeping the boſs of their bucklers level with the top of the parapet.

CORYATE (Thomas), a very extraordinary perſonage, who ſeems to have made himſelf famous by his whimſical extravagancies, was the ſon of a clergyman, and born at Oldcombe in Somerſetſhire in 1577. He acquired Greek and Latin at Oxford; and going to London, was received into the houſehold of Henry prince of Wales. If Coryate was not over witty himſelf, he got acquainted with the wits of that time, and ſerved to exerciſe their abilities, having more learning than judgment. He was a great peripatetic: for, in 1608, he took a long journey on foot; and after he returned, publiſhed his travels under the following ſtrange title, *Crudities haſtily gobbled up in five months Travels in France, Savoy, Italy, Rhetia, Helvetia, ſome parts of High Germany, and the Netherlands*, Lond. 1611, 4to. In 1612 he ſet out again with a reſolution to ſpend ten years in travelling: he went firſt to Conſtantinople; and after travelling over a great part of the Eaſt, died of a flux at Surat in the Eaſt Indies. Some of the accounts of his peregrination are to be found in Purchas's Pilgrimages.

CORYBANTES, in antiquity, prieſts of Cybele, who danced and capered to the ſound of flutes and drums. See Crotalum.

Catullus, in his poem called *Atys*, gives a beautiful deſcription of them, repreſenting them as madmen. Accordingly Maximus Tyrius ſays, that thoſe poſſeſſed with the ſpirit of Corybantes, as ſoon as they heard the ſound of a flute, were ſeized with an enthuſiaſm, and loſt the uſe of their reaſon. And hence the Greeks uſe the word κορυβαντειν, *to corobantize*, to ſignify a perſon's being tranſported or poſſeſſed with a devil. See Enthusiasm.

Some ſay that the Corybantes were all eunuchs; and that it is on this account Catullus, in his Atys, always uſes feminine epithets and relatives in ſpeaking of them.

Diodorus Siculus remarks, that Corybas, ſon of Jaſon and Cybele, paſſing into Phrygia with his uncle Dardanus, there inſtituted the worſhip of the mother of the gods, and gave his own name to the prieſts. Strabo relates it as the opinion of ſome, that the Corybantes were children of Jupiter and Calliope, and the ſame with the *Cabiri*. Others ſay the word had its origin from this, that the Corybantes always walked dancing (if the expreſſion may be allowed) or toſſing the head, κορυπτοντες βαινειν.

CORYBANTICA, a feſtival held in Crete, in memory of the Corybantes, who educated Jupiter when he was concealed in that iſland from his father Saturn, who would have devoured him.

CORYCEUM, in antiquity, that part of the gymnaſium where people undreſſed. It was otherwiſe called *apodyterion*.

CORYCOMACHIA, among the ancients, was a ſort of exerciſe in which they puſhed forwards a ball, ſuſpended from the ceiling, and at its return either caught it with their hands, or ſuffered it to meet their body. Oribaſius informs us it was recommended for extenuating too groſs bodies.

CORYDALES, in botany, an order of plants in the *Fragmenta Methodi Naturalis* of Linnæus, containing the following genera, *viz.* epimedium, hypecoum, leontice, melianthus, pinguicula, and utricularia.

CORYDALIS, in botany. See Fumaria.

CORYLUS, the Hazle: A genus of the polyandria order, belonging to the monœcia claſs of plants; and in the natural method ranking under the 50th order, *Amentaceæ*. The male calyx is monophyllous, ſcale-like, trifid, and uniflorous; there is no corolla; the ſtamina eight in number: The female calyx diphyllous and lacerated; no corolla; two ſtyles; and an egg-ſhaped nut. Mr Miller reckons three ſpecies, though other botaniſts make only two. They are all of the large ſhrub kind, hardy and deciduous; and have ſeveral varieties valuable for their nuts, as alſo for their variety in large wilderneſſes and ſhrubbery works. They will proſper in almoſt any ſoil or ſituation, and turn out to good account when growing in coppices to cut as underwood, and as poles for various uſes, as hoops, ſpars, hurdles, handles to huſbandry implements, walking ſticks, fiſhing rods, &c. for which purpoſes they may be cut every 5th, 7th, or 8th year, according to the purpoſes for which they are deſigned. The beſt method of propagating them is by layers, though they may alſo be raiſed from the nuts.

The kernels of the fruit have a mild, farinaceous, oily taſte, agreeable to moſt palates. Squirrels and mice are fond of them, as well as ſome birds, ſuch as jays, nutcrackers, &c. A kind of chocolate has been prepared for them, and there are inſtances of their having been formed into bread. The oil expreſſed from them is little inferior to the oil of almonds; and is uſed by painters, and by chemiſts, for receiving and retaining odours. The charcoal made of the wood is uſed by painters in drawing. Some of the Highlanders, where ſuperſtition is not totally ſubſided, look upon the tree itſelf as unlucky; but are glad to get two of the nuts naturally conjoined, which is a good omen. Theſe they call *cno chòmhlaich*, and carry them as an efficacious charm againſt witchcraft.

Evelyn tells us, that no plant is more proper for thickening of copſes than the hazle, for which he directs the following expeditious method. Take a pole of hazle (aſh or poplar may alſo be uſed), of 20 or 30 feet in length, the head a little lopped into the ground, giving it a chop near the ground to make it ſuccumb; this faſtened to the earth with a hook or two, and covered with ſome freſh mould at a competent depth, (as gardeners lay their carnations), will produce a great number of ſuckers, and thicken and furniſh a copſe ſpeedily.

CORYMBIFERÆ, in botany, the name of an order or diviſion of the compound flowers adopted by Linnæus after Ray and Vaillant, in the former editions of his Fragments of a Natural Method. This title in the later editions is changed for *Diſcoideæ*, another name borrowed from Ray's Method, but uſed in a ſomewhat different ſenſe.

CORYMBIUM, in antiquity, an ornament of hair worn by the women. Its form was that of a corymbus.

CORYMBIUM, in botany: A genus of the monogamia order, belonging to the ſyngeneſia claſs of plants; and in the natural method ranking under the 49th order, *Compoſitæ*. The calyx is diphyllous, uniflorous, and priſmatical; the corolla monopetalous and regular; there is one woolly ſeed below each floret.

CORYMBUS, properly ſignifies a cluſter of ivy berries. Among botaniſts, it is a mode of flowering in which the leſſer or partial flower-ſtalks are produced along the common ſtalk on both ſides; and, though of unequal lengths, riſe to the ſame height, ſo as to form a flat and even ſurface at the top. See BOTANY, n° 273.

CORYNOCARPUS, in botany: A genus of the monogynia order, belonging to the pentandria claſs of plants. The calyx is a pentaphyllous perianthium; the corolla conſiſts of five roundiſh, erect, and hollow petals; the ſtamina five ſubulated filaments ariſing from the baſe of the petals; the antheræ are erect and oblong; the pericarpium a monoſpermous, turbinat-clavated nut.

CORYPHA, MOUNTAIN PALM, or *Umbrella Tree*, in botany: A genus of the order of *Palmæ*, belonging to the monœcia claſs of plants. The corolla is tripetalous; the ſtamina ſix, with one piſtil; the fruit a monoſpermous plum. There is only one ſpecies, the umbracula, a native of the Weſt Indies, where it is called *codda-pana*. It riſes to a conſiderable height, and produces at the top many large palmated, plaited leaves, the lobes of which are very long, and are placed regularly round the end of a long ſpiny footſtalk, in a manner repreſenting a large umbrella. The flowers are produced on a branched ſpadix, from a compound ſpatha or ſheath: they are hermaphrodite, and each conſiſts of one petal, divided into three oval parts, and contains ſix awl-ſhaped ſtamina, ſurrounding a ſhort ſlender ſtyle, crowned with a ſimple ſtigma. The germen is nearly round, and becomes a large globular fruit of one cell, including a large round ſtone. Theſe plums having a pleaſant flavour are held in eſteem by the Indians.

CORYPHÆNA, in ichthyology a genus belonging to the order of thoracici. The head is declined and truncated; the branchioſtege membrane has ſix rays; and the back-fin runs the whole length of the back. There are twelve ſpecies, moſt of them natives of foreign ſeas. The moſt remarkable are the blue and parrot fiſhes, deſcribed by Mr Cateſby.—The head of the firſt is of an odd ſtructure, reſembling that of the ſpermaceti whale: the mouth is ſmall, each mandible armed with a ſingle row of even teeth, ſo cloſely joined that they ſeem entire bones; the iris of the eye is red. On the back is a long pliant fin, ſomewhat indented on the edge; behind the gills are two fins, one under the abdomen and another behind the anus. The tail is forked; and the whole fiſh entirely blue. They are taken on the coaſts of the Bahama Iſlands, and in moſt of the ſeas between the tropics.—The parrot-fiſh hath a large mouth, paved as it were with blunt teeth, cloſely connected, after the manner of the lupus marinus. The body is covered with large green ſcales; the eyes are red and yellow; the upper part of the head brown, the lower part and the gills blue, bordered with a duſky red: a ſtreak of red extends from the throat behind the gills, at the upper end of which is a bright yellow ſpot. The fins are five in number, one extending almoſt the length of the back, of a bay or cinnamon colour; there are two behind the gills, blended with black, green and purpliſh colours, with the upper edge verged with blue; under the abdomen is another red fin verged with blue; under the anus extends another long narrow green fin, with a liſt of red through the middle of it: at the baſis of the tail on each ſide is a large yellow ſpot. The tail is large, forked, and green, with a curved red line running through the middle parallel to the curve, and ending in two points. The fiſh is more eſteemed for beauty than the delicacy of its taſte. They are taken on the coaſts of Hiſpaniola, Cuba, and the Bahama Iſlands.

CORYPHÆUS, in the ancient tragedy, was the chief or leader of the company that compoſed the chorus: (See CHORUS).—The word is formed from the Greek κορυφη, "tip of the head." The coryphæus ſpoke for all the reſt, whenever the chorus took part in the action, in quality of a perſon of the drama, during the courſe of the acts. Hence coryphæus had paſſed into a general name for the chief or principal of any company, corporation, ſect, opinion, &c. Thus Euſtacius of Antioch is called the *coryphæus* of the council of Nice; and Cicero calls Zeno the *coryphæus* of the ſtoics.

CORYZA, in medicine, a catarrh of the noſe. See MEDICINE-*Index*.

CORZOLA, or CURSCOLA, an iſland in the gulph of Venice, divided from Raguſa in Dalmatia by a narrow ſtrait. E. Long. 18. 0. N. Lat. 42. 35.

COS, or COOS, (anc. geog.), a noble iſland on the coaſt of Caria, in the Hither Aſia, fifteen miles to the weſt of Halicarnaſſus, a hundred in compaſs, called *Meropis* ; and hence Thucydides joins both names together, *Cos Meropis* : it had a cognominal town *Cos*, but originally called *Aſtypalaea*, mentioned by Homer ; with a port locked or walled round, (Scylax, Mela). The iſland was fruitful, and yielded a generous wine, (Strabo). It boaſted of Hippocrates and Apelles ; each at the head of his ſeveral profeſſion. It was the country of Philetas, an excellent elegiac poet, who flouriſhed in the time of Philip and Alexander ; the preceptor of Ptolemy Philadelphus : ſo thin and light that he was obliged to wear lead to prevent the being blown away by a puff of wind (Aelian, Athenæus) : much commended by Propertius. The *veſtes Coae*, made of ſilk, were famous for their fineneſs and colour, (Horace, Propertius, Tibullus). In the ſuburbs of Cos ſtood the temple of Æſculapius, a noble ſtructure, and extremely rich.

COS, the WHETSTONE, in natural hiſtory, a genus of vitreſcent ſtones, conſiſting of fragments of an indeterminate figure, ſub-opaque, and granulated.

Of this genus there are ſeveral ſpecies, ſome conſiſting of rougher, and others of ſmoother, or even of altogether impalpable particles ; and uſed not only for whet-ſtones, but alſo for mill-ſtones, and other the like purpoſes.

COS TURCICA, *Turky-ſtone*, a ſpecies of ſtones of the garnet kind, belonging to the ſiliceous claſs. It is of a dull white, and often of an unequal colour ; ſome parts appearing more compact than others. Its ſpecific gravity is 2598 : it ſtrikes fire with ſteel, and effervefces with acids. Mr Kirwan found that 100 parts of it contain 25 of mild calcareous earth, and no iron. Cronſtedt is of opinion that there are probably two ſorts of ſtones known by this name, as that deſcribed by Wallerius neither gives fire with ſteel nor effervefces with acids. It is uſed as a whet-ſtone ; and thoſe of the fineſt grain are the beſt hones for the moſt delicate cutting tools, and even for razors, lancets, &c.

COSCINOMANCY, the art of divination, by means of a ſieve. The word comes from κοσκινον, *cibrum*, " a ſieve ;" and μαντεια, *divination*. The ſieve being ſuſpended, after rehearſing a formula of words, it is taken between two fingers only ; and the names of the parties ſuſpected repeated : he at whoſe name the ſieve turns, trembles, or ſhakes, is reputed guilty of the evil in queſtion.

This muſt be a very ancient practice : Theocritus, in his third Idyllion, mentions a woman very ſkilful in it. It was ſometimes alſo practiſed by ſuſpending the ſieve by a thread, or fixing it to the points of a pair of ſheers, giving it room to turn, and naming, as before, the parties ſuſpected ; in which laſt manner *coſcinomancy* is ſtill practiſed in ſome parts of England. It appears from Theocritus, that it was not only uſed to find out perſons unknown, but alſo to diſcover the ſecrets of thoſe that were known.

CO-SECANT, in geometry, the ſecant of an arch which is the complement of another to 90°. See GEOMETRY.

COSENAGE, in law, a writ that lies where the treſail, that is, the tritavus, the father of the beſail, or great grandfather, being ſeized in fee at his death of certain lands or tenements, dies ; a ſtranger enters, and abates ; then ſhall his heir have this writ of coſenage ; the form of which ſee in Fitzh. Nat. Br. fol. 221.

COSENING, in law, an offence whereby any thing is done deceitfully, in or out of contracts, which cannot be fitly termed by any eſpecial name. In the civil law it is called *ſtellionatus*. See STELLIONATE.

COSENZA, the capital of the Hither Calabria, in the kingdom of Naples. E. Long. 16. 35. N. Lat. 39. 15. It is an archbiſhop's ſee.

COSHERING, in the feudal cuſtoms, a kind of right of the lords to lie and feaſt themſelves and their followers at their tenants houſes. The word *coſhering* may perhaps be derived from the old Engliſh word *coſhe*, a cot or cottage.

CO-SINE, in trigonometry, the ſine of an arch which is the complement of another to 90°. See GEOMETRY.

COSMETIC, in phyſic, any medicine or preparation which renders the ſkin ſoft and white, or helps to beautify and improve the complexion ; as lip-ſalves, cold creams, ceruſs, &c.

COSMICAL, a term in aſtronomy, expreſſing one of the poetical riſings of a ſtar : thus a ſtar is ſaid to riſe coſmically when it riſes with the ſun, or with that point of the ecliptic in which the ſun is at that time : and the coſmical ſetting is when a ſtar ſets in the weſt at the ſame time that the ſun riſes in the eaſt.

COSMOGONY, in phyſics, ſignifies the ſcience of the formation of the univerſe. It is formed of κοσμος, *the world*, and γεινομαι, *I am born*.

In our conjectures about the formation of the world there are two principles which we ought never to loſe ſight of. 1. That of *creation* ; for certainly matter could not give itſelf exiſtence, it muſt have received it. 2. That of a *Supreme Intelligence* directing this creation, and the arrangement of the parts of matter, in conſequence of which this world was formed. See CREATION and EARTH.

COSMOGRAPHY, the deſcription of the world ; or the art which teaches the conſtruction, figure, diſpoſition, and relation of all the parts of the world, with the manner of repreſenting them on a plane. The word comes from κοσμος, *world*, and γραφω, *I deſcribe*.

Coſmography conſiſts chiefly of two parts. *Aſtronomy*, which ſhows the ſtructure of the heavens, and the diſpoſition of the ſtars ; and *Geography*, which ſhows thoſe of the earth.

COSMOLABE (from κοσμος, *world*, and λαμβανω, *I take*), an ancient mathematical inſtrument, ſerving to meaſure diſtances, both in the heavens and on earth. The *coſmolabe* is in great meaſure the ſame with the aſtrolabe. It is alſo called *pentacoſm*, or the *univerſal inſtrument*, by L. Morgard, in a treatiſe written expreſsly upon it, printed in 1612.

COSMOLOGY (from κοσμος, *world*, and λογος, *diſcourſe*), the ſcience of the world in general. This Wolfius calls *general*, or *tranſcendental coſmology*, and has written a treatiſe on the ſubject, wherein he endeavours to explain how the world ariſes from ſimple ſubſtances, and treats of the general principles of the modifications of material things, of the elements of bodies, of the laws of motion, of the perfection of the world, and of the order and courſe of nature.

COSMOPOLITE, or COSMOPOLITAN, a term

ſometimes uſed to ſignify a perſon who has no fixed living or place of abode, or a man who is a ſtranger nowhere. The word comes from the Greek κοσμος, “ world,” and πολις, “ city.”—One of the ancient philoſophers being interrogated what countryman he was? anſwered, he was a *coſmopolite*, i. e. an inhabitant or citizen of the world.

COSSACKS, a name given to the people inhabiting the banks of the rivers Dnieper and Don, near the Black Sea and borders of Turkey. The word implies irregular troops of horſe. Theſe people are divided into European and Aſiatic Coſſacks. The firſt conſiſt of the Zaporog, who dwell below the cataract of the Dnieper, ſome on the ſide next to Ruſſia, and others on the oppoſite ſide of that river; the Lower and Upper Coſſacks; the Bielogorod Coſſacks; and a part of the Don Coſſacks. The Aſiatic Coſſacks are compoſed of the reſt of the Don Coſſacks, the Grebin Coſſacks, the Yaik Coſſacks, and the Weſtern Calmuks, who retiring from thoſe that inhabited the ſouth borders of Siberia under Yaiuki Can, ſettled upon the Wolga, and are dependent upon Ruſſia.

The Coſſacks were known by that name ever ſince the 948th year of Chriſt. They dwelt upon mount Caucaſus, in the place now called *Cabardy;* and were reduced to the Ruſſian dominion by prince Mſtiſlaw in the year 1021. Many Ruſſians, Poles, and others, who could not live at home, have, at different times, been admitted among the Coſſacks; but the latter, abſtracted from theſe fugitives, muſt have been an ancient and well governed nation.

Towards the beginning of the 16th century, the Zaporog Coſſacks fixed their habitations on the ſpacious plains that extend along the banks of the Dnieper. They had undergone conſiderable hardſhips from the incurſions of the Tartars, for which they afterwards found means to avenge themſelves in an ample manner. The Poles being ſenſible how ſerviceable the Coſſacks might be in defending them from the ravages of the Tartars, and even of the Ruſſians, propoſed to them terms of alliance. In 1562, they ſolemnly took them under their protection, and engaged to pay them an annual ſubſidy; in return for which, the Coſſacks were to keep on foot a ſufficient body of troops for the defence of the Poliſh dominions. With a view to bind them ſtill more ſtrongly by ties of intereſt, the Poles gave them the whole country between the rivers Dnieper and Neiſter, and the borders of Tartary. The Coſſacks applied themſelves with great induſtry to the cultivation of this fertile ſpot; ſo that in a ſhort time it was interſperſed with large towns and handſome villages. Beſides they continually haraſſed the Turks, and did them great damage by their incurſions; and in order to prevent the latter from purſuing them, or making repriſals, they poſſeſſed themſelves of ſeveral ſmall iſlands in the Dneiper, where they kept their magazines, &c. The hettman, or general of the Coſſacks, was not in the leaſt ſubordinate to the field-marſhal of Poland; but acted in concert with him as an ally, and not as a ſubject of that republic. But this alliance, though of ſuch manifeſt advantage to both parties, was not of long duration. The Poles, ſeeing the vaſt improvements made by the Coſſacks in the country they had given up to them, became envious of them, and actually made an attempt to bring them into ſubjection, as we have ſeen in the hiſtory of Poland. In 1648 the Coſſacks gained great advantages over them, and next year came to an accommodation, in which they not only preſerved their old immunities, but obtained additional privileges. The reſult of all was, that theſe Coſſacks remained under the protection of Ruſſia; and as their former country was entirely laid waſte in the late wars, they ſettled in the Ruſſian Ukraine, upon receiving formal aſſurances from the court of Ruſſia, that no alteration ſhould be made in their political conſtitution, and that no taxes whatever ſhould be laid upon them. The Coſſacks, on the other hand, were always to keep in readineſs a good body of troops for the ſervice of Ruſſia: but in the year 1708 Mazeppa, their hettman or chief, went over from the Ruſſians to the Swedes; upon which Peter I. reſolved to prevent ſuch revolts for the future. To this end, after the battle of Pultowa, he ſent a ſtrong detachment into the abovementioned little iſlands in the Dnieper, whether the Coſſacks had fled, with their wives and children, and all their effects; and ordered them all to be put to the ſword without diſtinction, and the plunder to be divided among his ſoldiers. He likewiſe ſent a great number of men into their country, and cauſed ſeveral thouſands of the Coſſacks to be carried to the coaſts of the Baltic, where they were put to all ſorts of hard labour; by which means he in a manner extirpated the whole nation.

What diſtinguiſhes the Zaporog Coſſacks from all other people is, that they never ſuffer any women in their ſettlements, as the Amazons are ſaid not to have ſuffered any men among them. The women of theſe Coſſacks live in other iſlands of the Dnieper. They never marry, nor have any family: all their male children are inrolled as ſoldiers, and the females are left with their mothers. The brother often has children by his ſiſter, and the father by his daughter. They know no laws but thoſe which cuſtom has introduced, founded on their natural wants; though they have among them ſome prieſts of the Greek perſuaſion. They ſerve in the armies as irregulars; and woe to thoſe who fall into their hands.

The country of theſe Coſſacks, who are an aſſemblage of ancient Roxelans, Sarmatians, and Tartars, is called the *Ocraine* or *Ukraine*. It lies upon the borders of Ruſſia and Poland, Little Tartary, and Turkey, and was anciently a part of Scythia. By virtue of the laſt treaty ſettled between Ruſſia and Poland, in 1693, the latter remains in poſſeſſion of all that part of the Ukraine which is ſituated on the weſt ſide of the Dnieper, and is now but poorly cultivated. That on the eaſt ſide, inhabited by the Coſſacks, is in a much better condition, and extends about two hundred and ſixty miles in length, and as many in breadth. It is one continued fertile plain, watered by a great number of fine rivers, diverſified with pleaſant woods, and yields ſuch plenty of all ſorts of grain, pulſe, tobacco, honey, and wax, as to ſupply a great part of the Ruſſian empire with thoſe commodities. Its paſtures are exceeding rich, and its cattle very large; but the inhabitants are greatly plagued by locuſts, which infeſt this fine country. The houſes in the Ukraine are, like thoſe of the Ruſſians, moſtly built with timber.

The Coſſacks are tall and well made, generally hawk-noſed, and of a good mien. They are hardly, vigorous, brave, and extremely jealous of what is moſt valuable in life, their liberty: fickle and wavering, but ſociable, cheerful, and ſprightly. They are a very powerful people, and their forces conſiſt wholly of cavalry. Their dialect is a compound of the Poliſh and Ruſſian language; but the latter is the moſt predominant. They were formerly Pagans or Mahometans; but upon their entering into the Poliſh ſervice, they were baptized Chriſtians of the Romiſh communion; and now that they belong to Ruſſia, they profeſs themſelves members of the Greek church.

Each of their towns, with the diſtrict belonging to it, is governed by an officer called *ottomann* or *attamann*.

The Don-Coſſacks, ſo called from their reſidence upon the banks of the river Don, greatly reſemble thoſe already deſcribed. In the year 1559, when the czar Iwan Baſilowitz was emperor of Ruſſia, they voluntarily put themſelves under his protection, and are at this time on a pretty equal footing with the other Ruſſian ſubjects. They have ſeveral towns and villages upon the banks of the Don; but are prevented from extending themſelves farther up the country, by the ſcarcity of freſh water and wood in many places. Their chief ſupport is grazing and agriculture, and occaſionally robbing and plundering, for which they want neither capacity nor inclination. Every town is governed by a magiſtrate called *tamann*; and the tamanns, with their towns, are under the juriſdiction of two ottomanns, who reſide at Tſherkaſky. The troops of theſe Coſſacks likewiſe conſiſt entirely of cavalry. In this country all the towns and villages are fortified and encompaſſed with paliſades, to defend them againſt the incurſions of the Calmucs and Kuban Tartars, with whom they are continually at war. The Coſſacks, in general, are of great ſervice to garriſon towns by way of defence, or to purſue an enemy; but are not ſo good at regular attacks.

The Sietſh Coſſacks, who are alſo called *Haidamacks*, have their particular hettman. They inhabit the Ruſſian, Poliſh, and Turkiſh dominions, along the banks of the Dnieper.

The Yaik Coſſacks dwell on the the ſouth ſide of the river Yaik; and upon the ſucceſs of the Ruſſian arms in the kingdom of Aſtracan, voluntarily ſubmitted to them. In ſtature they greatly reſemble the other Coſſacks; though by their booriſh manner of living, and intermarriages with the Tartars, they have not the ſhape and air peculiar to the reſt of their countrymen. Their natural diſpoſitions and cuſtoms are, however, nearly the ſame. Huſbandry, fiſhing, and feeding of cattle, are their principal employments; and, like the other tribes, they let ſlip no opportunity of making depredations on their neighbours. Their continual wars with the Kara-Kalpacs and the Kaſatſhaia-Horda oblige them to keep their towns and villages in a ſtate of defence. They are indeed ſubject to Ruſſian waiwodes, to whom they pay an annual tribute in corn, wax, honey, and cattle; but they have alſo their particular chiefs, who govern them according to their ancient cuſtoms. Though the generality of the Yaik Coſſacks profeſs the Greek religion, yet a great many relicts of Mahometaniſm and Paganiſm are ſtill found among them. Being naturally bold and hardy, they make excellent ſoldiers; and they are not ſo turbulent as the other Coſſacks. They live entirely at peace with the Calmuks and their other neighbours, and even maintain a commerical intercourſe with them.

COSE DE GENISTE, an order of knighthood inſtituted in 1234. by Louis IX. at his marriage with Margaret of Provence. The motto on the collar of this order was, *exaltat humilis*.

COSSET, among farmers, a colt, calf, or lamb, brought up by hand without the dam.

COSTA (Chriſtopher), a celebrated botaniſt of the 16th century, was born in Africa, of a Portugueſe father, and went into Aſia to perfect himſelf in the knowledge of ſimples, where he was taken priſoner, but found means to make his eſcape, and after ſeveral voyages, practiſed phyſic at Bourgos. He wrote, 1. A Treatiſe on Indian Drugs and Medicines. 2. His Voyages to the Indies. 3. A book in praiſe of Women; and other works.

COSTAL, an appellation given by anatomiſts to ſeveral parts belonging to the ſides: thus we meet with coſtal muſcles, vertebræ, &c.

COSTANZO (Angelo di), an Italian hiſtorian and poet, lord of Catalupo, was born in 1507, of a noble and ancient family of Naples, and died about 1591. He wrote, 1. A Hiſtory of Naples, from 1250 to 1489; the beſt edition of which is that of Aquila, in 1582, in folio, very ſcarce. 2. Italian Poems, which are eſteemed, and have had ſeveral editions.

COSTA-RICCA, a province of North America in New Spain and in the audience of Guatimala, bounded on the north-eaſt by the northern ocean, on the ſouth-weſt by the ſouth ſea, on the north-weſt by Nicaragua, and on the ſouth-eaſt by Veragua. The ſoil is not very fertile, though there is plenty of cattle. Carthage is the capital town.

COSTARD (George), a clergyman of the churh of England, and author of ſeveral learned works was born about the year 1710. He was educated at Wadham College, Oxford; and took the degree of M. A. in 1733. The firſt eccleſiaſtical ſituation in which he was placed was that of curate of Iſlip in Oxfordſhire. In 1747 he publiſhed in 8vo, Some obſervations tending to illuſtrate the Book of Job. In 1750 he publiſhed Two Diſſertations: I. On the meaning of the Word *Keſitah*, mentioned in Job, chap. xlii. ver. 11. II. on the Signification of the Word *Hermes*. In 1752 he publiſhed, in 8vo, at Oxford, *Diſſertationes II. Critico-Sacræ, quarum prima explicatur, Ezek. xiii.* 18. *Altera vero*, 2 *Reg. x.* 22. In 1755 he wrote a letter to Dr Birch, which is preſerved in the Britiſh Muſeum, reſpecting the meaning of the phraſe *ſphæra barbarica*. Some time after this he undertook to publiſh a ſecond edition of Dr Hyde's *Hiſtoria Religionis veterum Perſarum, eorumque Magorum*; and which was accordingly printed, under his inſpection, and with his corrections, at the Clarendon Preſs at Oxford, in 4to, in 1760. Mr Coſtard's extenſive learning having now recommended him to the notice of Lord Chancellor Northington, he obtained, by the favour of that nobleman, in June 1764, the vicarage of Twickenham in Middleſex; in which ſituation he continued till his death. In 1767 he publiſhed, in one volume quarto, The Hiſtory of Aſtronomy, with its application to Geography, Hiſtory, and chronology;

occaſionally exemplified by the Globes. This work was chiefly intended for the uſe of ſtudents, and contains a full and diſtinct view of the ſeveral improvements made in geography and aſtronomy. Mr Coſtard has ſhown, "by a gradual deduction, at what time, and by whom, the principal diſcoveries have been made in geography and aſtronomy; how each diſcovery has paved the way to what followed; and by what eaſy ſteps, through the revolution of ſo many ages, theſe very uſeful ſciences have advanced towards their preſent ſtate of perfection." In 1778 he publiſhed, in 8vo, A Letter to Nathaniel Braſſey Halhead, Eſq; containing ſome Remarks on his Preface to the Code of Gentoo Laws. This appears to have been the laſt of his publications. It contains ſome criticiſms which were intended to invalidate the opinion which Mr Halhead had conceived concerning the great antiquity of the Gentoo laws; and ſome arguments againſt a notion which had been adopted by ſeveral writers, drawn from the obſervation of natural phenomena, that the world is far more ancient than it is repreſented to be by the Hebrew chronology. Mr Coſtard died on the 10th of January 1782. He was a man of uncommon learning, and eminently ſkilled in Grecian and oriental literature. His private character was amiable, and he was much reſpected in the neighbourhood in which he lived for his humanity and benevolence.—Beſides the works already mentioned, he wrote ſome others; and was alſo the author of learned papers, inſerted in the Philoſophical Tranſactions, on aſtronomical and chronological ſubjects.

COSTIVENESS, a preternatural detention of the feces, with an unuſual dryneſs and hardneſs thereof, and thence a ſuppreſſion of their evacuation. See (the *Index* ſubjoined to) MEDICINE.

COSTMARY, the Engliſh name of a ſpecies of tanſy. See TANACETUM.

COSTS, in law, imply the expences of a ſuit recovered by the plaintiff, together with damages. Coſts were not allowed by the common law, the amercement of the vanquiſhed party being his only puniſhment; but they are given by ſtatute*. Coſts are allowed in chancery for failing to make anſwer to a bill exhibited, or making an inſufficient anſwer: and if a firſt anſwer be certified by a maſter to be inſufficient, the defendant is to pay 40s.; 3l. for a ſecond inſufficient anſwer; 4l. for a third, &c. But if the anſwer be reported good, the plaintiff ſhall pay the defendant 40s. coſts.

COSTUME, a rule or precept in painting, by which the artiſt is enjoined to make every perſon and thing ſuſtain its proper character, and not only obſerve the ſtory, but the circumſtances, the ſcene of action, the country or place, and take care that the habits, arms, manners, proportions, and the like, exactly correſpond.

COSTUS, in botany: A genus of the monogynia order, belonging to the monandria claſs of plants; and in the natural method ranking under the eighth order *Scitamineæ*. The corolla is interior, inflated, and ringent, with the under lip trifid. There is but one ſpecies, *viz.* the arabicus, a native of the Indies. The root was formerly in ſome eſteem as an attenuant, and ſerviceable in venereal complaints; but it is now rarely preſcribed or met with in the ſhops.

COTA (Rodriguez), a Spaniſh poet in the 16th century, was the author of the *Tragi-comedia de Caliſto y Melibea*, which has been tranſlated into Latin by Gaſpar Barthius, and into French by James de Lavardin. The Spaniards ſet a great value on this performance.

CO-TANGENT, the tangent of an arch which is the complement of another to 90°. See GEOMETRY.

COTBUS, a town of Germany in Lower Luſace. It is a ſtrong important place, and has been ſubject to the king of Pruſſia ever ſince the year 1645. It is ſeated on the river Spree, 60 miles ſouth-by-eaſt of Berlin, and 55 ſouth-eaſt of Wirtemberg. Here are a great number of French Proteſtants, who have introduced manufactures; and this place is noted for excellent beer, pitch, and the cultivation of flax. E. Long. 15. 29. N. Lat. 51. 40.

COTE, a term uſed in courſing, to expreſs the advantage one greyhound has over another when he runs by the ſide of it, and putting before it, gives the hare a turn. See COURSING.

COTE-Gare, a kind of refuſe wool, ſo clung or clotted together that it cannot be pulled aſunder. By 13 Rich. II. ſtat. 1. c. 9. it is provided, that neither denizen or foreigner make any other refuſe of wools but cote-gare and villein. So the printed ſtatute has it; but in the parliament-roll of that year it is *cod-land* and *villein*. *Cot*, or *cote*, ſignifies as much as cottage in many places, and was ſo uſed by the Saxons according to Verſtegan.

COTELERIUS (John-Baptiſt), fellow of the Sorbonne, and king's Greek profeſſor, was born at Niſmes in Languedoc in 1627. He made a collection of the fathers who lived in the apoſtolic age, which he publiſhed at Paris in two volumes folio in 1672; all reviewed and corrected from ſeveral MSS. with a Latin tranſlation and notes. He alſo publiſhed *Monumenta Eccleſiæ Græcæ*, in 3 vols; being a collection of Greek tracts out of the king's and M. Colbert's libraries, and which had never been publiſhed before: to theſe he added a Latin tranſlation and notes. He intended a farther proſecution of this work; but his intenſe ſtudies broke his conſtitution, and deprived him of life in 1686. Beſides his great ſkill in languages and eccleſiaſtical antiquities, Cotelerius was remarkable for his probity and candour.

COTERELLUS. *Cotarius*, and *coterellus*, according to Spelman and Du Freſne, are ſervile tenants; but in Doomſday and other ancient MSS. there appears a diſtinction, as well in their tenure and quality as in their name: for the cotarius hath a free ſoccage tenure, and paid a ſtated firm or rent in proviſions or money, with ſome occaſional cuſtomary ſervices; whereas the coterellus ſeems to have held in mere villenage, and his perſon, iſſue, and goods, were diſpoſable at the pleaſure of the lord.

COTERIE, a term adopted from the French trading aſſociations or partnerſhips, where each perſon advances his quota of ſtock and receives his proportion of gain; and which retains its original meaning when applied to little aſſemblies or companies aſſociated for mirth and good humour, where each one furniſhes his quota of pleaſantry. Here they coin new words not underſtood elſewhere, but which it becomes faſhionable for others to uſe; and they are thought ridiculous who

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* *Blackſt. Comment.* iii. 399, 400.

are ignorant of them. It has been uſed of late to ſignify a club of ladies.

COTES (Roger), an excellent mathematician of the 18th century. He early diſcovered an inclination to the mathematics; and at 17 years of age was admitted a penſioner of Trinity College, Cambridge. In 1706 he was appointed profeſſor of aſtronomy in the profeſſorſhip founded by Dr Plume archdeacon of Rocheſter, being choſen the firſt in that chair for his great merit and learning. In the year 1713, at the requeſt of Dr Richard Bentley, he publiſhed at Cambridge, in 4to, a ſecond edition of Sir Iſaac Newton's *Principia*, with all the improvements which the author had annexed thereto; to which he perfixed an excellent Preface. He prepared ſeveral uſeful books for the public; and wrote A Deſcription of the great Meteor which appeared on the 6th of March 1716, publiſhed in the Philoſophical Tranſactions. He lived but a little while to carry on the diſcourſes for which he was eminently qualified; dying in the prime of his age in 1716, to the great regret of all the lovers of the ſciences.

COTESWOLD, ſeveral ſheep-cotes, and ſheep feeding on hills. It comes from the Saxon *cote*, i. e. *caſa*, "a cottage," and *wold*, "a place where there is no wood."

COTHURNUS, Buskin, a very high ſhoe or patten raiſed on ſoals of cork, worn by the ancient actors in tragedy to make them appear taller and more like the heroes they repreſented; moſt of whom were ſuppoſed to be giants. It covered the greateſt part of the leg, and was tied beneath the knee. Æſchylus is ſaid to have invented the cothurnus. See Buskin.

COTICE, or Cotise', in heraldry, is the fourth part of the bend; which with us is ſeldom or ever borne but in couples, with a bend between them: whence probably the name; from the French *cote*, "ſide;" they being borne, as it were, a-ſide of the bend.—A bend thus bordered is ſaid to be *cotiſed*, *cotice*. He bears ſable on a bend cotiſed argent three cinquefoils.

COTILLON, the name of a well-known briſk dance, in which eight perſons are employed. The term is French, and ſignifies an under-petticoat.

COTRONE, a town in the Hither Calabria, ſtanding on the ſite of the ancient Croton, though not occupying the ſame extent of Ground: (See Croton). It is fortified with ſingle walls, and a caſtle erected by Charles V. Its private buildings are poor and ſordid, the ſtreets diſmal and narrow. Cheeſe and corn are the principal commodities. For the ſtowage of corn, there are ranges of granaries in the ſuburbs; and the annual export is about 200,000 tomoti. The cheeſe is tolerably good; but has a great deal of that hot acrid taſte ſo common to all cheeſe made with goats milk. The wine is not unpleaſant, and appears ſuſceptible of improvement by better management in the making and keeping.

COTT, a particular ſort of bed-frame, ſuſpended from the beams of a ſhip for the officers to ſleep in between the decks. This contrivance is much more convenient at ſea than either the hammocks or fixed cabins: being a large piece of canvas ſewed into the form of a cheſt, about ſix feet long, one foot deep, and from two to three feet wide. It is extended by a ſquare wooden frame with a canvas bottom, equal to its length and breadth, to retain it in an horizontal poſition.

COTTAGE, Cottagium, is properly a little houſe for habitation without lands belonging to it; ſtat. 4 Edw. I. But by a later ſtatute, 31 Eliz. c. 7. no man may build a cottage unleſs he lay four acres of land thereto; except it be in market-towns or cities, or within a mile of the ſea, or for the habitation of labourers in mines, ſailors, foreſters, ſhepherds, &c. and cottages erected by order of juſtices of peace for poor impotent people are excepted out of the ſtatute. The four acres of land to make it a cottage within the law are to be freehold, and land of inheritance; and four acres holden by copy, or for life or lives, or for any number of years, will not be ſufficient to make a lawful cottage.

COTTON, in commerce, a ſoft downy ſubſtance found on the goſſypium, or cotton-tree. See Gossypium.

Cotton is ſeparated from the ſeeds of the plant by a mill, and then ſpun and prepared for all ſorts of fine work, as ſtockings, waiſtcoats, quilts, tapeſtry, curtains, &c. With it they likewiſe make muſlin; and ſometimes is is mixed with wool, ſometimes with ſilk, and even with gold itſelf.

The fineſt ſort comes from Bengal and the coaſt of Coromandel,

Cotton makes a very conſiderable article in commerce, and is diſtinguiſhed into cotton-wool and cotton-thread. The firſt is brought moſtly from Cyprus, St John d'Arce, and Smyrna: the moſt eſteemed is white, long, and ſoft. Thoſe who buy it in bales ſhould ſee that it has not been wet, moiſture being very prejudicial to it.

Of cotton-thread, that of Damas, called *cotton d'ounce*, and that of Jeruſalem, called *bazas*, are the moſt eſteemed; as alſo that of the Weſt India iſlands. It is to be choſen white, fine, very dry, and evenly ſpun. The other cotton-threads are the half bazas, the rames, the beledin, and gondezel; the payas and montaſiri, the geneguins, the baquins, the joſſelaſſars, of which there are two ſorts. Thoſe of India, known by the name of Tutucorin, Java, Bengal, and Surat, are of four or five ſorts, diſtinguiſhed by the letters A, B, C, &c. They are ſold in bags, with a deduction of one pound and a half on each of thoſe of Tutucorin, which are the deareſt, and two pounds on each bag of the other ſorts. For thoſe of Fielebas, Smyrna, Aleppo, and Jeruſalem, the deduction at Amſterdam is eight in the hundred for the tare, and two in the hundred for weight, and on the value one *per cent.* for prompt payment.

Cotton of Siam, is a kind of ſilky cotton in the Antilles, ſo called becauſe the grain was brought from Siam. It is of an extraordinary fineneſs, even ſurpaſſing ſilk in ſoftneſs. They make hoſe of it there preferable to ſilk ones for their luſtre and beauty. They ſell from 10 to 12 and 15 crowns a pair, but there are very few made unleſs for curioſity.

The manner of packing Cotton *as practiſed in the Antilles.* The bags are made of coarſe cloth, of which they take three ells and a half each; the breadth is one ell three inches. When the bag has been well ſoaked in water, they hang it up, extending the mouth of it to croſs pieces of timber nailed to poſts fixed in the ground ſeven or eight feet high. He who packs it goes into the bag, which is ſix feet nine inches deep, or thereabouts, and preſſes down the cotton, which another hands him, with hands and feet: obſerving to tread it equally every where, and putting in but little at a time. The beſt time of packing is in rainy moiſt weather, provided the cotton be under cover. The bag ſhould contain from 300 to 320 pounds. The tare abated in the Antilles is three in the hundred. Cotton being a production applicable to a great variety of manufactures, it cannot be too much cultivated in our own plantations that will admit of it.

Cotton-Spinning, the art or proceſs of reducing cotton-wool into yarn or thread.

The moſt ſimple method for this purpoſe, and the only one in uſe for a long time in Britain, was by the hand upon the well-known domeſtic machine called a *one-thread-wheel*. But as the demand for cotton-goods began to increaſe, other inventions were thought of for expediting this part of the manufacture. About 50 years ago, one Paul and others of London contrived an engine for a more eaſy and expeditious method of ſpinning cotton, and for which they obtained a patent; but the undertaking did not prove ſucceſsful. Some years thereafter, various machines were conſtructed by different perſons for facilitating the ſpinning of cotton; but without producing any very material or laſting advantage. At length, about the year 1767, Mr James Hargrave, a weaver in the neighbourhood of Blackburn in Lancaſhire, conſtructed a machine by which a great number of threads (from 20 to 80) might be ſpun at once, and for which he obtained his Majeſty's letters-patent. This machine is called a *Jenny*, and is the beſt contrivance for ſpinning *woof* or *ſhute* that has hitherto appeared. It is now commonly conſtructed for 84 threads; and with it one perſon can ſpin 100 Engliſh hanks in the day, each hank containing 840 yards.

Carding of cotton, as a preparation for ſpinning, uſed formerly to be performed by the hand, with a ſingle pair of cards, upon the knee: but this being a tedious method, ill ſuited to the rapid operations of the new ſpinning machines, other methods were contrived for affording a quicker and more adequate ſupply. The firſt improvement for this purpoſe was likewiſe made by Mr Hargrave; and conſiſted in applying two or three cards to the ſame board, and fixing them to a ſtool or ſtock; whence they obtained the name of *ſtock-cards*. With theſe, one woman could perform two or three times as much work as ſhe could do before in the common way. A ſtill more expeditious method of carding, however, by what are commonly called *cylinder-cards*, was ſoon afterwards invented, and is that which is now moſt commonly practiſed: but as ſeveral perſons lay claim to this invention, it is not eaſy to determine to whom in particular the merit of it is due.

The next and moſt capital improvements which this branch of manufacture received were from Mr Arkwright, a native of Lancaſhire, now Sir Richard Arkwright of Cromford in Derbyſhire. He firſt brought forward his new method of ſpinning cotton in 1768, for which he obtained a patent in 1769; he afterwards, in 1775, obtained a patent for engines which he had conſtructed to prepare the materials for ſpinning: though one of theſe patents, being challenged at law, was ſet aſide ſome years before it expired.

The reſult of Mr Arkwright's different inventions and improvements is a combination of machinery, by which cotton is *carded*, *roved*, and *ſpun*, with the utmoſt exactneſs and equality; and ſuch a degree of perfection attained in ſpinning *warp*, as is not to be equalled in any other part of the world. To theſe improvements Britain is entirely indebted for the great extent of its cotton manufactures; large buildings having been erected for that branch both in England and Scotland, many of which contain ſeveral thouſands of ſpindles, each driven by one or more large water-wheels; and ſome of ſuch extent as to ſpin at the rate of one thouſand yards of twiſt or warp yarn in the minute.

Other machines have been invented at different times, and a variety of improvements made by different mechanics and manufacturers; one of which in particular we muſt not omit to mention. It is called a *Mule* being a kind of mixture of machinery between the *warp*-machine of Mr Arkwright and the *woof*-machine or hand-jenny of Mr Hargrave, and was alſo invented in Lancaſhire. This machine bids fair to be of a great uſe in ſpinning cotton yarn for muſlins to a degree of fineneſs never before known in Britain, being nearly equal in quality to thoſe uſually brought from India.

Cotton Mills, are large buildings with peculiar machinery for carding, roving, and ſpinning cotton: (ſee the preceding article.)—Theſe were entirely unknown in Britain before the different inventions and improvements of Meſſrs Arkwright and Hargrave; ſince which time great numbers have been erected in England, and ſeveral in Scotland.

The firſt erections of the kind were by Meſſrs Arkwright and Hargrave, both in the town of Nottingham, and both nearly at the ſame time. The Engines were then driven by horſes: but ſince that time they have been chiefly erected upon water-falls in different parts of the country; particularly the warp machines, which are better adapted for being driven by water than any other. The moſt extenſive of theſe is in the village and neighbourhood of Cromford in Derbyſhire, and under the immediate inſpection of Sir Richard Arkwright. The firſt that was erected in Scotland was for Mr Peter Brotherſton, under the inſpection and direction of Mr John Hackett from Nottingham; and is in the neighbourhood of Pennycuick near Edinburgh. Since which time ſeveral have been erected in the neighbourhood of Glaſgow, Paiſley, Lanark, Perth, &c.

General State of the Cotton Manufactory. The facilities which the manufacturers of Great Britain had ſuddenly acquired, and the immenſe capitals which they have ſo recently laid out in expenſive machinery and other heavy eſtabliſhments for carrying on the cotton trade, are unparalleled in the annals of the world. Above one hundred and forty cotton-mills are now built in Great Britain, of which nearly two-thirds have been erected within theſe ſeven years. Beſides theſe, there are above 20,500 hand-mills or jennies for ſpinning the ſhute for the twiſted yarn ſpun by the water-mills.

Above a million of money was, within this time, ſunk in mills, hand engines, and other machines, including the grounds and neceſſary buildings.

Expence of water-mills, -	L. 715,000	0	0
Ditto of hand-jennies, houſes, buildings, and auxiliary machinery, ſuppoſed at leaſt, -	285,000	0	0
Total, -	L. 1,000,000	0	0

A power had been alſo created of working nearly two millions of ſpindles; and men, women, and children were trained to this buſineſs, capable of carrying the cotton manufacture almoſt to any extent. In 1787, the power of ſpindles capable of being worked was eſtimated as follows:

In the water-mills, - -	286,000
In the jennies, - - -	1,665,100
Total ſpindles,	1,951,100

In the branches applicable to muſlin and callico, it was calculated that employment was given to 100,000 men and women, and at leaſt 60,000 children; many of the latter having been taken from different pariſhes and hoſpitals in Great Britain.

The quantity of the raw material of cotton wool conſumed in this manufacture, which did not amount to 6,000,000 lb. in 1781, and was only about 11,000,000 lb. ſix years ago, had amounted in the year 1787 to the enormous height of 22,000,000 lb. and upwards; and the aſtoniſhing rapidity of this increaſe is in ſome meaſure to be attributed to the extenſion of theſe branches to the goods of India, particularly the callicoes and muſlins.

Britiſh callicoes were firſt made in Lancaſhire about the year 1772, but the progreſs was ſlow till within theſe laſt 12 years. The quantity manufactured has ſince extended from about 50,000 to 1,000,000 of pieces made in the courſe of a ſingle year.

Britiſh muſlins were not ſucceſsfully introduced until the year 1781, and were carried to no great extent until 1785, after which period the progreſs during two years became rapid beyond all example. The acquiſition of cotton wool of a ſuperior quality from Demerara and the Brazils, and the improvements made in the ſpinning fine yarns upon the mule jennies, had given a ſpring to this branch of the cotton manufactory, which extended it beyond what it was poſſible to have conceived. Above half a million pieces of muſlin of different kinds, including ſhawls and handkerchiefs, were computed to be annually made in Great Britain; while the quantity not only increaſed daily with the new acceſſion of powers that were burſting forth upon the country, but the quality was exceedingly improved; and ſince a yearly ſupply of about 300 bales of Eaſt Indian cotton has been obtained by the way of Oſtend, yarns have been ſpun, and muſlins have been wove, equal to any from India. Nothing, therefore, but a fine raw material appeared wanting to enable the Britiſh manufacturer to carry this branch to the greateſt extent; and, of all others, it is that ſpecies of cotton goods which deſerves moſt to be encouraged, becauſe of the immenſe return it makes for labour more than any other branch of the cotton manufactory. Eaſt India cotton wool has been ſpun into one pound of yarn worth five guineas; and when wove into muſlin, and afterwards ornamented by children in the tambour, has extended to the value of L. 15; yielding a return of 5,900 *per cent.* on the raw material.

But the ſtate of the raw materials, and the progreſſive and aſtoniſhing increaſe of this manufacture, will be beſt explained by what follows:

	Cotton Wool uſed in the Mauufacture.	Suppoſed Value when manufactured.
1781,	lb. 5,101,920	L. 2,000,000
1782,	11,206,810	3,900,000
1783,	9,546,179	3,200,000
1784,	11,280,238	3,950,000
1785,	17,992,888	6,000,000
1786,	19,151,867	6,500,000
1787,	22,600,000	7,500,000

Such was the progreſs of the Britiſh cotton manufactory till 1787; when, with eſtabliſhments and mechanical powers capable of bringing forward immenſe quantities of goods into the conſumption, this manufacture was checked by a great and ſudden reduction of the prices of Eaſt India goods of the ſame ſpecies, which were ſold above 20 *per cent.* on an average under the loweſt prices at which the Britiſh manufacturer can afford to ſell without loſs.

This conduct in the Eaſt India Company quickly operated to the great prejudice of the Britiſh manufactures; and there is no ſaying how far theſe might be reduced, ſhould that company be allowed to preſs goods upon the market at prices which have no relation to the original coſt, and under circumſtances where the juſt laws of competition cannot operate, and where every idea of protecting-duties is annihilated in the effect of the general ſyſtem.

It is believed, however, that the home-manufacture of this article, in all its different branches, has of late revived, and is likely to be carried on with greater advantage to the manufacturer than ever it was before.

Lavender COTTON. See SANTOLINA.

Philoſophic COTTON, a name given to the flowers of zinc, on account of their white colour and reſemblance to cotton.

Flax made to reſemble COTTON. See FLAX.

Silk COTTON. See BOMBAX.

COTTON-*Weed*. See GNAPHALIUM.

COTTON (Sir Robert), a moſt eminent Engliſh antiquarian, deſcended from an ancient family, was born in 1570. In his 18th year he began to collect ancient records, charters, and other MSS. Camden, Selden, and Speed, acknowledged their obligations to him in their reſpective works. He was highly diſtinguiſhed by queen Elizabeth, and by James I. who created him a baronet. He wrote many things himſelf; but our principal obligations to him are for his valuable library, conſiſting of curious manuſcripts, &c. which he was forty years in collecting. At his death in 1631, he left the property of it to his family, though deſigned for public uſe. A large acceſſion was made to this library by private benefactions before the death of the founder, and afterwards by the purchaſes of his heirs, and donations of others, who added to it a great number of books, chiefly relating to the hiſtory and antiquities of the Britiſh nation. An act of parliament was obtained, at the requeſt of Sir John Cotton, in 1700, for preſerving it after his deceaſe, under the above denomination, for public uſe. It is now fixed in the Britiſh Muſeum. For ſtatutes relating to it, ſee 12 and 13 W. III. c. 5. and 5 Anne, cap. 30.

Cotton (Charles), a burleſque poet, was deſcended of a good family, and lived in the reigns of Charles II. and James II. His moſt celebrated piece is *Scarronides*, or *Traveſtie* of the firſt and fourth books of the Æneid. But though, from the title, one would be apt to imagine it an imitation of Scarron's famous Traveſtie of the ſame author, yet, upon examination, it would be found greatly to excel not only that, but every other attempt of the ſame kind that hath been hitherto made in any language. He has alſo tranſlated ſeveral of Lucian's dialogues, in the ſame manner, under the title of *the Scoffer Scoff'd*;—and written another poem of a more ſerious kind, entitled *the Wonders of the Peak*. The exact period of either Mr Cotton's birth or his death, is no-where recorded; but it is probable the latter happened about the time of the revolution. Neither is it better known what his circumſtances were with reſpect to fortune; they appear, however, to have been eaſy, if one may judge from the turn of his writings, which is ſuch as ſeems ſcarcely poſſible for any one to indulge whoſe mind was not perfectly at eaſe. Yet there is one anecdote told of him, which ſeems to ſhow that his vein of humour could not reſtrain itſelf on any conſideration, viz. that in conſequence of a ſingle couplet in his *Virgil Traveſtie*, wherein he has made mention of a peculiar kind of ruff worn by a grandmother of his who lived in the Peak, he loſt an eſtate of L. 400 *per annum*; the old lady, whoſe humour and teſty diſpoſition he could by no means have been a ſtranger to, being never able to forgive the liberty he had taken with her; and having her fortune wholly at her diſpoſal, although ſhe had before made him her ſole heir, altered her will, and gave it away to an abſolute ſtranger.

COTTUS, or Bull-head, in ichthyology, a genus belonging to the order of thoracici. The head is broader than the body, and the gill-membrane has ſix rays. There are ſix ſpecies; the moſt remarkable are,

1. The gobio, or river-bull head, is very common in all our clear brooks: it lies almoſt always at the bottom, either on the gravel or under a ſtone: it depoſits its ſpawn in a hole which it forms among the gravel, and quits it with great reluctance. It feeds on water inſects. This fiſh ſeldom exceeds the length of three inches and an half: the head is large, broad, flat, and thin at its circumference, being well adapted for inſinuating itſelf under ſtones: on the middle part of the covers of the gills is a ſmall crooked ſpine turning inwards. The eyes are very ſmall: the irides yellow: the body grows ſlender towards the tail, and is very ſmooth. The colour of this fiſh is as diſagreeable as its form, being duſky, mixed with a dirty yellow; the belly is whitiſh. The taſte, however, is excellent.

2. The cataphractus, armed bull-head, or *pogge*, is very common on moſt of the Britiſh coaſts. It ſeldom exceeds five inches and an half in length; and even ſeldom arrives at that ſize. The head is large, bony, and very rugged: the end of the noſe is armed with four ſhort upright ſpines: on the throat are a number of ſhort white beards: the body is octogoeal, and covered with a number of ſtrong bony cruſts, divided into ſeveral compartments, the ends of which project into a ſharp point, and form ſeveral echinated lines along the back and ſides from the head to the tail.

3. The ſcorpius, or father-laſher, is not uncommon on the rocky coaſts of Britain; it lurks under ſtones, and will take a bait. It ſeldom exceeds 8 or 9 inches in length. The head is large, and has a moſt formidable appearance, being armed with vaſt ſpines, which it can oppoſe to any enemy that attacks it, by ſwelling out its cheeks and gill-covers to a large ſize. The noſe and ſpace contiguous to the eyes are furniſhed with ſhort ſharp ſpines; the covers of the gills are terminated by exceeding long ones, which are both ſtrong and very ſharp pointed. The mouth is large; the jaws covered with very ſmall teeth; the roof of the mouth is furniſhed with a triangular ſpot of very minute teeth. This ſpecies is very frequent in the Newfoundland ſeas, where it is called *ſcolping*: it is alſo as common on the coaſt of Greenland, in deep water near the ſhore. It is a principal food of the natives, and the ſoup made of it is ſaid to be agreeable as well as wholeſome.

COTULA, may-weed: A genus of the polygamia ſuperflua order, belonging to the ſyngeneſia claſs of plants. The receptacle is almoſt naked; the pappus marginated; the florets of the diſc quadrifid; of the radius frequently none. There are ſix ſpecies, all of them herbaceous annuals, riſing ſix or eight inches high, and adorned with yellow flowers. There are none of them natives of Britain, and moſt of them require artificial heat.

Cotula, or *Cotyla* a liquid meaſure in uſe among the ancients.

Fannius ſays, the cotyla was the ſame thing with the hemina, which was half a ſextary.

> *At* cotylas, *quas ſi placeat, dixiſſe licebit*
> *Heminas recepit geminas extarias unus.*

Chorier obſerves, that the cotyla was uſed as a dry meaſure as well as a liquid one; from the authority of Thucydides, who in one place mentions two cotylæ of wine, and in another two cotylæ of bread.

COTURNIX, in ornithology. See Tetrao.

COTYLEDON, navel-wort; a genus of the pentagynia order, belonging to the decandria claſs of plants; and in the natural method ranking under the 13th order, *Succulentæ*. The calyx is quinquefid; the corolla monopetalous: there are five nectariferous ſcales at the baſe of the germen, and five capſules. There are eight ſpecies, moſt of them hardy ſucculent perennials; though ſome require to be kept in a ſtove, as being natives of warm climates. They riſe from half a foot to a yard and an half high, and are adorned with yellow flowers growing in umbels. They are eaſily propagated either by ſeed or cuttings of their branches.

COTYLEDONES, in anatomy, are certain glandular bodies, adhering to the chorion of ſome animals.

Cotyledones, in botany, the periſhable porous ſide-lobes of the ſeed, which involve, and for ſome time furniſh nouriſhment to the embryo plant. See Botany, p. 435.

COTYTTO, the goddeſs of all debauchery. Her feſtivals called *Cotyttia* were celebrated by the Athenians, Corinthians, Thracians, &c. during the night. Her prieſts were called *baptæ*, and nothing but debauchery

chery and wantonneſs prevailed at the celebration. A feſtival of the ſame name was obſerved in Sicily, where the votaries of the goddeſs carried about boughs hung with cakes and fruit, which it was lawful for any perſon to pluck off. It was a capital puniſhment to reveal whatever was ſeen or done at theſe ſacred feſtivals. It coſt Eupolis his life for an unſeaſonable reflection upon them. The goddeſs Cotytto is ſuppoſed to be the ſame as Proſerpine.

COUCH, in painting, denotes a lay, or impreſſion of colour, whether in oil or water, wherewith the painter covers his canvas, wall, wainſcot, or other matter to be painted.

The word is alſo uſed for a lay or impreſſion on any thing, to make it firm and conſiſtent, or to ſcreen it from the weather.

Paintings are covered with a couch of varniſh; a canvas to be painted muſt firſt have two couches of ſize, before the colours be laid; two or three couches of white lead are laid on wood, before the couch of gold be applied: the leather-gilders lay a couch of water and whites of eggs on the leather, before they apply the gold or ſilver leaf.

The gold wire-drawers alſo uſe the word *couch* for the gold or ſilver leaf wherewith they cover the maſs to be gilded or ſilvered, before they draw it through the iron that is to give it its proper thickneſs.

The gilders uſe couch for the quantity of gold or ſilver leaves applied on the metals in gilding or ſilvering. Each couch of gold is but one leaf, or two at moſt, and each of ſilver three to gild: if the gilding be hatched, there are required from eight to twelve couches; and only three or four if it be without hatching. To ſilver there are required from four to ten couches, according to the beauty of the work.

Couch-Graſs, in botany. See Triticum.

COUCHANT, in heraldry, is underſtood of a lion, or other beaſt, when lying down, but with his head raiſed; which diſtinguiſhes the poſture of couchant from dormant, wherein he is ſuppoſed quite ſtretched out and aſleep.

COUCHE, in heraldry, denotes any thing lying along: thus, chevron-couché, is a chevron lying ſideways, with the two ends on each ſide of the ſhield, which ſhould properly reſt on the baſe.

COUCHER, or Courcher, in Engliſh ſtatutes, is uſed for a factor, or one that continues in ſome place or country for traffic; as formerly in Gaſcoign, for the buying of wines. Anno 37. Edw. III. c. 16.

Coucher is alſo uſed for the general book in which any religious houſe or corporation regiſter their particular acts. Anno 3 and 4. Edw. VI. c. 10.

COUCHING *of a* Cataract, in ſurgery. See Surgery-*Index*.

COVE, a ſmall creek or bay, where boats and ſmall veſſels may ride at anchor, ſheltered from the wind and ſea.

COVENANT, in law, is the conſent and agreement of two or more perſons to do, or not to do, ſome act, or thing, contracted between them. Alſo it is the declaration the parties make, that they will ſtand to ſuch agreement, relating to lands or other things; and is created by deed in writing, ſealed and executed by the parties, otherwiſe it may be implied in the contract as incident thereto. And if the perſons do not perform their covenants, a writ or action of covenant is the remedy to recover damages for the breach of them.

Covenant, in eccleſiaſtical hiſtory, denotes a contract or convention agreed to by the Scotch in the year 1638, for maintaining their religion free from innovation. In 1581, the general aſſembly of Scotland drew up a confeſſion of faith, or national covenant, condemning epiſcopal government, under the name of *hierarchy*, which was ſigned by James I. and which he enjoined on all his ſubjects. It was again ſubſcribed in 1590 and 1596. The ſubſcription was renewed in 1638, and the ſubſcribers engaged by oath to maintain religion in the ſame ſtate as it was in 1580, and to reject all innovations introduced ſince that time. This oath annexed to the confeſſion of faith received the name of the *covenant;* as thoſe who ſubſcribed it were called *covenanters*.

Covenant, in theology, is much uſed in connection with other terms; as, 1 *The Covenant of Grace* is that which is made between God and thoſe who believe the goſpel, whereby they declare their ſubjection to him, and he declares his acceptance of them and favour to them. The goſpel is ſometimes denominated a *covenant of grace*, in oppoſition to the Moſaic law. 2. *Covenant of Redemption* denotes, a mutual ſtipulation, tacit or expreſs, between Chriſt and the Father, relating to the redemption of ſinners by him, previous to any act on Chriſt's part under the character of Mediator. 3. *Covenant of Works* ſignifies, in the language of ſome divines, any covenant whereby God requires perfect obedience from his creatures, in ſuch a manner as to make no expreſs proviſion for the pardon of offences to be committed againſt the precepts of it, on the repentance of ſuch ſuppoſed offenders, but pronounces a ſentence of death upon them; ſuch, they ſay, was the covenant made with Adam in a ſtate of innocence, and that made with Iſrael at Mount Sinai.

Solemn League and Covenant, was eſtabliſhed in the year 1643, and formed a bond of union between Scotland and England. It was ſworn and ſubſcribed by many in both nations; who hereby ſolemnly abjured popery and prelacy, and combined together for their mutual defence. It was approved by the parliament and aſſembly at Weſtminiſter, and ratified by the general aſſembly of Scotland in 1645. King Charles II. diſapproved of it when he ſurrendered himſelf to the Scots army in 1646: but in 1650 he declared his approbation both of this and the national covenant by a ſolemn oath; and in Auguſt of the ſame year, made a farther declaration at Dunfermline to the ſame purpoſe, which was alſo renewed on occaſion of his coronation at Scone in 1651. The covenant was ratified by parliament in this year, and the ſubſcription of it required by every member, without which the conſtitution of the parliament was declared null and void. It produced a ſeries of diſtractions in the ſubſequent hiſtory of that country, and was voted illegal by parliament, and proviſion made againſt it. Stat. 14. Car. II. c. 4.

Ark of the Covenant, in Jewiſh antiquity. See Ark.

COVENTRY, a town of Warwickſhire, in England, ſituated in W. Long. 1. 26. N. Lat. 52. 25. It is an ancient place, and is ſupppoſed to derive its name from a convent formerly ſituated here. Leofric, earl of Mercia, who rebuilt the religious houſe after it had been deſtroyed by the Danes, and was lord of the place about the year 1040, is ſaid, upon ſome provocation, to have loaded them with heavy taxes. Being importuned by his lady, Godiva, to remit them, he conſented, upon condition that ſhe ſhould ride naked through the town, which he little imagined ſhe would ever comply with. But he found himſelf miſtaken: for ſhe accepted the offer, and rode through the town with her long hair ſcattered all over her body; having firſt enjoined the citizens not to venture, on pain of death, to look out as ſhe paſſed. It is ſaid, however, that a certain taylor could not help peeping; and to this day there is an effigy of him at the window whence he looked. To commemorate this extraordinary tranſaction, and out of reſpect to the memory of their patroneſs, the citizens make a proceſſion every year, with the figure of a naked woman on horſeback. After Leofric's death, the earls of Cheſter became lords of the city, and granted it many privileges. At length it was annexed to the earldom of Cornwal; and growing conſiderable, had divers immunities and privileges conferred upon it by ſeveral kings; particularly that of a mayor and two bailiffs by Edward III.; and Henry VI. made it, in conjunction with ſome other towns and villages, a diſtinct county, independent of the county of Warwick. But afterwards Edward IV. for their diſloyalty, deprived them of their liberties, which were not reſtored till they had paid a fine of 500 merks. By a charter from James I. an alderman is allotted to each ward, with the powers of the juſtices of the peace within the city and its liberties. The walls were ordered to be demoliſhed at the reſtoration; and now nothing remains of them but the gates, which are very lofty. Coventry is noted for the two parliaments which were held in it; the one called the parliament of *Dunces*, and the other of *Devils*. The former was ſo called on account of the excluſion of the lawyers; and the attainders of the duke of York, the earls of Saliſbury, Warwick, and March, procured the other the epithet of *Devils*. The town-houſe of Coventry is much admired for its painted windows repreſenting ſeveral kings and others that have been benefactors to the city. The chief manufactures carried on here are temmies and ribbands.

Coventry ſends two members to parliament, and gives title of earl to an ancient family of the ſame name.—Coventry is a biſhop's ſee. The biſhopric is ſaid to have been founded by Oſwy king of Mercia, in the year 656 or 657; and although it hath a double name, yet, like Bath and Wells, it is a ſingle dioceſe. It was ſo extremely wealthy, that king Offa, by the favour of pope Adrian, conſtituted it an archiepiſcopal ſee; but this title was laid aſide on the death of that king. In 1075, Peter, the 34th biſhop, removed the ſee to Cheſter. In 1102, Robert de Limſey, his immediate ſucceſſor, removed it to Coventry; and Hugo Novant, the 41ſt biſhop, removed it back to Litchfield, but with great opppoſition from the monks of Coventry. The diſpute was finally ſettled in a manner nearly ſimilar to that which is mentioned between Bath and Wells. Here it was agreed that the biſhop ſhould be ſtyled from both places, and that Coventry ſhould have the precedence; that they ſhould choose the biſhop alternately; and that they ſhould both make one chapter to the biſhop, in which the prior of Coventry ſhould be the chief man. Matters continued thus till the Reformation, when the priory of Coventry being diſſolved by king Henry VIII. the ſtyle of the biſhop continued as before. But an act of parliament paſſed 33d of king Henry VIII. to make the dean and chapter of Litchfield one ſole chapter to the biſhop. This ſee hath given three ſaints to the church, and to the nation, one lord chancellor, three lord treaſurers, three preſidents of Wales, one chancellor to the univerſity of Cambridge, and one maſter of the Wardrobe. The old church built by king Oſwy being taken down by Roger de Clinton, the 37th biſhop, he built the beautiful fabric that now ſtands in 1148, and dedicated it to the Virgin Mary and St Chad. During the grand rebellion, the church ſuffered much; but, ſoon after the Reſtoration, it was repaired and beautified. This dioceſe contains the whole counties of Stafford and Derby (except two pariſhes of the former), the largeſt part of Warwickſhire, and near only one half of Shropſhire, in which are 555 pariſhes, of which 250 are impropriate. It hath four archdeaconries, viz. Stafford, Derby, Coventry, and Shrewſbury. It is valued in the king's books at L. 559 : 18 : $2\frac{3}{4}$, and is computed to be worth annually L. 2800. The clergy's tenth is L. 590 : 16 : $11\frac{1}{4}$. To this cathedral belong a biſhop, a dean, a precentor, a chancellor, a treaſurer, four archdeacons, twenty-ſeven prebendaries, five prieſt vicars, ſeven lay clerks, or ſinging men, eight choriſters, and other under officers and ſervants.

CO-VERSED SINE, in geometry, the remaining part of the diameter of a circle, after the verſed ſine is taken from it. See GEOMETRY.

COVERT, in law.—*Feme Covert* denotes a woman married, and ſo covered by, or under the protection of, her huſband.

Covert-way, or CORRIDOR, in fortification, a ſpace of ground, level with the field on the edge of the ditch, three or four fathoms broad, ranging quite round the half moons and other works towards the country. It has a parapet raiſed on a level, together with its banquets and glacis. See FORTIFICATION.

COVERTURE, in law, is applied to the ſtate and condition of a married women, who is under the power of her huſband, and therefore called *femme couvert*.

COUGH, in medicine. See (*Index* ſubjoined to) MEDICINE.

COUGH, in farriery. See FARRIERY, § vi.

COUGH, called the huſk, is a diſeaſe to which young bullocks are ſubject. In this diſorder the wind-pipe and its branches are loaded with ſmall taper worms. Farmers count the diſeaſe incurable; but fumigations with mercurials, as cinnabar, or with fœtids, as tobacco, might prove ſerviceable.

COUHAGE, or STINKING-BEANS; a kind of kidney-beans imported from the Eaſt Indies, where they are uſed as a cure for the dropſy. The down growing on the outſide of the pod is ſo pointed as, like a nettle, to ſting the fleſh, though not with ſo painful a ſenſation. This, by a corruption of the word, is called *cowitch*. The plant is a ſpecies of DOLICHOS.

COVIN, a deceitful compact or agreement between two or more to deceive or prejudice a third perſon;

As, if a tenant for life conſpire with another, that this other ſhall recover the land which the tenant holds, in prejudice of him in reverſion. Dr Skinner takes the word to be a corruption of the Latin *conventum*, and therefore writes it *coven*. See CONSPIRACY.

COVING, in building, is when houſes are built projecting over the ground plot, and the turned projecture arched with timber, lathed and plaſtered.

COVINUS, among the ancients, a kind of chariot, in which the Gauls and Britons uſed to fight in battles.

COUL, or COWL. See COWL.

COULTER, in huſbandry, and iron-inſtrument, fixed in the beam of a plough, and ſerving to cut the edge of each furrow. See AGRICULTURE.

COUNCIL, or COUNSEL, in a general ſenſe, an aſſembly of divers conſiderable perſons to concert meaſures relative to the ſtate.

In Britain, the law, in order to aſſiſt the king in the diſcharge of his duties, the maintenance of his dignity, and the exertion of his prerogative, hath aſſigned him a diverſity of councils to adviſe with.

1. The firſt of theſe is the high court of parliament. See PARLIAMENT.

2. The peers of the realm are by their birth hereditary counſellors of the crown; and may be called together by the king, to impart their advice in all matters of importance to the realm, either in time of parliament, or, which hath been their principal uſe, when there is no parliament in being. Accordingly, Bracton, ſpeaking of the nobility of his time, ſays, they might properly be called "conſules a conſulendo; reges enim tales ſibi aſſociant ad conſulendum." And in the law-books it is laid down, that the peers are created for two reaſons: 1. *Ad conſulendum*, 2. *Ad defendendum, regem:* for which reaſons the law gives them certain great and high privileges; ſuch as freedom from arreſts, &c. even when no parliament is ſitting; becauſe the law intends, that they are always aſſiſting the king with their counſel for the common-wealth, or keeping the realm in ſafety by their proweſs and valour.

Inſtances of conventions of the peers, to adviſe the king have been in former times very frequent; though now fallen into diſuſe, by reaſon of the more regular meetings of parliament. Sir Edward Coke gives us an extract of a record, 5 Henry IV. concerning an exchange of lands between the king and the earl of Northumberland, wherein the value of each was agreed to be ſettled by advice of parliament (if any ſhould be called before the feaſt of St Lucia), or otherwiſe by advice of the grand council of peers, which the king promiſes to aſſemble before the ſaid feaſt, in caſe no parliament ſhall be called. Many other inſtances of this kind of meeting are to be found under the ancient kings: though the formal method of convoking them had been ſo long left off, that when king Charles I. in 1640, iſſued out writs under the great ſeal, to call a council of all the peers of England, to meet and attend his majeſty at York, previous to the meeting of the long parliament, the earl of Clarendon mentions it as a new invention, not before heard of; that is, as he explains himſelf, ſo old, that it had not been practiſed in ſome hundreds of years. But though there had not for ſo long before been an inſtance, nor has there been any ſince, of aſſembling them in ſo ſolemn a manner, yet in caſes of emergency, princes have at ſeveral times thought proper to call for, and conſult as many of the nobility as could eaſily be brought together: as was particularly the caſe with king James II. after the landing of the prince of Orange; and with the prince of Orange himſelf, before he called the convention parliament which afterwards called him to the throne.

Blackſt. Comment.

Beſides this general meeting, it is uſually looked upon to be the right of each particular peer of the realm, to demand an audience of the king, and to lay before him with decency and reſpect ſuch matters as he ſhall judge of importance to the public weal. And therefore, in the reign of Edward II. it was made an article of impeachment in parliament againſt the two Hugh Spencers, father and ſon, for which they were baniſhed the kingdom, "that they by their evil covin would not ſuffer the great men of the realm, the king's good counſellors, to ſpeak with the king, or to come near him; but only in preſence and hearing of ſaid Hugh the father and Hugh the ſon, or one of them, and at their will, and according to ſuch things as pleaſed them."

3. A third council belonging to the king, are, according to Sir Edward Coke, his judges of the courts of law, for law-matters. And this appears frequently in the Engliſh ſtatutes, particularly 14 Edward III. c. 5. and in other books of law. So that when the king's council is mentioned generally, it muſt be defined, particularized, and underſtood, *ſecundum ſubjectam materiem*; "according to the ſubject matter:" and if the ſubject be of a legal nature, then by the king's council is underſtood his council for matters of law; namely, his judges. Therefore, when by ſtatute 16 Richard II. c. 5. it was made a high offence to import into England any papal bulls, or other proceſſes from Rome; and it was enacted, that the offenders ſhould be attached by their bodies, and brought before the king and his council to anſwer for ſuch offence; here, by the expreſſion of king's *council*, were underſtood the king's judges of his courts of juſtice, the ſubject-matter being legal: this being the general way of interpreting the word *council*.

4. But the principal council belonging to the king is his *privy council*, which is generally, by way of eminence, called *the Council*. For an account of its conſtitution and powers, ſee the article *PRIVY-Council*.

Aulic COUNCIL. See AULIC.

Common COUNCIL, in the city of London, is a court wherein are made all bye-laws which bind the citizens. It conſiſts, like the parliament, of two houſes; an upper compoſed of the lord mayor and aldermen; and a lower, of a number of common-council men, choſen by the ſeveral wards, as repreſentatives of the body of the citizens.

COUNCIL *of War*, an aſſembly of the principal officers of an army or fleet, occaſionally called by the general or admiral to concert meaſures for their conduct with regard to ſieges, retreats, engagements, &c.

COUNCIL, in church hiſtory, an aſſembly of prelates and doctors, met for the regulating matters relating to the doctrine or diſcipline of the church.

National COUNCIL, is an aſſembly of prelates of a nation under their primate or patriarch.

Oecumenical or *General* COUNCIL, is an aſſembly which repreſents the whole body of the univerſal church. The Romaniſts reckon eighteen of them; Bullinger, in his treatiſe de Conciliis, ſix; Dr Prideaux, ſeven; and biſhop Beveridge has increaſed the number to eight, which, he ſays, are all the general councils which have ever been held ſince the time of the firſt Chriſtian emperor. They are as follows: 1. The council of Nice, held in the reign of Conſtantine the Great, on account of the hereſy of Arius. 2. The council of Conſtantinople, called under the reign and by the command of Theodoſius the Great, for much the ſame end that the former council was ſummoned. 3. The council of Epheſus, convened by Theodoſius the younger at the ſuit of Neſtorius. 4. The council of Calcedon, held in the reign of Martianus, which approved of the Eutychian hereſy. 5. The ſecond council of Conſtantinople, aſſembled by the emperor Juſtinian, condemned the three chapters taken out of the book of Theodorus of Mopſueſtia, having firſt decided that it was lawful to anathematize the dead. Some authors tell us, that they likewiſe condemned the ſeveral errors of Origen about the Trinity, the plurality of worlds, and pre-exiſtence of ſouls. 6. The third council of Conſtantinople, held by the command of Conſtantius Pogonatus the emperor, in which they received the definitions of the five firſt general councils, and particularly that againſt Origen and Theodorus of Mopſueſtia. 7. The ſecond Nicene council. 8. The fourth council of Conſtantinople, aſſembled when Louis II. was emperor of the Weſt. The regulations which they made are contained in twenty-ſeven canons, the heads of which are ſet down by M. du Pin, to whom the reader is referred.

COUNSEL, in a general ſenſe, ſignifies advice or inſtruction how to behave in any difficult matter.

Counsel, or *Advocates*, in Engliſh courts of law, are of two ſpecies or degrees; Barristers and Serjeants. See theſe articles; alſo Advocate.

From both theſe degrees ſome are uſually ſelected to be his majeſty's counſel, learned in the law; the two principal of whom are called his *attorney-general*, and *ſolicitor-general.* The firſt king's counſel, under the degree of ſerjeant, was Sir Frances Bacon, who was made ſo *honoris cauſa*, without either patent or fee: ſo that the firſt of the modern order (who are now the ſworn ſervants of the crown, with a ſtanding ſalary) ſeems to have been Sir Francis North, afterwards lord keeper of the Great Seal to King Charles II. Theſe king's counſel anſwer, in ſome degree, to the advocates of the revenue, *advocati fiſci*, among the Romans. For they muſt not be employed in any cauſe againſt the crown without ſpecial licenſe; in which reſtriction they agree with the advocates of the fiſc: but, in the imperial law, the prohibition was carried ſtill farther, and perhaps was more for the dignity of the ſovereign; for, excepting ſome peculiar cauſes, the fiſcal advocates were not permitted to be at all concerned in private ſuits between ſubject and ſubject. A cuſtom has of late years prevailed of granting letters patent of precedence to ſuch barriſters as the crown thinks proper to honour with that mark of diſtinction: whereby they are intitled to ſuch rank and preaudience as are aſſigned in their reſpective patents; ſometimes next after the king's attorney-general, but uſually next after his majeſty's counſel next being. Theſe, as well as the queen's attorney and ſolicitor-general, rank promiſcuouſly with the king's counſel; and, together with them, ſit within the bar of their reſpective courts: but receive no ſalaries, and are not ſworn; and therefore are at liberty to be retained in cauſes againſt the crown. And all other ſerjeants and barriſters indiſcriminately, (except in the court of common-pleas, where only ſerjeants are admitted), may take upon them the protection and defence of any ſuitors, whether plaintiff or defendent; who are therefore called their *clients*; like the dependents on the ancient Roman orators. Theſe indeed practiſed *gratis*, for honour merely, or at moſt for the ſake of gaining influence: and ſo likewiſe it is eſtabliſhed with us, that a counſel can maintain no action for his fees; which are given, not as *locatio vel conductio*, but as *quiddam honorarium*; not as a ſalary or hire, but as a mere gratuity, which a counſellor cannot demand without doing wrong to his reputation; as is alſo laid down with regard to advocates in the civil law, whoſe *honorarium* was directed, by a decree of the ſenate, not to exceed in any caſe 10,000 ſeſterces, or about L. 80 of Engliſh money. And in order to encourage due freedom of ſpeech in the lawful defence of their clients, and at the ſame time to check the unſeemly licentiouſneſs of proſtitute and illiberal men (a few of whom may ſometimes inſinuate themſelves even into the moſt honourable profeſſions), it hath been holden that a counſel is not anſwerable for any matter by him ſpoken, relative to the cauſe in hand, and ſuggeſted in the client's inſtructions; altho' it ſhould reflect upon the reputation of another, and even prove abſolutely groundleſs; but if he mentions an untruth of his own invention, or even upon inſtructions, if it be impertinent to the cauſe in hand, he is then liable to an action from the party injured. And counſel guilty of deceit and colluſion are puniſhable by the ſtatute Weſtm. 1. 3 Edw. I. c. 28. with impriſonment for a year and a day, and perpetual ſilence in the courts: a puniſhment ſtill ſometimes inflicted for groſs miſdemeanours in practice.

Blackſt. Comment.

COUNSELLOR, in general, a perſon who adviſes another: thus we ſay, a counſellor at law, a privy counſellor, &c.

Counsellor at Law, a perſon retained by a client to plead his cauſe in a public court of judicature. See Advocate, Barrister, Counsel, and Serjeant.

Privy-Counsellor. See *Privy-Council.*

COUNT, (Comes), a nobleman who poſſeſſes a domain erected into a county. See Viscount.

Engliſh and Scottiſh counts we diſtinguiſh by the title of *earls*; foreign ones ſtill retain their proper name. The dignity of a count is a medium between that of a duke and a barron.—According to the modern uſe, moſt plenipotentiaries and ambaſſadors aſſume the title of counts, though they have no county; as the count d'Avaux, &c.

Anciently, all generals, counſellors, judges, and ſecretaries of cities under Charlemagne, were called *counts*; the diſtinguiſhing character of a duke and count being this, that the latter had but one town under him but the former ſeveral.

A count has a right to bear on his arms a coronet, adorned with three precious ſtones, and ſurmounted with three large pearls, whereof thoſe in the middle and extremities of the coronet advance above the reſt.

Counts were originally lords of the court, or of the emperor's retinue, and had their name *comites, á comitando*, or *á commeando:* hence thoſe who were always in the palace, or at the emperor's ſide, were called *counts palatine*, or *comites á latere.* See PALATINE.

In the times of the commonwealth, *comites* among the Romans was a general name for all thoſe who accompanied the proconſuls and proprætors into the provinces, there to ſerve the commonwealth; as the tribunes, præfects, ſcribes, &c.

Under the emperors, *comites* were the officers of the palace. The origin of what we now call *counts* ſeems owing to Auguſtus, who took ſeveral ſenators to be his *comites*, as Dion obſerves, *i. e.* to accompany him in his voyages and travels, and to aſſiſt him in the hearing of cauſes; which were thus judged with the ſame authority as in full ſenate. Gallienus ſeems to have aboliſhed this council, by forbidding the ſenators being found in the armies: and none of his ſucceſſors re-eſtabliſhed it.

Theſe counſellors of the emperor were really counts, *comites, i. e.* companions of the prince; and they ſometimes took the title thereof, but always with the addition of the emperor's name whom they accompanied; ſo that it was rather a mark of their office than a title of dignity.—Conſtantine was the firſt who converted it into a dignity; and under him it was that the name was firſt given abſolutely. The name once eſtabliſhed, was in a little time indifferently conferred, not only on thoſe who followed the court, and accompanied the emperor, but alſo on moſt kinds of officers; a long liſt whereof is given us by Du Cange.

Euſebius tells us that Conſtantine divided the counts into three claſſes; the firſt bore the title of *illuſtres;* the ſecond that of *clariſſimi*, and afterwards *ſpectabiles;* the third were called *perfectiſſimi.* Of the two firſt claſſes was the ſenate compoſed; thoſe of the third had no place in the ſenate, but enjoyed ſeveral other of the privileges of ſenators.

There were counts who ſerved on land, others at ſea; ſome in a civil, ſome in a religious, and ſome in a legal capacity: as *comes ærarii, comes ſacrarum largitionum, comes ſacri conſiſtorii, comes curiæ, comes capellæ, comes archiatrorum, comes commerciorum, comes veſtiarius, comes horreorum, comes opſoniorum* or *annonæ, comes domeſticorum, comes equorum, regiorum* or *comes ſtabuli, comes domorum, comes excubitorum, comes notariorum, comes legum* or *profeſſor in jure, comes limitum* or *marcarum, comes portus Romæ, comes patrimonii*, &c.

The Francs, Germans, &c. paſſing into Gaul and Germany, did not aboliſh the form of the Roman government; and as the governors of cities and provinces were called *counts, comites*, and *dukes, duces*, they continued to be called ſo. They commanded in time of war; and in time of peace they adminiſtered juſtice. Thus, in the time of Charlemagne, counts were the ordinary judges and governors of the cities.

Theſe counts of cities were beneath the dukes and counts who preſided over provinces; the firſt being conſtituted in the particular cities under the Juriſdiction of the latter. The counts of provinces were in nothing inferior to dukes, who themſelves were only governors of provinces. Under the laſt of the ſecond race of French kings they got their dignity rendered hereditary, and even uſurped the ſovereignty when Hugh Capet came to the crown: his authority was not ſufficient to oppoſe their encroachments: and hence it is they date the privilege of wearing coronets in their arms; they aſſumed it then, as enjoying the rights of ſovereigns in their particular diſtricts or counties. But, by degrees, moſt of the counties became re-united to the crown.

The quality of count is now become very different from what it was anciently; being now no more than a title, which a king grants upon erecting a territory into a county, with a reſerve of juriſdiction and ſovereignty to himſelf. At firſt there was no clauſe in the patent of erection, intimating the reverſion of the county to the crown in default of heirs male; but Charles IX. to prevent their being too numerous, ordained that duchies and counties, in default of heirs male, ſhould return to the crown.

The point of precedence between counts and marquiſes has been formerly much controverted: the reaſon was, that there are counts who are peers of France, but no marquiſes: but the point is now given up, and marquiſes take place; though anciently, when counts were governors of provinces, they were on a level even with dukes.

William the Conqueror, as is obſerved by Camden, gave the dignity of counts in fee to his nobles; annexing it to this or that county or province, and allotting for their maintenance a certain proportion of money, ariſing from the prince's profits in the pleadings and forfeitures of the provinces. To this purpoſe he quotes an ancient record, thus: Hen. II. *Rex Angliæ his verbis comitem creavit; ſciatis nos feciſſe Hugonem Bigot comitem de Norf. &c. de tertio denarii de Norwich & Norfolk, ſicut aliquis comes Angliæ, &c.*

The Germans call a count, *graaf*, or *graff;* which, according to a modern critic, properly ſignifies *judge;* and is derived from *gravio* or *graffio*, of γραφω, *I write.* They have ſeveral kinds of theſe counts or graffs; as landgraves, marchgraves, burg-graves, and palſgraves, or counts palatine. Theſe laſt are of two kinds; the former are of the number of princes, and have the inveſtiture of a palatinate; the others have only the title of *count palatine* without the inveſtiture of any palatinate. Some aſſert, that by publicly profeſſing the imperial laws for twenty years, the perſon acquires the dignity of a count palatine; and there are inſtances of profeſſors in law who have aſſumed the title accordingly: but there are others who queſtion this right.

COUNT, in law, denotes the original declaration in a real action; as the declaration is in a perſonal one: the libellus of the civilians anſwers to both.—Yet, count and declaration are ſometimes confounded, and uſed for each other; as, count in debt, count in appeal, &c.

COUNT-Wheel, in the ſtriking part of a clock, a wheel which moves round once in 12 or 24 hours. It is ſometimes called the *locking-wheel.* See *CLOCK-Making.*

COUNTER, a term which enters into the compoſition of diverſe words of our language, and generally implies oppoſition; but when applied to deeds, means an exact copy kept of the contrary party, and ſometimes ſigned by both parties.

COUNTER-Changed, in heraldry, the intermixture, or oppoſition of any metal with a colour.

Counter-Flory, in heraldry, is ſaid of a treſſure whoſe flower-de-luce are oppoſite to others. See HERALDRY.

Counter-Drawing, in painting, is the copying a deſign, or painting, by means of a fine linen-cloth, an oiled paper, or other tranſparent matter, where the ſtrokes appearing through are followed with a pencil, with or without colour. Sometimes it is done on glaſs, and with frames or nets divided into ſquares with ſilk or with thread, and alſo by means of inſtruments invented for the purpoſe, as the parallelogram.

Counter-Ermine, in heraldry, is the contrary of ermine, being a black field with white ſpots.

COUNTERFEITS, in law, are perſons that obtain any money or goods by counterfeit letters or falſe tokens, who being convicted before juſtices of aſſize or of the peace, &c. are to ſuffer ſuch puniſhment as ſhall be thought fit to be inflicted under death, as impriſonments, pillory, &c.

COUNTER-FOIL, or COUNTER-STOCK, in the exchequer, that part of an ally which is kept by an officer of the court.

Counter-Guard, in fortification, is a work raiſed before the point of a baſtion, conſiſting of two long faces parallel to the faces of the baſtion, making a ſaliant angle: they are ſometimes of other ſhapes, or otherwiſe ſituated.

Counter-Light, or *Counter-jour*, a light oppoſite to any thing, which makes it appear to diſadvantage. A ſingle counter-light is ſufficient to take away all the beauty of a fine painting.

Counter-March, in military affairs, a change of the face or wings of a battalion, by which means thoſe that were in the front come to be in the rear. It alſo ſignifies returning, or marching back again.

Counter-Mine, in war, a well and gallery drove and ſunk till it meet the enemy's mine to prevent its effect.

Counter-Paled, in heraldry, is when the eſcutcheon is divided into twelve pales parted perfeſſe, the two colours being counter-changed; ſo that the upper are of one colour and the lower of another.

Counter-Part, in muſic, denotes one part to be applied to another. Thus the baſs is ſaid to be a counter-part to the treble.

Counter-Paſſant, in heraldry, is when two lions are in a coat of arms, and the one ſeems to go quite the contrary way from the other.

Counter-Point, in muſic: a term derived from the Latin prepoſition *contra* and the verb *pungere*; becauſe the muſical characters by which the notes in each part are ſignified are placed in ſuch a manner each with reſpect to each as to ſhow how the parts anſwer one another. See COMPOSITION.

Counter-Pointed (Contre-pointé), in heraldry, is when two chevrons in one eſcutcheon meet in the points, the one riſing as uſual from the baſe, and the other inverted falling from the chief; ſo that they are counter to one another in the points. They may alſo be counter-pointed when they are founded upon the ſides of the ſhield, and the points meet that way, called *counter-pointed* in *feſſe*.

COUNTERPOISE, in the manege, is the liberty of the action and ſeat of a horſe-man; ſo that in all the motions made by the horſe, he does not incline his body more to one ſide than to the other, but continues in the middle of the ſaddle, being equally on his ſtirrups, in order to give the horſe the proper and ſeaſonable aids.

COUNTER-POTENT *(Contre potencé)*, in heraldry, is reckoned a fur as well as vair and ermine; but compoſed of ſuch pieces as repreſent the tops of crutches, called in French *potences*, and in old Engliſh *potents*.

Counter-Proof, in rolling-preſs printing, a print taken off from another freſh printed; which by being paſſed through the preſs, gives the figure of the former, but inverted. To counter-prove, is alſo to paſs a deſign in black lead, or red chalk, through the preſs, after having moiſtened with a ſponge both that and the paper on which the counter-proof is to be taken.

Counter-Quartered (contre-ecartelé), in heraldry, denotes the eſcutcheon, after being quartered, to have each quarter again divided into two.

Counter-Saliant, is when two beaſts are borne in a coat leaping from each other directly the contrary way.

Counter-Scarp, in fortification, is properly the exterior talus or ſlop of the ditch; but it is often taken for the covered-way and the glacis. In this ſenſe we ſay, the enemy have lodged themſelves on the counterſcarp. Angle of the counter-ſcarp, is that made by two ſides of the counter-ſcarp meeting before the middle of the curtain.

Counter-Signing, the ſigning the writing of a ſuperior in quality of ſecretary. Thus charters are ſigned by the king, and counter-ſigned by a ſecretary of ſtate, or lord chancellor.

Counter-Time, in the manege, is the defence or reſiſtance of a horſe that interrupts his cadence, and the meaſure of his manege, occaſioned either by a bad horſeman or by the malice of the horſe.

COUNTER, is alſo the name of a counting-board in a ſhop, and of a piece of metal with a ſtamp on it, uſed in playing at cards.

Counter of a Horſe, that part of a horſe's forehand which lies between the ſhoulders and under the neck.

Counter in a Ship, are two. 1. The hollow arching from the gallery to the lower part of the ſtraight piece of the ſtern is called the *upper-counter*. 2. The lower counter is between the tranſom and the lower part of the gallery.

COUNTER, is alſo the name of two priſons in the city of London, viz. the Poultry and Woodſtreet.

COUNTORS, CONTOURS, or COUNTERS, has been uſed for ſerjeants at law, retained to defend a cauſe, or to ſpeak for their client in any court of law.

It is of thoſe Chaucer ſpeaks;

——A ſheriff had he been, and a contour,
Was no where ſuch a worthy vavaſour.

They were anciently called *ſerjeant contours*.

COUNTRIES, among the miners, a term or appellation they give to their works under ground.

COUNTRY, among geographers, is uſed indifferently to denote either a kingdom, province, or leſſer diſtrict. But its moſt frequent uſe is in contradiſtinction to town.

Country-Dance is of Engliſh origin, though now tranſplanted into almoſt all the countries and courts of

Europe. There is no eſtabliſhed rule for the compoſition of tunes to this dance, becauſe there is in muſic no kind of time whatever which may not be meaſured by the motions common in dancing; and there are few ſong tunes of any note within the laſt century, that have not been applied to country-dances.

COUNTY, in geography, originally ſignified the territory of a count or earl, but now it is uſed in the ſame ſenſe with ſhire; the one word coming from the French, the other from the Saxon.—In this view, a county is a circuit or portion of the realm: into fifty-two of which, the whole of England and Wales, is divided for its better government and the more eaſy adminiſtration of juſtice.

For the execution of the laws in the ſeveral counties, excepting Cumberland, Weſtmoreland, and Durham, every Michaelmas term officers are appointed, under the denomination of *ſheriffs*. Other officers of the ſeveral counties, are, a lord lieutenant, who has the command of the militia of the county; cuſtodes rotulorum, juſtices of peace, bailiffs, high-conſtable, and coroner.

Of the fifty-two counties, there are three of ſpecial note, which are therefore termed *counties palatine*, as Lancaſter, Cheſter, and Durham. See PALATINE.

County-Corporate, is a title given to ſeveral cities, or ancient boroughs on which Engliſh monarchs have thought fit to beſtow extraordinary privileges; annexing to them a particular territory, land, or juriſdiction; and making them counties of themſelves, to be governed by their own ſheriffs and magiſtrates.

County-Court, in Engliſh law, a court incident to the juriſdiction of the ſheriff. It is not a court of record, but may hold pleas of debt or damages under the value of 40 s. Over ſome of which cauſes theſe inferior courts have, by the expreſs words of the ſtatute of Glouceſter, a juriſdiction totally excluſive of the king's ſuperior courts. For in order to be intitled to ſue an action of treſpaſs for goods before the king's juſticiars, the plaintiff is directed to make affidavit that the cauſe of action does really and *bone fide* amount to 40 s. which affidavit is now unaccountably diſuſed, except in the court of exchequer. The ſtatute alſo 43 Eliz. c. 6. which gives the judges in many perſonal actions, where the jury aſſeſs leſs damages than 40 s. a power to certify the ſame and abridge the plaintiff of his full coſts, was alſo meant to prevent vexation by litigious plaintiffs; who, for purpoſes of mere oppreſſion, might be inclinable to inſtitute ſuch ſuits in the ſuperior courts for injuries of a trifling value. The county-court may alſo hold plea of many real actions, and of all perſonal actions to any amount, by virtue of a ſpecial writ called *juſticies*; which is a writ empowering the ſheriff for the ſake of diſpatch to do the ſame juſtice in his county-court, as might otherwiſe be had at Weſtminſter. The freeholders of the county are the real judges in this court, and the ſheriff is the miniſterial officer. The great conflux of freeholders, which are ſuppoſed always to attend at the county-court (which Spelman calls *forum plebeiæ juſtitiæ et theatrum comitivæ poteſtatis*), is the reaſon why all acts of parliament at the end of every ſeſſion were wont to be there publiſhed by the ſheriff; why all outlawries of abſconding offenders are there proclaimed; and why all popular elections which the freeholders are to make, as formerly of ſheriffs and conſervators of the peace, and ſtill of coroners, verderors, and knights of the ſhire, muſt ever be made *in pleno comitatu*, or in full county-court. By the ſtatute 2 Edw. VI. c. 25. no county-court ſhall be adjourned longer than for one month, conſiſting of 28 days. And this was alſo the ancient uſage, as appears from the laws of king Edward the elder: *prepoſitus* (that is, the ſheriff) *ad quartam circiter ſeptimanam frequentem populi concionem celebrato; cuique jus dicito; liteſque ſingulas dirimito*. In thoſe times the county court was a court of great dignity and ſplendour, the biſhop and the ealdorman (or earl), with the principal men of the ſhire, ſitting therein to adminiſter juſtice both in lay and eccleſiaſtical cauſes. But its dignity was much impaired, when the biſhop was prohibited, and the earl neglected to attend it. And, in modern times, as proceedings are removeable from hence into the king's ſuperior courts, by writ of *pone* or *recordare*, in the ſame manner as from hundred-courts and courts-baron; and as the ſame writ of falſe judgment may be had, in nature of a writ of error, this has occaſioned the ſame diſuſe of bringing actions therein.

COUPAR, the name of a town in Scotland, capital of the county of Fife, ſituated about 10 miles weſt of St Andrew's: W. Long. 2. 40. N. Lat. 56. 20.—*Coupar* is alſo the name of a village in the ſhire of Angus, inhabited chiefly by weavers in the linen trade.

COUPED, in heraldry, is uſed to expreſs the head, or any limb, of an animal, cut off from the trunk, ſmooth; diſtinguiſhing it from that which is called *eraſed*, that is, forcibly torn off, and therefore is ragged and uneven.

COUPED, is alſo uſed to ſignify ſuch croſſes, bars, bends, chevrons, &c. as do not touch the ſides of the eſcutcheon, but are, as it were, cut off from them.

COUPEE, a motion in dancing, wherein one leg is a little bent, and ſuſpended from the ground; and with the other a motion is made forwards.

The word in the original French ſignifies a *cut*.

COUPLE-CLOSS, in heraldry, the fourth part of a chevron, never borne but in pairs, except there be a chevron between them, ſaith Guillim, though Bloom gives an inſtance to the contrary.

COUPLET, a diviſion of a hymn, ode, ſong, &c. wherein an equal number, or equal meaſure, of verſes, is found in each part; which diviſions, in odes, are called *ſtrophes*.—Couplet, by an abuſe of the word, is frequently made to ſignify a couple of verſes.

COURAGE, in ethics, is that quality of the mind, derived either from conſtitution or principle, or both, that enables men to encounter difficulties and dangers. See FORTITUDE.

COURANT, a French term ſynonymous with *current*, and properly ſignifies running. See CURRENT.

COURANT, is alſo a term in muſic and dancing; being uſed to expreſs both the tune or air and the dance. With regard to the firſt, *courant*, or *currant*, is a piece of muſic in triple time: the air of the courant is ordinarily noted in triples of minims; the parts to be repeated twice. It begins and ends when he who beats the meaſure falls his hand; in contradiſtinction from the ſaraband, which ordinarily ends when the hand is raiſed. With regard to dancing, the courant was long the moſt common of all the dances practiſed in England: it conſiſts, eſſentially, of a time, a ſtep, a balance, and a coupee; though it alſo admits of other motions. Formerly they leaped their ſteps; in which point, the courant differed from the low dance and pavades. There are ſimple courants and figured courants, all danced by two perſons.

COURAP, the modern name for a diſtemper very common in Java and other parts of the Eaſt-Indies. It is a ſort of herpes or itch on the arm-pits, groins, breaſt, and face: the itching is almoſt perpetual; and the ſcratching is followed by great pain and a diſcharge of matter, which makes the linen ſtick ſo to the ſkin as not eaſily to be ſeparated without tearing off the cruſt. *Courap* is a general name for any ſort of itch; but this diſtemper is thus called by way of eminence. It is ſo contagious that few eſcape it. For the cure, gentle and repeated purging is uſed, and externally the ſublimate in a ſmall quantity is a good topic.

COURAYER (Peter Francis), a Roman Catholic clergyman, diſtinguiſhed by great moderation, charity, and temper, concerning religious affairs, as well as by learning, was born at Vernon in Normandy, 1681. While canon regular and librarian of the abbey of St Genevieve at Paris, he applied to archbiſhop Wake for the reſolution of ſome doubts, concerning the epiſcopal ſucceſſion in England, and the validity of their ordinations: he was encouraged to this by the friendly correſpondence which had paſſed between the archbiſhop and M. du Pin of the Sorbonne. The archbiſhop ſent him exact copies of the proper records; and on theſe he built his "Defence of Engliſh Ordinations," which was publiſhed in Holland, 1727. This expoſing him to a proſecution in his own country, he took refuge in England; where he was well received, and preſented the ſame year by the univerſity of Oxford with a doctor's degree. As it is ſomewhat uncommon for a Roman Catholic clergyman to be admitted to degrees in divinity by Proteſtant univerſities, the curious may be gratified with a ſight of the diploma, and the doctor's letter of thanks, in "The preſent State of the Republic of Letters, for June 1728. In 1736, he tranſlated into French, and publiſhed, "Father Paul's Hiſtory of the Council of Trent," in 2 vols. folio, and dedicated it to queen Caroline; who augmented to 200 l. a penſion of 100 l. a-year, which he had obtained before from the court. The learned Jer. Markland, in a letter to his friend Bowyer, September 1746, ſays, "Mr Clarke has given me F. Courayer's tranſlation of the Hiſtory of the Council of Trent; with whoſe preface I am ſo greatly pleaſed, that if he be no more a Papiſt in other tenets than he is in thoſe he mentions (which are many, and of the moſt diſtinguiſhed claſs), I dare ſay there are very few conſiderate Proteſtants who are not as good Catholics as he is." His works are many, and all in French: he tranſlated Sleidan's "Hiſtory of the Reformation." He died in 1776, after two days illneſs, at the age of 95; and was buried in the cloiſter of Weſtminſter-abbey. In his will, dated Feb. 3d 1774, he declares, that he "dies a member of the Catholic church, but without approving of many of the opinions and ſuperſtitions which have been introduced into the Romiſh church, and taught in their ſchools and ſeminaries; and which they have inſiſted on as articles of faith, though to him they appear to be not only not founded in truth, but alſo to be highly improbable." And his practice was conformable to this declaration; for at London he conſtantly went to maſs, and at Ealing in the country, whither he often retired, as conſtantly attended the ſervice of the pariſh church; declaring at all times, that he "had great ſatisfaction in the prayers of the church of England."

COURBARIL. See Hymenea.

COURIER, or Currier, (from the French *courir*, "to run,") a meſſenger ſent poſt, or expreſs, to carry diſpatches.

Antiquity, too, had its couriers. We meet with two kinds: 1. Thoſe who ran on foot, called by the Greeks *hemerodromi*, q. d. "couriers of a day." Pliny, Corn. Nepos, and Cæſar, mention ſome of theſe who would run 20, 30, 36, and in the circus even 40 leagues per day. 2. Riding couriers (*curſores equitantes*), who changed horſes, as the modern couriers do.

Xenophon attributes the firſt couriers to Cyrus. Herodotus ſays, they were very ordinary among the Perſians, and that there was nothing in the world more ſwift than theſe kind of meſſengers. "That prince (ſays Xenophon) examined how far a horſe would go in a day; and built ſtables, at ſuch diſtances from each other, where he lodged horſes, and perſons to take care of them, and at each place kept a perſon always ready to take the packet, mount a freſh horſe, and forward it to the next ſtage: and thus quite through his empire."

But it does not appear that either the Greeks or Romans had any regular fixed couriers till the time of Auguſtus: under that prince they travelled in cars; though it appears from Socrates they afterwards went on horſeback. Under the weſtern empire, they were called *viatores*; and under that of Conſtantinople, *curſores*; whence the modern name. See Post.

COURLAND, a duchy ſituated between E. Long. 21. 26. and between N. Lat. 56. 30. and 57. 30. It is bounded by the river Dwina, which divides it from Livonia, on the north; by Lithuania, on the eaſt; by Samogitia, on the ſouth; and by the Baltic ſea on the weſt; being 130 miles long and 30 broad. This duchy was formerly independent, and elected their own duke; but is now ſubject to Ruſſia.

COURSE (*route*), in navigation, the angle contained between the neareſt meridian and that point of the compaſs upon which a ſhip ſails in any particular direction.

Course, in architecture, denotes a continued range of ſtones, level, or of the ſame height, throughout the whole length of the building; and not interrupted by any aperture. It forms a parapet to the intermediate ſpace between the body of the building and the wings.

Course of Plinths, is the continuity of a plinth of ſtone or plaſter in the face of a building; to mark the ſeparation of the ſtories.

Course is alſo uſed for the time ordinarily ſpent in learning the principles of a ſcience, or the uſual points and queſtions therein. Thus, a ſtudent is ſaid to have finiſhed his courſe in the humanity, in philoſophy, &c.

Course is alſo uſed for the elements of an art exhibited and explained, either in writing or by actual experiment. Hence our courſes of philoſophy, anatomy, chemiſtry, mathematics, &c. probably ſo called as going throughout or running the whole length or courſe of the art, &c.

COURSES, a name by which the principal ſails of a ſhip are diſtinguiſhed, viz. the main-ſail, the fore-ſail, and the mizen: the mizen-ſtay-ſail and fore-ſail are alſo ſometimes comprehended in this denomination; as are the main-ſtay-ſails of all brigs and ſchooners. See Sail.

COURSING, among ſportſmen. There are three ſeveral ſorts of courſes with gre-hounds: 1. At the hare; 2. At the fox; and, 3. At the deer.

For the *deer*, there are two ſorts of courſes; the one in the paddock, the other either in the foreſt or the purlieu. For the paddock courſe, there muſt be the gre-hound and the terrier, and the mongrel gre-hound, whoſe buſineſs it is to drive away the deer before the gre-hounds are ſlipped; a brace or a leaſh are the uſual number ſlipped at a time, ſeldom at the utmoſt more than two brace. In courſing the deer in the foreſt or purlieu, there are two ways in uſe: the one is courſing from wood to wood; and the other, upon the lawns cloſe by the keeper's lodge. In the courſing from wood to wood, the way is to throw in ſome young hounds into the wood to bring out the deer, and if any deer come out that is not weighty, or a deer or antler which is buck, ſore, or ſorrel, then you are not to ſlip your gre-hounds, which are held at the end of the wood, where the keepers, who can gueſs very well on theſe occaſions, expect that the deer will come out. If a proper deer come out, and it is ſuſpected that the brace or leaſh of gre-hounds ſlipped after him will not be able to kill him, it is proper to way-lay him with a couple of freſh gre-hounds.

The courſing upon the lawn is the moſt agreeable of all other ways. When the keeper has notice of this, he will lodge a deer for the courſe; and then, by coming under the wind, the gre-hound may be brought near enough to be ſlipped for a fair courſe.

The beſt method of courſing the *hare*, is to go out and find a hare ſitting; which is eaſily done in the ſummer, by walking acroſs the lands, either ſtubble, fallow, or corn grounds, and caſting the eye up and down; for in ſummer they frequent thoſe places for fear of the ticks, which are common in the woods at that ſeaſon; and in autumn the rains falling from the trees offend them. The reſt of the year there is more trouble required; as the buſhes and thickets muſt be beat to rouſe them, and oftentimes they will lie ſo cloſs, that they will not ſtir till the pole almoſt touches them: the ſportſmen are always pleaſed with this, as it promiſes a good courſe. If a hare lies near any cloſe or covert, and with her head that way, it is always to be expected that ſhe will take to that immediately on being put up; all the company are therefore to ride up and put themſelves between her and the covert before ſhe is put up, that ſhe may take the other way, and run upon open ground. When a hare is put up, it is always proper to give her ground, or *law*, as it is called; that is, to let her run 12 ſcore yards, or thereabouts, before the gre-hounds are ſlipped at her; otherwiſe ſhe is killed too ſoon, the greater part of the ſport is thrown away, and the pleaſure of obſerving the ſeveral turnings and windings that the creature will make to get away is all loſt. A good ſportſman had rather ſee a hare ſave herſelf after a fair courſe, than ſee her murdered by the gre-hounds as ſoon as ſhe is up.

In courſing the *fox*, no other art is required, than ſtanding cloſe, and in a clear wind, on the outſide of ſome grove where it is expected he will come out; and when he is come out, he muſt have head enough allowed him, otherwiſe he will return back to the covert. The ſloweſt gre-hound will be able to overtake him, after all the odds of diſtance neceſſary; and the only danger is the ſpoiling the dog by the fox, which too frequently happens. For this reaſon, no gre-hound of any value ſhould be run at this courſe; but the ſtrong, hard, bitter dogs, that will ſeize any thing.

The laws of courſing eſtabliſhed by the duke of Norfolk, and other ſportſmen of the kingdom of England, are theſe:

1. He that is choſen fewterer or letter-looſe of the dogs, ſhall receive the gre-hounds matched to run together into his leaſh as ſoon as he comes into the field; he is to march next to the hare-finder, or him who is to ſtart the hare, until he come to the form; and no horſeman or footman is to go before or ſideways, but all ſtraight behind, for the ſpace of about 40 yards. 2. A Hare ought never to be courſed with more than a brace of gre-hounds. 3. The hare-finder is to give the hare three ſohoes before he puts her up from her form or ſet, to the end that the dogs may be prepared and attend her ſtarting. 4. If there be not a particular danger of loſing the hare, ſhe ſhould have about twelve ſcore yards law. 5. The dog that gives the firſt turn, if after that there be neither cote, ſlip, nor wrench, wins the wager. 6. A go-by, or bearing the hare, is accounted equivalent to two turns. 7. If neither dog turns the hare, he that leads to the laſt covert wins. 8. If any dog turns the hare, ſerves himſelf, and turns her again, it is as much as a cote, and a cote is eſteemed as much as two turns. 9. If all the courſe be equal, he that bears the hare ſhall win; and if he be not borne, the courſe ſhall then be judged *dead*. 10. If a dog take a fall in his courſe, and yet perform his part, he may challenge the advantage of a turn more than he gave. 11. If a dog turn the hare, ſerve himſelf, and give divers cotes, and yet in the end ſhall ſtand ſtill in the field, the other dog, if he turns home to the covert, although he gives no other, ſhall be adjudged to win the wager. 12. If by misfortune a dog be rid over in the courſe, that courſe ſhall be adjudged void, and he that did the miſchief is to make reparation to the owner. 13. If a dog gives the firſt and laſt turn, and there be no other advantage betwixt them, he that gives the odd turn wins. 14. A cote is when a gre-hound goes end ways by the ſide of his fellow, and gives the hare a turn. 15. A cote ſerves for two turns, and two trippings or jerkings for a cote; and if the hare turns not quite about, ſhe only *wrencketh*, in the ſportman's phraſe. 16. If there be no cotes given by either of the gre-hounds, but one ſerves the other at turning, then he that gives the moſt turns wins the wager. 17.

Sometimes a hare does not turn, but wrenches; for ſhe does not turn except ſhe turns as it were round. In theſe caſes, two wrenches ſtand for one turn. 18. He that comes in firſt at the death of the hare takes her up, and ſaves her from breaking; he cheriſhes the dogs, and cleanſes their mouths from the wool; he is adjuged to have the hare for his pains. 19. Finally, thoſe who are judges of the leaſh, muſt give their judgment before they depart out of the field, or elſe it is not to ſtand as valid.

COURT, an appendage to a houſe or habitation; conſiſting of a piece of ground incloſed with walls, but open upwards.

Court is alſo uſed for the palace or place where a king or ſovereign prince reſides.

Blackſt. Comment.

Court, in a law ſenſe is defined to be a place wherein juſtice is judicially admininſtered. And as, by our excellent conſtitution, the ſole executive power of the laws is inveſted in the perſon of the king, it will follow that all courts of juſtice, which are the medium by which he adminiſters the laws, are derived from the power of the crown. For whether created by act of parliament or letters patent, or ſubſiſting by preſcription (the only methods by which any court of judicature can exiſt), the king's conſent in the two former is expreſsly, and in the latter impliedly, given. In all theſe courts, the king is ſuppoſed in contemplation of law to be always preſent; but as that is in fact impoſſible, he is there repreſented by his judges, whoſe power is only an emanation of the royal prerogative.

For the more ſpeedy, univerſal, and impartial adminiſtration of juſtice between ſubject and ſubject, the law hath appointed a prodigious variety of courts, ſome with a more limited, others with a more extenſive juriſdiction: ſome conſtituted to inquire only, others to hear and determine: ſome to determine in the firſt inſtance, others upon appeal and by way of review. See Law, nº xcviii. xcix. c. cxli. clvi. clvii. clviii. and the reſpective articles in the order of the alphabet. One diſtinction may be here mentioned, that runs throughout them all; viz, that ſome of them are courts *of record*, others *not of record*. A court of record is that where the acts and judicial proceedings are enrolled in parchment for a perpetual memorial and teſtimony: which rolls are called the *records of the courts*, and are of ſuch high and ſupereminent authority, that their truth is not to be called in queſtion. For it is a ſettled rule and maxim, that nothing ſhall be averred againſt a record, nor ſhall any plea, or even proof, be admitted to the contrary. And if the exiſtence of a record be denied, it ſhall be tried by nothing but itſelf; that is, upon bare inſpection whether there be any ſuch record or no; elſe there would be no end of diſputes. But if there appear any miſtake of the clerk in making up ſuch record, the court will direct him to amend it. All courts of record are the king's courts, in right of his crown and royal dignity, and therefore no other court hath authority to fine or impriſon; ſo that the very erection of a new juriſdiction with power of fine or impriſonment, makes it inſtantly a court of record.—A court not of record is the court of a private man; whom the law will not intruſt with any diſcretionary power over the fortune or liberty of his fellow-ſubjects. Such are the courts baron incident to every manor, and other inferior juriſdictions: where the proceedings are not enrolled or recorded; but as well their exiſtence as the truth of the matters therein contained ſhall, if diſputed, be tried and determined by a jury. Theſe courts can hold no plea of matters cognizable by the common law, unleſs under the value of 40s.; nor of any forcible injury whatſoever, nor having any proceſs to arreſt the perſon of the defendant.

In every court there muſt be at leaſt three conſtituent parts, the *actor, reus*, and *judex*: the *actor*, or plaintiff, who complains of an injury done; the *reus*, or defendant, who is called upon to make ſatisfaction for it; and the *judex*, or judicial power, which is to examine the truth of the fact, to determine the law ariſing upon that fact, and, if any injury appears to have been done, to aſcertain and by its officers to apply the remedy. It is alſo uſual in the ſuperior courts to have attorneys, and advocates or counſel, as aſſiſtants. See Attorney and Counsel.

Court-Baron, in Engliſh law, a court incident to every manor in the kingdom, to be holden by the ſteward within the ſaid manor. This court-baron is of two natures; the one is a cuſtomary-court appertaining entirely to the copyholders, in which their eſtates are transferred by ſurrender and admittance, and other matters tranſacted relative to their tenures only. The other is a court of common law, and it is the court of the *barons*, by which name the freeholders were ſometimes anciently called: for that it is held before the freeholders who owe ſuit and ſervice to the manor, the ſteward being rather the regiſtrar than the judge. Theſe courts, though in their nature diſtinct, are equally confounded together. The court we are now conſidering, viz. the freeholder's court, was compoſed of the lord's tenants, who were the *pares* of each other, and were bound by their feodal tenure to aſſiſt their lord in the diſpenſation of domeſtic juſtice. This was formerly held every three weeks; and its moſt important buſineſs is to determine, by writ of right, all controverſies relating to the right of lands within the manor. It may alſo hold plea of any perſonal actions, of a debt, treſpaſs on the caſe, or the like, where the debt or damages do not amount to 40s. Which is the ſame ſum, or three marks, that bounded the juriſdiction of the ancient Gothic courts in their loweſt inſtance, or *fierding courts*, ſo called becauſe four were inſtituted within every ſuperior diſtrict or hundred. But the proceedings on a writ of right may be removed into the county-court by a precept from the ſheriff called a *tolt, quia tollit atque eximit cauſam e curia baronum*. And the proceedings in all other actions may be removed into the ſuperior courts by the king's writs of *pone*, or *accedas ad curiam*, according to the nature of the ſuit. After judgment given, a writ alſo of *falſe judgment* lies to the courts at Weſtminſter to rehear and review the cauſe, and not a writ of *error*; for this is not a court of record: and therefore, in ſome of theſe writs of removal, the firſt direction given is to cauſe the plaint to be recorded, *recordari facias loquelam*.

Court-Martial, a court appointed for the puniſhing offences in officers, ſoldiers, and ſailors, the powers of which are regulated by the mutiny-bill.

For other courts, ſee Admiralty, Arches, Bench,
County,

COUNTY, COMMON-*Pleas*, CHANCERY, ECCLESIASTICAL, DUCHY, FACULTY, REQUESTS, HUSTINGS, CHIVALRY, FOREST, STANNARY, STAR-*Chamber*, PREROGATIVE, UNIVERSITY, LEGATE, LEET, MAYOR, PIEPOUDRE, &c.

COURTESY, or CURTESY, *of England;* a certain tenure whereby a man marrying an heireſs ſeized of lands of fee ſimple, or fee-tail general, or ſeized as heir of the tail ſpecial, and getteth a child by her that cometh alive into the world, though both it and his wife die forthwith; yet, if ſhe were in poſſeſſion, he ſhall keep the land during his life, and is called *tenant per legem Angliæ*, "or tenant by the courteſy of England;" becauſe this privilege is not allowed in any country except Scotland, where it is called *curialitas Scotiæ*.

COURTESAN, a woman who proſtitutes herſelf for hire, eſpecially to people of ſuperior rank. Lais, the famous Theban courteſan, ſtands on record for requiring no leſs than 10,000 crowns for a ſingle night. Of all places in the world, Venice is that where courteſans abound the moſt. It is now 300 years ſince the ſenate, which had expelled them, was obliged to recal them; in order to provide for the ſecurity of women of honour, and to keep the nobles employed leſt they ſhould turn their heads to make innovations in the ſtate.

COURTRAY, a town of the Auſtrian Netherlands, ſituated on the river Lys, about 23 miles ſouth-weſt of Ghent, and 14 eaſt of Ypres. E. Long. 3. 10. N. Lat. 50. 48.

COUSIN, a term of relation between the children of brothers and ſiſters, who in the firſt generation are called *couſin-germans*, in the ſecond generation *ſecond-couſins, &c.* If ſprung from the relations of the father's ſide, they are denominated *paternal* couſins; if on the mother's, *maternal*.

The word is ordinarily derived from *conſanguineus;* though Menage brings it from *congenius*, or *congeneus*, q. d. *ex eodem genere*.

In the primitive times, it was allowed couſin-germans to marry, to prevent their making alliances in heathen families: but Theodoſius the Great prohibited it, under pain of death; on pretence that they were, in ſome ſort, brothers and ſiſters with regard to each other.

COUSIN (John), a celebrated French painter, who excelled in painting on glaſs. His picture of the Laſt Judgment, in the veſtry of the Minims of the Wood of Vincennes, is much admired. He was alſo a good ſculptor. He wrote ſeveral works on geometry and perſpective; and died after the year 1689.

COUSU, in heraldry, ſignifies a piece of another colour or metal placed in the ordinary, as if it were ſewed on, as the word imports. This is generally of colour upon colour, or metal upon metal, contrary to the general rule of heraldry.

COUTANCES, a port town of Normandy, and capital of Coutantin, in W. Long. 1. 32. Lat. 49. 10. This town, anciently called *Conſtantia* or *Coſedia*, is pleaſantly ſituated among meadows and rivulets about ſix miles diſtant from the ſea. By the remains of a Roman aqueduct, and other ancient ruins, it appears to be a place of great antiquity. It is the ſee of a biſhop ſuffragan of Rome; and has a manificent cathedral, eſteemed one of the fineſt pieces of Gothic architecture in Europe. The trade of this town is very inconſiderable, and the fortifications are quite demoliſhed. They have ſeveral religious houſes, and two parochial churches.

COUTHUTLAUGH, from the Saxon *couth*, "knowing," and *utlaugh*, "outlaw;" he that wittingly receives a man outlawed, and cheriſhes or conceals him: for which offence he was in ancient times ſubject to the ſame puniſhment with the outlaw himſelf.

COVERT, in heraldry, denotes ſomething like a piece of hanging, or a pavilion falling over the top of a chief or other ordinary, ſo as not to hide, but only to be a covering to it.

COW, in zoology. See BOS.

Cow-Burner. See BUPRESTIS.

Sea-Cow, in zoology. See TRICHECUS.

Cow-Itch, or *Couhage*, in botany. See COUHAGE, and DOLICHOS.

Cow's-Lip, in botany. See PRIMULA.

COWARD, in heraldry, a term given to a lion borne in an eſcutcheon with his tail doubled, or turned in between his legs.

COWEL (Dr John), a learned and eminent civilian, born about the year 1554. In 1607 he compiled a *Law Dictionary*, which gave great offence to Sir Edward Coke and the common lawyers: ſo that they firſt accuſed him to James I. as aſſerting that the king's prerogative was in ſome caſes limited; and when they failed in that attempt, they complained of him to the houſe of commons, as a betrayer of the rights of the people, by aſſerting that the king was not bound by the laws; for which he was committed to cuſtody and his book publicly burnt. He alſo publiſhed *Inſtitutiones Juris Anglicani*, in the manner of Juſtinian's Inſtitutes; and died of the operation for the ſtone, in 1611.

COWES, a town and harbour on the north-eaſt coaſt of the Iſle of Wight, in Hampſhire. It has no market, but is the beſt place for trade in the whole iſland; but as it lies low, the air is accounted unhealthy. It is eight miles ſouth-eaſt of Portſmouth. W. Long. 1. 25. N. Lat. 50. 45.

COWL, or COUL, a ſort of monkiſh habit worn by the Bernardines and Benedictines. The word is formed from *cucullus*, by confounding the two firſt ſyllables into one, as being the ſame twice repeated.—There are two kinds of cowls: the one white, very large, worn in ceremony, and when they aſſiſt at the office; the other black, worn on ordinary occaſions in the ſtreets, &c.

F. Mabillon maintains the coul to be the ſame thing in its origin with the ſcapular. The author of the apology of the Emperor Henry IV. diſtinguiſhes the forms of couls: the one a gown reaching to the feet, having ſleeves, and a capuchin, uſed in ceremonies; the other a kind of hood to work in, called alſo a *ſcapular*, becauſe it only covers the head and ſhoulders.

COWLEY (Abraham), an eminent poet, was born at London 1618. His father who was a grocer, dying before he was born, his mother procured him to be admitted a king's ſcholar at Weſtminiſter. His firſt inclination to poetry aroſe on his lighting on Spencer's Fairy Queen, when he was but juſt able to read: and this inclination ſo far improved in him, that at 13 he began to write ſeveral poems; a collection of which was publiſhed in 1613, when he was but 15. He has been repreſented as poſſeſſed of ſo bad a memory that his teachers could never bring him to retain the ordinary rules of grammar. But the fact was, as Dr Johnſon notices, not that he could not learn or retain the rules; but that being able to perform his exerciſes without them, he ſpared himſelf the labour. In 1636 he was elected a ſcholar of Trinity College, Cambridge, and removed to that univerſity. Here he went through all his exerciſes with a remarkable degree of reputation: and at the ſame time muſt have purſued his poetical turn with great eagerneſs, as it appears that the greateſt part of his poems were written before he left that univerſity. He had taken his degree of Maſter of Arts before 1643, when, in conſequence of the turbulence of the times, he, among others, was ejected from the college: whereupon, retiring to Oxford, he entered himſelf of St John's college: and that very year, under the denomination of a *ſcholar of Oxford*, publiſhed a ſatire called the Puritan and the Papiſt. It is apparent, however, that he did not remain very long at Oxford: for his zeal to the royal cauſe engaging him in the ſervice of the king, who was very ſenſible of his abilities, and by whom he was frequently employed, he attended his majeſty in many of his journeys and expeditions, and gained not only that prince's eſteem, but that of many other great perſonages, and in particular of Lord Falkland, one of the principal ſecretaries of ſtate.

During the heat of the civil war, he was ſettled in the Earl of St Alban's family; and when the queen-mother was obliged to retire into France, he accompanied her thither, laboured ſtrenuouſly in the affairs of the royal family, undertook ſeveral very dangerous journeys on their account, and was the principal inſtrument in maintaining an epiſtolary correſpondence between the king and queen, whoſe letters he cyphered and decyphered with his own hand. His poems intitled The Miſtreſs, were publiſhed at London in 1647: and his comedy called The Guardian, afterwards altered and publiſhed under the title of Cutter of Coleman-ſtreet, in 1650. In 1656 it was thought proper by thoſe on whom Mr Cowley depended that he ſhould come over into England, and, under pretence of privacy and retirement, ſhould give notice of the poſture of affairs in that nation. Upon his return he publiſhed a new edition of his poems, conſiſting of four parts; viz. I. Miſcellanies. II. The Miſtreſs, or Several Copies of Love-Verſes. III. Pindarique Odes, written in imitation of the Style and manner of Pindar. IV. Davideis, a ſacred Poem of the troubles of David, in four books.

Soon after his arrival, however, he was ſeized, in the ſearch after another gentleman of conſiderable note in the king's party; but although it was through miſtake that he was taken, yet when the republicans found all their attempts of every kind to bring him over to their party proved ineffectual, he was committed to a ſevere confinement, and it was even with conſiderable difficulty that he obtained his liberty; when venturing back to France, he remained there, in his former ſituation, till near the time of the king's return. During his ſtay in England he wrote his Two Books of Plants, publiſhed firſt in 1662; to which he afterwards added four books more; and all ſix, together with his other Latin poems, were printed at London in 1678. It appears by Mr Wood's *Faſti Oxonienſes*, that our poet was created doctor of phyſic at Oxford, December 2. 1657.

Soon after the reſtoration he became poſſeſſed of a very competent eſtate, through the favour of his principal friends the duke of Buckingham and the earl of St Alban's; and being now upwards of 40 years of age, he took up a reſolution to paſs the remainder of a life which had been a ſcene of tempeſt and tumult, in that ſituation which had ever been the object of his wiſhes, a ſtudious retirement. His eagerneſs to get out of the buſtle of a court and city made him leſs careful than he might have been in the choice of a healthful habitation in the country; by which means he found his ſolitude from the very beginning ſuit leſs with the conſtitution of his body than with his mind. His firſt rural reſidence was at Barn Elms, a place which, lying low, and being near a large river, was ſubject to a variety of breezes from land and water, and liable in the winter-time to great inconvenience from the dampneſs of the ſoil. The conſequence of this Mr Cowley too ſoon experienced, by being ſeized with a dangerous and lingering fever. On his recovery from this he removed to Chertſey, a ſituation not much more healthy, where he had not been long before he was ſeized with another conſuming diſeaſe. Having languiſhed under this for ſome months, he at length got the better of it, and ſeemed pretty well recovered from the bad ſymptoms; when one day in the heat of ſummer 1667, ſtaying too long in the fields to give ſome directions to his labourers, he caught a moſt violent cold, which was attended with a defluction and ſtoppage in his breaſt; and for want of timely care, by treating it as a common cold, and refuſing advice till it was paſt remedy, he departed this life on the 28th of July in that year, being the 49th of his age; and, on the 3d of Auguſt following, he was interred in Weſtminſter-abbey, near the aſhes of Chaucer and his beloved Spencer. He was a man of a very amiable character, as well as an admirable genius. King Chales II. on the news of his death, declared "that Mr Cowley had not left a better man behind him in England." A monument was erected to his memory by George Villiers duke of Buckingham in 1675.

Beſides the works already mentioned, Mr Cowley wrote, among other things, A propoſition for the Advancement of Experimental Philoſophy; A Diſcourſe by way of Viſion concerning the Government of Oliver Cromwell; and Several Diſcourſes by way of Eſſays in proſe and verſe. Mr Cowley had deſigned alſo a Diſcourſe concerning Style, and a Review of the Principles of the Primitive Chriſtian Church, but was prevented by death. A ſpurious piece, intitled The Iron Age, was publiſhed under Mr Cowley's name during his abſence; and, in Mr Dryden's Miſcellany Poems, we find A Poem on the Civil War, ſaid to be written by our author, but not extant in any edition of his works. An edition of his works was publiſhed by Dr Spratt, afterwards biſhop of Rocheſter, who alſo prefixed to it an account of the author's thor's life. The reverend editor mentions, as very excellent of their kind, Mr Cowley's Letters to his Friends; none of which, however, were publiſhed.

The moral character of Mr Cowley appears, from every account of it, to have been very excellent. "He is preſented by Dr Spratt (ſays Dr Johnſon) as the moſt amiable of mankind: and this poſthumous praiſe may be ſafely credited, as it has never been contradicted by envy or by faction.

As a poet, his merits have been variouſly eſtimated, Lord Clarendon has ſaid he made a flight above all men; Addiſon, in his account of the Engliſh poets, that he improved upon the Theban bard; the duke of Buckingham upon his tomb-ſtone, that he was the Engliſh Pindar, the Horace, the Virgil, the delight, the glory of his times. And with reſpect to the harſhneſs of his number, the eloquent ſpratt tells us, that if his verſes in ſome places ſeem not as ſoft and flowing as one would have them, it was his choice and not his fault.

"Such (ſays Mr Knox) is the applauſe laviſhed on a writer who is now ſeldom read. That he could ever be eſteemed as a Pindaric poet, is a curious literary phenomenon. He totally miſtook his own genius when he thought of imitating Pindar. He totally miſtook the genius of Pindar, when he thought his own incoherent ſentiments and numbers bore the leaſt reſemblance to the wild yet regular ſublimity of the Theban. He neglected even thoſe forms, the ſtrophe, antiſtrophe, and epode, which even imitative dullneſs can copy. Sublime imagery, vehement pathos, poetic fire, which conſtitute the eſſence of the Pindaric ode are incompatible with witty conceits, accurate antitheſes, and vulgar expreſſion. All theſe imply the coolneſs of deliberate compoſition, or the meanneſs of a little mind; both of them moſt repugnant to the truly Pindaric, in which all is rapturous and noble. Wit of any kind would be improperly diſplayed in ſuch compoſition; but to increaſe the abſurdity, the wit of Cowley is often falſe. That he had a taſte for Latin poetry, and wrote in it with elegance, the well known epitaph on himſelf, upon his retirement, and an admirable imitation of Horace, are full proofs. But ſurely his rhetorical biographer makes uſe of the figure hyperbole, when he affirms that Cowley has excelled the Romans themſelves. He was inferior to many a writer of leſs fame in the *Muſæ Anglicanæ*. But ſtill he had great merit; and I muſt confeſs I have read his Latin verſes with more pleaſure than any of his Engliſh can afford." *Eſſays*, vol. ii. p. 363—365.

To Cowley's compoſitions in proſe Mr Knox hath paid a very honourable teſtimony. He ſays, that in this department he is an elegant, a pleaſing, a judicious writer; and that it is to be much lamented that he did not devote a greater part of his time to a kind of writing which appeared natural to him, and in which he excelled.

Dr Joſeph Warton obſerves, that it is no caricature of Cowley to repreſent him as being poſſeſſed of a ſtrained affectation of ſtriving to be witty upon all occaſions. "It is painful (adds this excellent critic) to cenſure a writer of ſo amiable a mind, ſuch integrity of manners, and ſuch a ſweetneſs of temper. His fancy was brilliant, ſtrong, and ſprightly; but his taſte falſe and unclaſſical, even though he had much learning."

Dr Beattie has characteriſed Cowley in the following terms. "I know not whether any nation ever produced a more ſingular genius than Cowley. He abounds in tender thoughts, beautiful lines, and emphatical expreſſions. His wit is inexhauſtible, and his learning extenſive; but his taſte is generally barbarous, and ſeems to have been formed upon ſuch models as Donne, Martial, and the worſt parts of Ovid: nor is it poſſible to read his longer poems with pleaſure, while we retain any reliſh for the ſimplicity of ancient compoſition. If this author's ideas had been fewer, his conceits would have been leſs frequent; ſo that in one reſpect learning may be ſaid to have hurt his genius. Yet it does not appear that Greek and Latin did him any harm; for his imitations of Anacreon are almoſt the only parts of him that are now remembered or read. His Davideis, and his tranſlations of Pindar, are deſtitute of harmony, ſimplicity, and every other claſſical grace."

But the works of this celebrated poet have been no where ſo amply criticiſed as in his Life by Dr Johnſon. After a particular examination of the different pieces, the Doctor, in taking a general review of Cowley's poetry, obſerves, That "he wrote with abundant fertility, but negligent or unſkilful ſelection; with much thought, but with little imagery; that he is never pathetic, and rarely ſublime, but always either ingenious or learned, either acute or profound." Of his proſe he ſpeaks with great approbation. "No author (ſays he) ever kept his verſe and his proſe at a greater diſtance from each other. His thoughts are natural, and his ſtyle has a ſmooth and placid equability, which has never yet obtained its due commendation. Nothing is far-ſought or hard-laboured; but all is eaſy without feebleneſs, and familiar without groſſneſs." Upon the whole, he concludes as follows: "It may be affirmed, without any encomiaſtic fervour, that he brought to his poetic labours a mind replete with learning, and that his paſſages are embelliſhed with all the ornaments which books could ſupply; that he was the firſt who imparted to Engliſh numbers the enthuſiaſm of the greater ode and the gaiety of the leſs; that he was qualified for ſprightly ſallies and for lofty flights; that he was among thoſe who freed tranſlation from ſervility, and, inſtead of following his author at a diſtance, walked by his ſide; and that if he left verſification yet improvable, he left likewiſe from time to time ſuch ſpecimens of excellence as enabled ſucceeding poets to improve it."

So many of Cowley's productions being now eſteemed ſcarcely worthy of a peruſal, while others of them are diſtinguiſhed by their beauty, Dr Hurd (the preſent biſhop of Worceſter) thought proper to make a ſelection of them, which he publiſhed in 1772, under the title of Select Works of Mr Abraham Cowley, in two volumes; with a Preface and Notes by the Editor.

COX (Richard), a learned prelate, and principal pillar of the Reformation, was born at Whaddon in Buckinghamſhire, of low parentage, in the year 1499. From Eaton ſchool he obtained a ſcholarſhip in King's-college in Cambridge, of which he became a fellow in

1519;

1519: he was thence invited to Oxford by Cardinal Wolſey, and was there made one of the junior canons of Cardinal College. In 1525 he was incorporated bachelor; and the following year took the degree of maſter of arts in the ſame univerſity. In this ſituation he became remarkable for his learning and poetical abilities; but his attachment to the opinions of Luther rendered him hateful to his ſuperiors, who ſtripped him of his preferment, and threw him into priſon on a ſuſpicion of hereſy. Being, however, ſoon releaſed, he was choſen maſter of Eaton ſchool, which flouriſhed remarkably under his care. In 1537 he commenced doctor of divinity at Cambridge; in 1540 was made archdeacon of Ely; and the following year prebendary of that cathedral, on its being new founded by king Henry VIII. In 1546 he was made dean of Chriſt-church, Oxford. By the recommendation of Archbiſhop Cranmer and biſhop Goodrich, to the latter of whom he had been chaplain, he not only obtained the above preferments, but was choſen preceptor to Prince Edward; on whoſe acceſſion to the throne he became a favourite at court, was ſworn of the privy council, and made king's almoner. In 1547 he was elected chancellor of Oxford; in 1548 canon of Windſor; and the next year dean of Weſtminſter. About this time he was appointed one of the commiſſioners to viſit the univerſity of Oxford; in which office his zeal for reformation was ſo exceſſive, that he deſtroyed a number of curious and valuable books, for no better reaſon than becauſe they were written by Roman Catholics. On the acceſſion of Queen Mary he was ſtripped of all his preferments and committed to the Marſhalſea. He was, however, ſoon releaſed, and immediately left the kingdom. Having reſided ſome time at Straſburgh with his intimate friend Peter Martyr, on the death of Queen Mary he returned to England, and, with other divines, was appointed to reviſe the liturgy. He often preached before the queen; and in 1559 was preferred to the ſee of Ely, which he continued to enjoy upwards of 21 years. He was, however, no favourite with the queen: the reaſon aſſigned for which was, his zealous oppoſition to her retaining the crucifix and wax-candles on the altar of the royal chapel; alſo his ſtrenuous defence of the marriage of the clergy, which her majeſty always diſapproved. He died on the 22d of July 1581, aged 81. He was a man of conſiderable learning, a zealous and rigid bulwark of the church of England, and an implacable enemy both to Papiſts and Puritans. In a letter to Archbiſhop Parker, he adviſes him to proceed vigorouſly in reclaiming or *puniſhing* the Puritans, and not to be diſcouraged at the frown of thoſe court-favourites who protected them; aſſuring him that he might expect the bleſſing of God on his *pious* labours to free the church from their dangerous attempts, and to eſtabliſh uniformity.—This zealous reformer we find had not totally loſt ſight of the popiſh text, *compel them to come in:* but a ſtronger proof of his implacability and ſelf-importance appears in his letter to the lord treaſurer Burleigh, in which he warmly expoſtulates with the council for interpoſing in behalf of the Puritans, or meddling in affairs of the church, admoniſhing them to keep their own ſphere. Such language from a biſhop would make a modern privy council ſtare. His works are, 1. Two Latin Orations on the Diſpute between Dr Treſham and Peter Martyr, Lond. 1549, 4to. 2. Liturgy of the Church of England: in compiling, and afterwards correcting which, he was principally concerned. 3. The Lord's Prayer in verſe, commonly printed at the end of David's Pſalms by Sternhold and Hopkins. 4. Tranſlation of the four Goſpels, the Acts of the Apoſtles, and the Epiſtle to the Romans, in the new tranſlation of the Bible in the reign of Qeen Elizabeth. 5. Reſolutions of ſome queſtions concerning the Sacrament, in the Collections of records at the end of Burnet's Hiſtory of the Reformation. 6. Several Letters to the Queen and others, publiſhed in Strype's Annals of the Reformation. He is alſo ſaid to have been concerned in the declaration concerning the divine inſtitution of biſhops, and to have aſſiſted Lilye in his Grammar.

COXWOLD, a town in the North riding of Yorkſhire, 14 miles north of York. W. Long. 1. 10. N. Lat. 54. 16.

COYPEL (Anthony), an excellent French painter, born at Paris in 1661. Noel Coypel, his father being choſen by M. Colbert to be director of the academy at Rome, he took his ſon with him into Italy, where Anthony Coypel formed himſelf on the works of the greateſt maſters, and on his return to France was made firſt painter to the duke of Orleans. That prince employed him in painting the grand gallery of the royal palace, and allowed him a penſion. In 1714, he was director of the Academy of Painting and Sculpture. In 1715, he was made firſt painter to the French king, and was ennobled on account of his merit. He died in 1722. M. Coypel, his ſon alſo excelled in the ſame art.

COZENING; tricking, or defrauding. In law it denotes an offence where any thing is done deceitfully, whether belonging to contracts or not, which cannot be properly termed by any ſpecial name.

COZUMEL, an iſland near the weſtern coaſt of Jucatan, where Cortez landed and refreſhed his troops before entering upon the conqueſt of Mexico. W. Long. 89. 0. and N. Lat. 13. 0.

CRAB, in zoology. See CANCER.

CRAB's Claws, in the materia medica, are the tips of the claws of the common crab broken off at the verge of the back part, ſo much of the extremity of the claws only being allowed to be uſed in medicine as is tinged with this colour. The blackneſs, however, is only ſuperficial; they are of a greyiſh white within, and when levigated furniſh a tolerable white powder.

Crab's claws are of the number of the alkaline abſorbents, but they are ſuperior to the generality of them in ſome degree, as they are found on a chemical analyſis to contain a volatile urinous ſalt.

CRAB's Eyes, in pharmacy, are a ſtrong concretion in the head of the cray-fiſh. They are rounded on one ſide, and depreſſed and ſinuated on the other, conſiderably heavy, moderately hard, and without ſmell. We have them from Holland, Muſcovy, Poland, Denmark, Sweden, and many other places.

Crab's eyes are much uſed both in the ſhop-medicines and extemporaneous preſcriptions, being accounted not only abſorbent and drying, but alſo diſcuſſive and diuretic.

CRAB-Lice, a troubleſome kind of vermin, which ſtick ſo faſt with their claws to the ſkin as to render it difficult to diſlodge them. Being viewed with a glaſs they nearly reſemble the ſmall crab-fiſh; whence they obtained their popular name. They are alſo called *pluctulæ, morpiones, petolæ*, and *peſſolatæ*: they uſually infeſt the arm-pits and *pudenda*. They will be quickly deſtroyed, and drop off dead, upon the application of a rag wet with the milk of ſublimate. This ſort of vermin is reckoned to prognoſticate ſpeedy mortality to thoſe whom they abandon without being removed by medicine.

Crab, a ſort of wooden pillar, whoſe lower end, being let down through a ſhip's decks, reſts upon a ſocket like the capſtern; and having in its upper end three or four holes, at different heights, through the middle of it, one above another, into which long bars are thurſt, whoſe length is nearly equal to the breadth of the deck. It is employed to wind in the cable, or to purchaſe any other weighty matter which requires a great mechanical power. This differs from a capſtern, as not being furniſhed with a *drum-head*, and by having the bars to go entirely through it, reaching from one ſide of the deck to the other; whereas thoſe of the capſtern, which are ſuperior in number, reach only about eight inches or a foot into the drum-head, according to the ſize thereof. This machine is repreſented in Plate CXXVII. nº 4. See alſo Capstern.

Crab-Yaws, a name in Jamaica for a kind of ulcer on the ſoles of the feet, with hard callous lips, ſo hard that it is difficult to cut them. The *ungt. cærul. fort.* is their cure.

CRACATOA, the moſt ſoutherly of a cluſter of iſlands lying in the entrance of the ſtraits of Sunda in the Eaſt Indies. Its whole circumference does not exceed nine miles; and off its north-eaſtern extremity is a ſmall iſland forming a road, in which Captain Cook anchored when viſiting this iſland on his laſt voyage. On the ſouthern part of the ſmall iſland is a reef of rocks, within which is a tolerable ſhelter againſt all northerly winds, there being 27 fathoms water in the mid-channel, and 18 near the reef. Between the two iſlands there is a narrow paſſage for boats. The ſhore that conſtitutes the weſt ſide of the road runs in a north-weſterly direction, having a bank of coral running into the ſea for a little way, ſo that it is difficult for boats to land except at the time of high water; but the anchoring ground is very good and free from rocks. In the inland parts the ground is elevated, riſing on all ſides gradually from the ſea, and is entirely covered with wood, excepting a few ſpots which are cleared by the inhabitants for ſowing rice. The climate is reckoned very healthy in compariſon with the neighbouring countries, but is very thinly inhabited. There are abundance of turtle on the coral reefs, but other refreſhments are ſcarce, and ſold at an exorbitant price. Water is not plentiful: Captain Cook was obliged to ſupply himſelf from a ſmall ſpring oppoſite to the ſouthern extremity of the ſmall iſland abovementioned. To the ſouthward is a hot ſpring, whoſe waters are uſed as a bath by the inhabitants. The road where the Reſolution anchored lies in S. Lat. 8. 6. and by obſervation, in 105. 36. E. Long. by the time-keeper in 104. 48. The variation of the compaſs one degree W. On the full and change days it is high water at ſeven o'clock in the morning, and the tide riſes three feet two inches perpendicular.

CRACKOW, a city of Poland, ſituated in a palatinate of the ſame name, E. Long. 20. 16. N. Lat. 50. 8. It was formerly the capital of Poland, where the kings were elected and crowned, and was once almoſt the centre of the Poliſh dominions, but is now a frontier town; a proof how much the power of this republic has been contracted.

Crackow ſtands in an extenſive plain, watered by the Viſtula, which is broad but ſhallow: the city and its ſuburbs occupy a vaſt track of ground, but are ſo badly peopled, that they ſcarcely contain 16,000 inhabitants. The great ſquare in the middle of the town is very ſpacious, and has ſeveral well-built houſes, once richly furniſhed and well inhabited, but moſt of them now either untenanted or in a ſtate of melancholy decay. Many of the ſtreets are broad and handſome; but almoſt every building bears the moſt ſtriking marks of ruined grandeur; the churches alone ſeem to have preſerved their original ſplendor. The devaſtation of this unfortunate town was begun by the Swedes at the commencement of the preſent century, when it was beſieged and taken by Charles XII. but the miſchiefs it ſuffered from that ravager of the north were far leſs deſtructive than thoſe it experienced during the late dreadful commotions, when it underwent repeated ſieges, and was alternately in poſſeſſion of the Ruſſians and Confederates. The effects of cannon, grape, and muſket ſhot, are ſtill diſcernible on the walls and houſes. In a word, Crackow exhibits the remains of ancient magnificence, and looks like a great capital in ruins: from the number of fallen and falling houſes one would imagine it had lately been ſacked, and that the enemy had left it only yeſterday. The town is ſurrounded with high walls of brick, ſtrengthened by round and ſquare towers of whimſical ſhapes, in the ancient ſtyle of fortification: theſe walls were built by Venceſlaus king of Bohemia during the ſhort period in which he reigned over Poland.

The univerſity of Crackow was formerly, and not unjuſtly, called the mother of Poliſh literature, as it principally ſupplied the other ſeminaries with profeſſors and men of learning; but its luſtre has been greatly obſcured by the removal of the royal reſidence to Warſaw, and ſtill more by the late inteſtine convulſions. In this city the art of printing was firſt introduced into Poland by Haller; and one of the earlieſt books was the Conſtitutions and Statutes compiled by Caſimir the Great, and afterwards augmented by his ſucceſſors. The characters are Gothic, the ſame which were univerſally uſed at the invention of printing: the great initial letters are wanting, which ſhows that they were probably painted and afterwards worn away. The year in which this compilation was printed is not poſitively known; but its publication was certainly anterior to 1496, as it does not contain the ſtatutes paſſed by John Albert in that year. The moſt flouriſhing period of the univerſity was under Sigiſmond Auguſtus in the 16th century, when ſeveral of the German reformers fled from the perſecutions of the emperor Charles V. and found an aſylum in this city. They gave to the world ſeveral verſions of the ſacred writings,

tings, and other theological publications, which diffuſed the reformed religion over great part of Poland. The protection which Sigiſmond Auguſtus afforded to men of learning of all denominations, and the univerſal toleration which he extended to every ſect of Chriſtians, created a ſuſpicion that he was ſecretly inclined to the new church; and it was even reported that he intended to renounce the catholic faith, and publicly profeſs the reformed religion.

Towards the ſouthern part of the town, near the Viſtula, riſes a ſmall eminence or rock, upon the top of which is built the palace, ſurrounded with brick walls and old towers, which form a kind of citadel to the town. This palace owes its origin to Ladiſlaus Jaghellon; but little of the ancient ſtructure now appears, as the greateſt part was demoliſhed by Charles XII. in 1702, when he entered this town in triumph after the battle of Cliſſow. It has been ſince repaired: the remains of the old palace conſiſt of a few apartments, which are left in their ancient ſtate as they exiſted in the laſt century. This palace was formerly the reſidence of the kings of Poland, who, from the time of Ladiſlaus Loketec, have been crowned at Crackow. The Poliſh and German hiſtorians differ concerning the time when the title of king was firſt claimed by the ſovereigns of this country; but the moſt probable account is, according to Mr. Coxe, that in 1295 Premiſlaus aſſumed the regal title, and was inaugurated at Gneſna by the archbiſhop of that dioceſe. He was ſucceeded by Ladiſlaus Loketec, who offending the Poles by his capricious and tyrannical conduct, was depoſed before he was crowned; and Venceſlaus king of Bohemia, who had married Richſa daughter of Premiſlaus, being elected in his ſtead, was in 1300 conſecrated at Gneſna. Ladiſlaus, after flying from his country and undergoing a ſeries of calamitous adventures, was at length brought to a ſenſe of his miſconduct. Having regained the affection of his ſubjects, he was reſtored, in the lifetime of Venceſlaus, to part of his dominions; and he recovered them all upon the demiſe of that monarch in the year 1305: he governed, however, for ſome years without the title of king; but at length in 1320 was crowned at Crackow, to which place he transferred the ceremony of the coronation; and afterwards enacted, that for the future his ſucceſſors ſhould be inaugurated in the cathedral of this city.

Since that period all the ſovereigns have been conſecrated at Crackow, excepting the preſent king. Previous to his election a decree was iſſued by the diet of convocation, that the coronation ſhould be ſolemniſed for this turn at Warſaw, without prejudice in future to the antient right of Crackow; a proviſo calculated to ſatisfy the populace, but which will not probably prevent any future ſovereign from being crowned at Warſaw, now become the capital of Poland and the reſidence of its kings. The diadem and other regalia uſed at the coronation are ſtill kept in the palace of Crackow, under ſo many keys, and with ſuch care, that it was impoſſible to obtain a ſight of them.

Adjoining to the palace ſtands the cathedral, alſo within the walls of the citadel. Here all the ſovereigns, from the time of Ladiſlaus Loketec, have been interred, a few only excepted, viz. Louis and Ladiſlaus III. who were kings of Hungary as well as of Poland, and whoſe bodies were depoſited in Hungary; Alexander, who died and was buried at Vilna; Henry of Valois, interred in France; and the late monarch Auguſtus III. The ſepulchres of the kings of Poland are not diſtinguiſhed by any peculiar magnificence: their figures are carved in marble of no extraordinary workmanſhip, and ſome are without inſcriptions.

The biſhop of Crackow is the firſt in the kingdom, duke of Saveria, and very often a cardinal. His revenues are larger than thoſe of his metropolitan the archbiſhop of Gneſna, and are computed to amount to 40,000 dollars *per annum*.

CRADLE, a well known machine in which infants are rocked to ſleep.

It denotes alſo that part of the ſtock of a croſs-bow where the bullet is put.

Cradle, in ſurgery, a caſe in which a broken leg is laid after being ſet.

Cradle, in engraving, is the name of an inſtrument uſed in ſcraping mezzotintos and preparing the plate. It is formed of ſteel, reſembling a chiſſel with one ſloping ſide, upon which are cut hollow lines very near each other, and at equal diſtances. The acting part of this tool is made circular, and the corners are rounded. After being properly tempered, it muſt be ſharpened on the whetſtone. There are various ſizes of this inſtrument.

Cradle, among ſhipwrights, a frame placed under the bottom of a ſhip, in order to conduct her ſmoothly and ſteadily into the water when ſhe is going to be launched; at which time it ſupports her weight while ſhe ſlides down the deſcent or ſloping paſſage called *the ways*, which are for this purpoſe daubed with ſoap and tallow. See Plate CL.

CRAFT, a general name for all ſorts of veſſels employed to load or diſcharge merchant ſhips, or to carry alongſide or return the ſtores of men of war. Such are lighters, hoys, barges, prames, &c. See thoſe articles.

CRAKE, or Corn-crake. See Rallus.

CRAIL, or Careil, a parliament town of Scotland, ſituated on the ſea-coaſt of the county of Fife, about ſeven miles ſouth-eaſt of St Andrew's. W. Long. 2. 20. and N. Lat. 56. 17.

CRAMBE, Sea-cabbage, Sea-beach Kale, or Sea-colewort, in botany: A genus of the ſiliquoſa order, belonging to the tetradynamia claſs of plants; and in the natural method ranking under the 39th order, *Siliquoſæ*. The four longer filaments are forked at top, with an anthera only on one point of each; the fruit a dry, globoſe, and deciduous berry. There are three ſpecies, all of them herbaceous eſculents with perennial roots, producing annually large leaves reſembling thoſe of cabbage ſpreading on the ground, with ſtrong flower-ſtalks and yellowiſh flowers. Only one of the ſpecies is a native of Britain. It grows wild on the ſhores of many of the maritime counties of England, but is cultivated in many gardens as a choice eſculent; and the young robuſt ſhoots of its leaves and flower-ſtalks, as they iſſue forth from the earth after the manner of aſparagus ſhoots, are then in the greateſt perfection for uſe. At this period they appear white as if blanched, and when boiled eat exceeding ſweet and tender. Its principal ſeaſon for uſe is in April and May. This plant may alſo be employed in the pleaſure-ground as a flowering perennial, for the

Crameria || Cranium.

ſtalks divided into fine branchy heads of flowers. It is propagated by ſeeds ſown in any common light earth in autumn or ſpring, where the plants are to remain, which, when two years old, will produce ſhoots fit for uſe, will multiply exceedingly by the roots, and continue for many years.

CRAMERIA, in botany, a genus of the monogynia order, belonging to the tetrandria claſs of plants. There is no calyx; the corolla has four petals; the ſuperior nectary is trifid, the inferior biphyllous; the fruit is a dry, monoſpermous, and echinated berry.

CRAMOND, Over and Nether, two villages about four miles weſt of Edinburgh; of which only the laſt deſerves notice, as having been once a famous naval ſtation of the Romans. It is ſituated at the influx of the river Almon into the Forth. Three Roman roads meet at this place, which was called by them *Alaterva*, and whither they brought their grain for the ſupport of their troops. The village contains about 300 inhabitants. Here are the remains of a bath and ſudatory; and many altars, medals, &c. have been dug up.

CRAMP, a kind of numbneſs or convulſion, occaſioned by a thick viſcid vapour entering the membranes of the muſcles, which contracts or extends the neck, arms, legs, &c. with a voilent but tranſitory pain; being uſually driven off with friction alone. The word comes from the German *krampſe*, which ſignifies the ſame.

A glaſs of tar water, to be drank night and morning, has been recommended; and a rod of brimſtone, when held in the hand has given preſent relief.

Cramp-Fiſh, or *Torpedo*. See Raja.

Cramp-Iron, or *Cramps*, a piece of iron bent at each end, which ſerves to faſten together pieces of wood, ſtones, or other things.

CRAMPONEE, in heraldry, an epithet given to a croſs which has at each end a cramp or ſquare piece coming from it; that from the arm in chief towards the ſiniſter angle, that from the arm on that ſide downwards, that from the arm in baſe towards the dexter ſide, and that from the dexter arm upwards.

CRANAGE, the liberty of uſing a crane at a wharf, and alſo the money paid for drawing up wares out of a ſhip, &c. with a crane.

CRANE, in ornithology. See Ardea.

Crane, in mechanics, a machine uſed in building for raiſing large ſtones and other weights. See Mechanics.

Crane's-Bill, in botany. See Geranium.

Crane-Fly, in zoology, a ſpecies of Tipula.

CRANGANOR, a Dutch factory on the Malabar coaſt in the Eaſt Indies, ſeated in E. Long. 75. 5. N. Lat. 10. 0. See Cochin.

CRANIOLARIA, in botany: A genus of the angioſpermia order, belonging to the didynamia claſs of plants; and in the natural method ranking under the 40th order, *Perſonatæ*. The calyx of the flower is double, the under one tetraphyllous, the upper one a monophyllous ſpatha; the tube of the corolla very long; the capſule almoſt the ſame with that of the *martynia*; which ſee. There are two ſpecies, both natives of hot climates, and neither of them poſſeſſed of any remarkable property.

CRANIUM, in anatomy, an aſſemblage of ſeveral bones which cover and encloſe the brain and cerebellum, popularly called the *ſkull*. See Anatomy, nº 11. The word comes from the Greek κρανιον, of κρανος, *galea*, "helmet;" becauſe it ſerves to defend the brain like a head-piece. Pezron, again, derives κρανιον from the Celtic *cren*, becauſe of its roundneſs.

Crank || Cranmer.

CRANK, a contrivance in machines in manner of an elbow, only of a ſquare form, projecting out from an axis or ſpindle; and ſerving, by its rotation, to raiſe and fall the piſtons of engines for raiſing water or the like.

Crank, in ſea-language. A ſhip is ſaid to be *crank-ſided*, when, for want of a ſufficient quantity of ballaſt or cargo, ſhe cannot bear her ſails, or can bear but ſmall ſail, for fear of overſetting.—She is ſaid to be *crank by the ground*, when her floor is ſo narrow that ſhe cannot be brought on ground without danger.

Crank is alſo an iron brace which ſupports the lanthorns on the poop-quarters, &c.

CRANMER (Thomas), a celebrated archbiſhop, reformer, and martyr, was the ſon of Thomas Cranmer, Eſq; of Aſlacton in Nottinghamſhire, where our author was born in 1489. At the age of 14, he was admitted a ſtudent of Jeſus' College, Cambridge, of which he afterwards became fellow; but marrying the relation of an inn-keeper's wife, he loſt his fellowſhip and quitted the college. On the death of his wife he was re-admitted fellow of Jeſus' College. In 1523 he took the degree of doctor of divinity, and was made theological lecturer and examiner. The plague being at Cambridge, he retired to the houſe of a relation at Waltham Abbey, where, meeting with Fox the king's almoner, and Gardiner the ſecretary, he gave his opinion concerning King Henry's marriage with Catharine much to the ſatisfaction of his majeſty. This opinion was, that inſtead of diſputing about the validity of the King's marriage with Catharine, they ſhould reduce the matter to this ſimple queſtion, "Whether a man may marry his brother's wife or no?" When the King was told of it, he ſaid, "This fellow has got the right ſow by the ear." He then ſent for him to court, made him one of his chaplains, and ordered him to write a vindication of the divorce in agitation. This book having quieted the tender conſcience of the King, he was deſirous that all Europe ſhould be convinced of the illegality of his marriage with Queen Catharine; and for that purpoſe ſent Cranmer to France, Italy, and Germany, to diſpute the matter with the divines of thoſe countries. At Nuremberg Cranmer married a ſecond wife. Being returned to England, in March 1533 he was conſecrated archbiſhop of Canterbury; in May following he pronounced the ſentence of divorce between the King and Queen; and ſoon after married the amorous monarch to Ann Boleyn. Being now at the head of the church, he exerted himſelf in the buſineſs of the Reformation. The Bible was tranſlated into Engliſh, and monaſteries diſſolved principally by his means.

In 1536 the royal conſcience again required the aſſiſtance of our archbiſhop: in this year he divorced the King from Ann Boleyn. In 1537 he viſited his dioceſe, and endeavoured to aboliſh the ſuperſtitious obſervation of holidays. In 1539 he and ſome of the biſhops fell under the King's diſpleaſure, becauſe they could not be brought to give their conſent in parliament that the monaſteries ſhould be ſuppreſſed for the King's ſole uſe. He alſo ſtrenuouſly oppoſed the act for the ſix articles in the houſe of lords, ſpeaking three days againſt it; and upon the paſſing of that ſtatute ſent away his wife into Germany. In 1540 he was one of the commiſſioners for inſpecting into matters of religion, and explaining ſome of its chief doctrines. The reſult of their commiſſion was the book intitled A neceſſary Erudition of any Chriſtian Man. After Lord Cromwell's death (in whoſe behalf he had written to the King), he retired and lived in great privacy, meddling not at all with ſtate affairs. In 1541 he gave orders, purſuant to the King's directions, for taking away ſuperſtitious ſhrines; and, exchanging Biſhopſbourn for Bekeſbourn, united the latter to his dioceſe. In 1542 he procured the "Act for the advancement of true religion and the aboliſhment of the contrary," which moderated the rigour of the ſix articles. But the year following, ſome enemies preferring accuſations againſt him, he had like to have been ruined, had not the King interpoſed in his behalf. His majeſty continued afterwards to protect him from his enemies; and at his death appointed him one of the executors of his will, and one of the regents of the kingdom. In 1546 he crowned young Edward, during whoſe ſhort reign he promoted the reformation to the utmoſt of his power; and was particularly inſtrumental in compoſing, correcting, and eſtabliſhing the liturgy by act of parliament. He had alſo a ſhare in compiling the thirty-nine articles of religion.

In 1553 he oppoſed the new ſettlement of the crown upon Lady Jane Gray, and would no way be concerned in that affair (though at laſt, through many importunities, he was prevailed upon to ſet his hand to it): neither would he join in any of Dudley's ambitious projects. Upon Queen Mary's acceſſion to the throne, he was committed to the Tower; partly for ſetting his hand to the inſtrument of Lady Jane's ſucceſſion, and partly for the public offer he had made a little before of juſtifying openly the religious proceedings of the late king. Some of his friends, foreſeeing the ſtorm that was likely to fall upon him, adviſed him to fly, but he abſolutely refuſed. In the enſuing parliament, on November the 3d, he was attainted, and at Guildhall found guilty of high treaſon; whereupon the fruits of his archbiſhopric were ſequeſtered. In April 1554, he and Ridley and Latimer were removed to Oxford, in order for a public diſputation with the Papiſts; which was accordingly held there towards the middle of the month, with great noiſe, triumph, and impudent confidence on the Papiſts ſide, and with as much gravity, learning, modeſty; and convincing ſufficiency on the ſide of the Proteſtant biſhops. The 20th of April, two days after the end of theſe diſputations, Cranmer and the two others were brought before the commiſſioners, and aſked, Whether they would ſubſcribe (to Popery)? which they unanimouſly refuſing, were condemned as heretics. From this ſentence the archbiſhop appealed to the juſt judgment of the Almighty; and wrote to the council, giving them an account of the diſputation, and deſiring the Queen's pardon for his treaſon, which it ſeems was not yet remitted. By the convocation which met this year, his Defence of the true and catholic Doctrine of the Sacrament of the Body and Blood of our Saviour Chriſt was ordered to be burnt. Some of his friends petitioned the Queen in his behalf; putting her in mind how he had once preſerved her in her father's time by his earneſt interceſſions with him for her, ſo that ſhe had reaſon to believe he loved her, and would ſpeak the truth to her more than all the reſt of the clergy. All endeavours in his behalf, however, were ineffectual; and the Archbiſhop being degraded and moſt ignominiouſly treated, was at laſt flattered and terrified into an inſincere recantation and renunciation of the Proteſtant faith. But this triumph was not ſufficient to gratify the pious vengeance of the Romiſh Mary. On the 24th of Feb. 1556, a writ was ſigned for the burning of Cranmer; and on the 24th March, which was the fatal day, he was brought to St Mary's church, Cambridge, and placed on a kind of ſtage over againſt the pulpit, where Dr Cole provoſt of Eton was appointed to preach a ſermon on the occaſion. While Cole was haranguing, the unfortunate Cranmer expreſſed great inward confuſion; often lifting up his hands and eyes to heaven, and frequently pouring out floods of tears. At the end of the ſermon, when Cole deſired him to make an open profeſſion of his faith, as he had promiſed him he would, he firſt prayed in the moſt fervent manner; then made an exhortation to the people preſent, not to ſet their minds upon the world, to obey the King and Queen, to love each other, and to be charitable. After this he made a confeſſion of his faith, beginning with the creed, and concluding with theſe words: "And I believe every word and ſentence taught by our Saviour Jeſus Chriſt, his apoſtles, and prophets, in the Old and New Teſtament.—And now (added he) I come to the great thing that ſo much troubleth my conſcience more than any thing I ever did or ſaid in my whole life; and that is the ſetting abroad a writing contrary to the truth, which I here now renounce as things written with my hand contrary to the truth which I thought in my heart; and written for fear of death, and to ſave my life if it might be: that is, all ſuch bills and papers which I have written or ſigned with my hand ſince my degradation, wherein I have written many things untrue. And foraſmuch as my hand offended, writing contrary to my heart, my hand ſhall firſt be puniſhed; for, may I come to the fire, it ſhall be firſt burned. As for the pope, I refuſe him, as Chriſt's enemy and antichriſt, with all his falſe doctrine. And as for the ſacrament, I believe as I have taught in my book againſt the Biſhop of Wincheſter." Thunderſtruck as it were with this unexpected declaration, the enraged Popiſh crowd admoniſhed him not to diſſemble. "Ah! (replied he with tears), ſince I lived hitherto, I have been a hater of falſehood and a lover of ſimplicity, and never before this time have I diſſembled." Whereupon they pulled him off the ſtage with the utmoſt fury, and hurried him to the place of his martyrdom over againſt Baliol College; where he put off his clothes in haſte, and ſtanding in his ſhirt, and without ſhoes, was faſtened with a chain to the ſtake. Some preſſing him to agree to his former recantation, he anſwered, ſhowing his hand, "This is the hand that wrote it, and therefore it ſhall firſt ſuffer puniſhment." Fire being applied to him, he ſtretched out his right hand into the flame, and held it there unmoved (except that once with it he wiped his face) till it was conſumed; crying with a loud voice, "This hand hath offended;" and often repeating, "This unworthy

thy right hand." At laſt, the fire getting up, he ſoon expired, never ſtirring or crying out all the while; only keeping his eyes fixed to heaven; and repeating more than once, "Lord Jeſus receive my ſpirit." Such was the end of the renowned Thomas Cranmer, in the 67th year of his age.

It was noticed above, that after the paſſing of the act for the ſix articles, Archbiſhop Cranmer ſent his wife into Germany. But ſhe afterwards returned again to England; and Mr, Strype informs us, that "in the time of King Edward, when the marriage of the clergy was allowed, he brought her forth, and lived openly with her." Mr. Gilpin ſays, "he left behind him a widow and children; but as he always kept his family in obſcurity for prudential reaſons, we know little about them. They had been kindly provided for by Henry VIII; who, without any ſolicitation from the Primate himſelf, gave him a conſiderable grant from the Abbey of Walbeck in Nottinghamſhire, which his family enjoyed after his deceaſe. King Edward made ſome addition to his private fortune; and his heirs were reſtored in blood by an act of parliament in the reign of Elizabeth."

Archbiſhop Cranmer wrote a great number of books: many of them he publiſhed himſelf; and many of them ſtill remain in MSS. *viz.* two folio volumes in the king's library, ſeveral letters in the Cotton collection, &c.

Mr. Gilpin remarks, That "the character of the Archbiſhop hath been equally the ſubject of exaggerated praiſe and of undeſerved cenſure. The moſt indefenſible parts of the Archbiſhop's character are the readineſs with which he ſometimes concurred in the unjuſtifiable proceedings of Henry VIII. and the inſtances wherein he ſhowed himſelf to be actuated by intolerant principles.

"He firſt recommended himſelf to Henry by the zeal which he diſplayed in promoting the king's divorce from queen Catharine. As to this, it may be allowed, that Dr. Cranmer might think the marriage wrong: but though it poſſibly might be a point of conſcience with the King, it could however be none with him; and there was manifeſtly a difference between adviſing not to do a thing, and adviſing to undo it when already done, at leaſt in a matter of ſo diſputable a nature. On the other hand, to repudiate a woman with whom the King had cohabited near 20 years as his wife, and to illegitimate a daughter, bred up in the higheſt expectations, and now marriageable, were acts of ſuch cruelty, that it ſeems to indicate a want of feeling to be in any degree acceſſary to them. To this may be added, that the notoriety of the King's paſſion for Ann Boleyn, which all men believed to be, if not the firſt mover, at leaſt the principal ſpring of his pretended ſcruples, threw a very indelicate imputation on all who had any concern in the affair. No ſerious churchman, one would imagine, could be fond of the idea of adminiſtering to the King's paſſions. It is with concern, therefore, that we ſee a man of Dr Cranmer's integrity and ſimplicity of manners acting ſo much out of character as to compound an affair of this kind, if not with his conſcience, at leaſt with all delicacy of ſentiment; and to parade through Europe, in the quality of an ambaſſador, defending every where the King's *pious intentions*. But the cauſe (continues Mr. Gilpin) animated him. With the illegality of the King's marriage, he endeavoured virtually to eſtabliſh the inſufficiency of the pope's diſpenſation; and the latter was an argument ſo near his heart, that it ſeems to have added merit to the former. We cannot indeed account for his embarking ſo zealouſly in this buſineſs without ſuppoſing his principal motive was to free his country from the tyranny of Rome, to which this ſtep very evidently led. So deſirable an end would in ſome degree, he might imagine, ſanctify the means.

Of two of the inſtances of perſecution in which Archbiſhop Cranmer was concerned, Mr Gilpin gives the following account. "Joan Bocker and George Paris were accuſed, though at different times; one for denying the humanity of Chriſt, the other for denying his divinity. They were both tried and condemned to the ſtake; and the Archbiſhop not only conſented to theſe acts of blood, but even perſuaded the averſion of the young King into compliance. "Your majeſty muſt diſtinguiſh (ſaid he, informing his royal pupil's conſcience) between common opinions and ſuch as are the eſſential articles of faith. Theſe latter we muſt on no account ſuffer to be oppoſed." Mr Gilpin juſtly obſerves, that "nothing even plauſible can be ſuggeſted in defence of the Archbiſhop on this occaſion, except only that the ſpirit of Popery was not yet wholly repreſſed." Theſe inſtances of injuſtice and barbarity were indeed totally indefenſible, and a great diſgrace to Cranmer and to all who were concerned in them. It does not appear that he endeavoured to promote the death of Lambert; but, as Mr Gilpin obſerves, it were to be wiſhed he had rid his hands of the diſputation likewiſe. The public diſputation, in which Cranmer bore ſome part, proved the means of bringing Lambert to the ſtake.

One of the moſt honourable tranſactions of Archbiſhop Cranmer's life, was the firm ſtand that he made againſt the act of the ſix articles. This act was ſo ſtrongly ſupported by the King, that even the Proteſtants in parliament made little oppoſition to it. But Cranmer oppoſed it with great zeal and ſteadineſs. "The good Archbiſhop (ſays Mr Gilpin) never appeared in a more truly chriſtian light than on this occaſion. In the midſt of ſo general a defection (for there were numbers in the houſe who had hitherto ſhown great forwardneſs in reformation) he alone made a ſtand. Three days he maintained his ground, and baffled the arguments of all oppoſers. But argument was not their weapon, and the Archbiſhop ſaw himſelf obliged to ſink under ſuperior power. Henry ordered him to leave the houſe. The Primate refuſed: 'It was God's buſineſs (he ſaid), and not man's.' And when he could do no more, he boldly entered his proteſt. Such an inſtance of fortitude is ſufficient to wipe off many of thoſe courtly ſtains which have faſtened on his memory."

His behaviour in the caſe of the Duke of Norfolk was alſo entitled to great commendation. "The laſt act of this reign (ſays Mr Gilpin) was an act of blood, and gave the Archbiſhop a noble opportunity of ſhowing how well he had learned that great Chriſtian leſſon of forgiving an enemy. Almoſt without the ſhadow of juſtice, Henry had given directions to have the Duke of Norfolk attainted by an act of parliament. The King's mandate ſtood in lieu of guilt, and the bill paſſed the houſe with great eaſe. No man, except the Biſhop of Wincheſter, had been ſo great an enemy to the Archbiſhop as the Duke of Norfolk. He had always thwarted the Primate's meaſures, and oftener than once had practiſed againſt his life. How many would have ſeen with ſecret pleaſure the workings of Providence againſt ſo rancorous an enemy; ſatisfied in having themſelves no hand in his unjuſt fate! But the Archbiſhop ſaw the affair in another light: He ſaw it with horror; and although the King had in a particular manner intereſted himſelf in this buſineſs, the Primate oppoſed the bill with all his might; and when his oppoſition was vain, he left the houſe with indignation, and retired to Croydon."

He was indeed remarkable for the placability of his temper, and for ſhowing kindneſs to thoſe by whom he had been greatly injured. Hence it is mentioned in Shakeſpeare's Henry VIII. as a common ſaying concerning him:

> ————————" Do my Lord of Canterbury
> But one ſhrewd turn, and he's your friend for ever."

Archbiſhop Cranmer was a great friend and patron of learned foreigners who had been perſecuted for their attachment to the principles of the Reformation. Mr Gilpin ſays, "the ſuffering profeſſors of Proteſtantiſm, who were ſcattered in great numbers about the various countries of Europe, were always ſure of an aſylum with him. His palace at Lambeth might be called a ſeminary of learned men; the greater part of whom perſecution had driven from home. Here, among other celebrated reformers, Martyr, Bucer, Aleſs, Phage, found ſanctuary. Martyr, Bucer, and Phage were liberally penſioned by the Archbiſhop till he could otherwiſe provide for them. It was his wiſh to fix them in the two univerſities, where he hoped their great knowledge and ſpirit of inquiry would forward his deſigns of reſtoring learning; and he at length obtained profeſſorſhips for them all. Bucer and Phage were ſettled at Cambridge; where they only ſhowed what might have been expected from them, both dying within a few months after their arrival. But at Oxford Martyr acted a very conſpicuous part, and contributed to introduce among the ſtudents there a very liberal mode of thinking.

Of the learning of Archbiſhop Cranmer, Mr Gilpin remarks, that "it was chiefly confined to his profeſſion." He had applied himſelf in Cambridge to the ſtudy of the Greek and Hebrew languages; which, though eſteemed at that time as the mark of hereſy, appeared to him the only ſources of attaining a critical knowledge of the Scriptures. He had ſo accurately ſtudied canon law, that he was eſteemed the beſt canoniſt in England; and his reading in theology was ſo extenſive, and his collections from the fathers ſo very voluminous, that there were few points in which he was not actually informed, and in which he could not give the opinions of the ſeveral ages of the church from the times of the Apoſtles. He was a ſenſible writer, rather nervous than elegant. His writings were entirely confined to the great controverſy which then ſubſiſted, and contain the whole ſum of the theological learning of thoſe times. His library was filled with a very noble collection of books, and was open to all men of letters.

Mr Gilpin, after remarking that Archbiſhop Cranmer preached often wherever he viſited, ſays, "In his ſermons to the people he was very plain and inſtructive; inſiſting chiefly on the eſſentials of Chriſtianity. The ſubjects of his ſermons, for the moſt part, were from whence ſalvation is to be fetched, and on whom the confidence of man ought to lean. They inſiſted much on the doctrines of faith and works; and taught what the fruits of faith were, and what place was to be given to works: they inſtructed men in the duties they owed their neighbour, and that every one was our neighbour to whom we might any way do good; they declared what men ought to think of themſelves after they had done all; and, laſtly, what promiſes Chriſt hath made, and who they are to whom he will make them good. Thus he brought in the true preaching of the Goſpel, altogether different from the ordinary way of preaching in thoſe days; which was to treat concerning ſaints, to tell legendary tales of them, and to report miracles wrought for the confirmation of tranſubſtantiation and other Popiſh corruptions. And ſuch a heat of conviction accompanied his ſermons, that the people departed from them with minds poſſeſſed of a great hatred of vice, and burning with a deſire of virtue."

He was a great economiſt of his time. Mr Gilpin ſays, "he roſe commonly at five o'clock, and continued in his ſtudy till nine. Theſe early hours, he would ſay, were the only hours he could call his own. After breakfaſt he generally ſpent the remainder of the morning either in public or private buſineſs. His chapel-hour was eleven, and his dinner-hour twelve. After dinner he ſpent an hour either in converſation with his friends, in playing at cheſs, or in, what he liked better, overlooking a cheſs-board. He then retired again to his ſtudy till his chapel-bell rang at five. After prayers, he generally walked till ſix, which was in thoſe times the hour of ſupper. His evening meal was ſparing. Often he ate nothing; and when that was the caſe, it was his uſual cuſtom, as he ſat down to table, to draw on a pair of gloves; which was as much as to ſay, that his hands had nothing to do. After ſupper, he ſpent an hour in walking and another in his ſtudy, retiring to his bedchamber about nine. This was his uſual mode of living when he was moſt vacant, but very often his afternoons as well as his mornings were engaged in buſineſs. He generally, however, contrived, if poſſible, even in the buſieſt day, to devote ſome proportion of his time to his books beſides the morning. And Mr Fox tells us, he always accuſtomed himſelf to read and write in a ſtanding poſture; eſteeming conſtant ſitting very pernicious to a ſtudious man."

Mr Gilpin alſo obſerves, "that he was a very amiable maſter in his family, and admirably preſerved the difficult medium between indulgence and reſtraint. He had, according to the cuſtom of the times, a very numerous retinue, among whom the moſt exact order was obſerved. Every week the ſteward of his houſehold held a kind of court in the great hall of his palace; in which all family affairs were ſettled, ſervants wages were paid, complaints were heard, and faults examined. Delinquents were publicly rebuked, and after the third admonition diſcharged. His hoſpitality and charities were great and noble; equal to his ſtation, greater often than his abilities. A plentiful table was among the virtues of thoſe days. His was always bountifully covered. In an upper room was ſpread his own, where he ſeldom wanted company of the firſt diſtinction. Here a great many learned foreigners were daily entertained, and partook of his bounty. In his great hall a long table was plentifully covered every day for gueſts and ſtrangers of a lower rank; at the upper end of which were three ſmaller tables, deſigned for his own officers and inferior gentlemen. Among the other inſtances of the Archbiſhop's charity, we have one recorded which was truly noble. After the deſtruction of monaſteries, and before hoſpitals were erected, the nation ſaw no ſpecies of greater miſery than that of wounded and diſbanded ſoldiers. For the uſe of ſuch miſerable objects as were landed on the ſouthern coaſts of the iſland, the Archbiſhop fitted up his manor-houſe of Beckeſbarn in Kent. He formed it indeed into a complete hoſpital; appointing a phyſician, a ſurgeon, nurſes, and every thing proper, as well for food as phyſic. Nor did his charity ſtop here. Each man, on his recovery, was furniſhed with money to carry him home, in proportion to the diſtance of his abode."

To conclude with the character given by Mr Hume: "Archbiſhop Cranmer was undoubtedly a man of merit; poſſeſſed of learning and capacity; and adorned with candour, ſincerity, and beneficence, and all thoſe virtues which were fitted to render him uſeful and amiable in ſociety. His moral qualities procured him univerſal reſpect; and the courage of his martyrdom, though he fell ſhort of the rigid inflexibility obſerved in many, made him the hero of the Proteſtant party."

CRANNY, in glaſs-making, an iron inſtrument wherewith the necks of glaſſes are formed.

CRANTARA, among the antient Britons, was a ſort of military ſignal uſed for collecting the diſtant and ſcattered warriors to the ſtandard of their chief. A prince having immediate occaſion for the aſſiſtance of his followers to repel ſome ſudden invaſion or engage in ſome expedition, beſides ſtriking the ſhield and ſounding the horn to give warning to thoſe who were within hearing, he ſent the crantara, or a ſtick burnt at the end and dipped in the blood of a goat, by a ſwift meſſenger, to the neareſt hamlet, where he delivered it without ſaying one word but the name of the place of rendezvous. This crantara, which was well underſtood to denounce deſtruction by fire and ſword to all who did not obey this ſummons, was carried with great rapidity from village to village; and the prince in a little time found himſelf ſurrounded by all his warriors ready to obey his commands.

CRANTOR, a Greek philoſopher and poet, was born at Solos in Cilicia. He left his native country where he was admired; went to Athens, and there ſtudied with Polemon under Xenocrates. He was conſidered as one of the chief ſupporters of the Platonic ſect; and was the firſt who wrote commentaries upon Plato's works. He flouriſhed 270 years before Chriſt.

CRAPE, a light tranſparent ſtuff, in manner of gauze; made of raw ſilk gummed and twiſted on the mill; woven without croſſing, and much uſed in mourning.

Crapes are either craped, *i. e.* criſped, or ſmooth; the firſt double, expreſſing a cloſer mourning; the latter ſingle, uſed for that leſs deep. Note, White is reſerved for young people, or thoſe devoted to virginity. The ſilk deſtined for the firſt is more twiſted than that for the ſecond; it being the greater or leſs degree of twiſting, eſpecially of the wrap, which produces the criſping given when taken out of the loom, ſteeped in clear water, and rubbed with a piece of wax for the purpoſe.

Crapes are all dyed raw. The invention of this ſtuff came originally from Bologna: but the chief manufacture of it is ſaid to be at Lyons.

Hiſtory tells us, that St Bathilda, queen of France, made fine crape *(crepa)* of gold and ſilver, to lay over the body of St Eloy. The Bollandiſts own they cannot find what this *crepa* was. Binet ſays, it was a frame to cover the body of the ſaint: but others, with reaſon, take it to be a tranſparent ſtuff, through which the body might be ſeen; and that this was the *crepa* whence our word crape was formed.

CRAPULA, among phyſicians; a term for SURFEIT.

CRASHAW (Richard), who was in his lifetime honoured with the friendſhip of Cowley, and ſince his death by the praiſe of Mr Pope, who condeſcended both to read his poems and to borrow from them; was the ſon of William Craſhaw, an eminent divine, and educated at the Charter-houſe near London. He was then ſent to Pembroke hall in Cambridge, and was afterwards of Peter-houſe, where he was fellow; in both which colleges he was diſtinguiſhed for his Latin and Engliſh poetry. Afterwards he was ejected from his fellowſhip, together with many others, for denying the covenant in the time of the rebellion; and he changed his religion, being by catholic artifices perverted to the church of Rome; not *converted*, but rather, as Pope ſays, *outwitted*. He went to Paris, in hopes of recommending himſelf to ſome preferment there; but being a mere ſcholar, was incapable of executing the new plan he had formed. There he fell into great diſtreſs, which Cowley the poet hearing of in 1646, very kindly ſought him out, gave him all the aſſiſtance he could, and at laſt got him recommended to Henrietta Maria queen of England, then reſiding at Paris. Obtaining from her letters of recommendation, he travelled into Italy; and by virtue of thoſe letters became ſecretary to a cardinal at Rome, and at laſt one of the canons or chaplains of the rich church of our lady at Loretto, ſome miles diſtance from thence, where he died and was buried about 1650. Before he left England he wrote certain poems, entitled, *Steps to the Temple*; "becauſe (ſays Wood) he led his life in the temple of God, in St Mary's church near to his college. There, as we learn from the preface to theſe poems, he lodged under Tertullian's roof of angels. There he made his neſt more gladly than David's ſwallow near the houſe of God: where, like a primitive ſaint, he offered more prayers in the night than others uſually offer in the day. There he penned the ſaid poems called *Steps to the Temple for happy Souls to climb to Heaven by*. To the ſaid Steps are joined other poems called *The Delights of the Muſes*, wherein are ſeveral Latin poems; which, though of a mere human mixture, yet they are ſweet as they are innocent. He hath alſo written *Carmen Deo noſtro*, being hymns and other ſacred poems, addreſſed to the counteſs of Denbigh. He was excellent in five languages beſides his mother tongue, namely, Hebrew, Greek, Latin, Italian, and Spaniſh.

CRASIS (from κραγνυμι, *to mix*), the temper of the blood peculiar to every conſtitution.

CRASIS, in grammar, is a figure whereby two different letters are either contracted into one long letter or a diphthong. Such, *e. g.* is οφις for οφιας; αληθη for αληθεα, &c. τυχȣς, for τυχεος, &c. where ι and α are contracted into ι; ε and α into η; ε and ο into ȣ.

CRASSAMENTUM, in phyſic, the thick red or fibrous part of the blood, otherwiſe called *cruor*, in contradiſtinction to the ſerum or aqueous part.

CRASSULA, LESSER ORPHINE, OR LIVE-EVER: A genus of the pentagynia order, belonging to the pentandria claſs of plants; and in the natural method ranking under the 13th order, *Succulentæ*. The calyx is pentaphyllous; the petals five, with five nectariferous ſcales at the baſe of the germen, and five capſules. Their are 17 ſpecies, all of them natives of warm climates. Several of them are cultivated in this country, but require the aſſiſtance of artifical heat for their preſervation. They riſe from one foot to ſix or eight in height, and are ornamented with oblong, thick, ſucculent leaves, and funnel ſhaped pentapetalous flowers of a ſcarlet, white, or greeniſh colour. They are propagated by off-ſets or cuttings; and muſt be potted in light ſandy compoſt, retained in a ſunny part of the green-houſe all winter, and very ſparingly watered. In ſummer they may be placed in the full air in a ſheltered place, and in dry weather watered twice a-week.

CRASSUS (M. Licinius), a celebrated Roman, ſurnamed *Rich* on account of his opulence. At firſt he was very circumſcribed in his circumſtances, but by educating ſlaves and ſelling them at a high price he ſoon enriched himſelf. The cruelties of Cinna obliged him to leave Rome, and he retired to Spain, where he remained concealed for 8 months. After Cinna's death he paſſed into Africa, and thence to Italy, where he ſerved Sylla and ingratiated himſelf in his favour. When the Gladiators with Spartacus at their head had ſpread an univerſal alarm in Italy and defeated ſome of the Roman generals, Craſſus was ſent againſt them. A battle was fought, in which Craſſus ſlaughtered 12,000 of the ſlaves, and by this deciſive blow ſoon put an end to the war, and was honoured with an *ovatio* at his return. He was ſoon after made conſul with Pompey in the year of Rome 682, and in this high office he diſplayed his opulence by entertaining the populace at 10,000 tables. He was afterwards Cenſor, and formed the firſt triumvirate with Pompey and Cæſar. As his love of riches was more predominant than that of glory, Craſſus never imitated the ambitious conduct of his colleagues, but was ſatisfied with the province of Syria, which ſeemed to promiſe an inexhauſtible ſource of wealth. With hopes of enlarging his poſſeſſions he ſet off from Rome, though the omens proved unfavourable, and every thing ſeemed to threaten his ruin. He croſſed the Euphrates, and forgetful of the rich cities of Babylon and Seleucia, he haſtened to make himſelf maſter of Parthia. He was betrayed in his march by the delay of Artavaſdes, king of Armenia, and the perfidy of Ariamnes. He was met in a large plain by Surena the general of the forces of Orodes king of Parthia, and a battle was fought in which 20,000 Romans were killed and 10,000 taken priſoners. The darkneſs of the night favoured the eſcape of the reſt; and Craſſus, forced by the mutiny and turbulence of his ſoldiers, and the treachery of his guides, truſted himſelf to the general of the enemy on pretence of propoſing terms of accommodation, and he was killed. His head was cut off and ſent to Orodes, who poured melted gold down his throat, and inſulted his misfortunes. Though he has been called avaricious, yet he ſhowed himſelf always ready of lending money to his friends without intereſt. He was fond of philoſophy, and his knowledge of hiſtory was great and extenſive.

CRATÆGUS, WILD-SERVICE TREE, HAWTHORN, &c.: A genus of the digynia order, belonging to the icoſandria claſs of plants; and in the natural method ranking under the 36th order, *Pomaceæ*. The calyx is quinquefid; the petals five; the berry inferior, diſpermous. There are ten ſpecies, all of the tree and ſhrub kind, hardy and deciduous. Thoſe moſt valuable for economical and ornamental purpoſes in gardening are the following.

1. The oxycanthus, hawthorn, or white-thorn, grows naturally all over Europe. In the ſtate in which we are uſed to obſerve it, it is nothing better than a tall, uncouth, irregular ſhrub; but trained up as a ſtandard, it ſwells to a large timber ſize, with a tall ſtem and a full ſpreading head. The ſtandard hawthorn, whether we view its flowers in the ſpring, its foliage in the ſummer, or its fruit in the autumn and winter, is one of the moſt ornamental plants, ſtanding ſingly, that can be ſcattered over a park or lawn. Its uſes will be explained under the article HEDGES.

In order to propagate a quantity of quick, one method is generally practiſed; namely, firſt burying the haws, and taking them up to ſow the October following; though, ſays Hanbury, there is another way more preferable; namely, to prepare the beds and ſow the haws ſoon after they are gathered. Whoever purſues the former method, having gathered what quantity of haws will anſwer his purpoſe, ſhould in ſome bye-corner of the kitchen-garden or nurſery dig an hole or pit capacious enough to receive them; ſome of the earth which came out of the hole, after the haws are put in it, ſhould be laid upon them; and being thus carefully covered down, they may remain there till October. Then, having ground well dug, and cleared of the roots of all troubleſome weeds, and the mould being fit for working, the beds ſhould be made for the haws. Four feet is a very good width for theſe beds, as they may be eaſily reached over to be weeded; and if the alleys between be each one foot and a half wide, they will be of a good ſize. The beds being marked out with a line, ſufficient mould muſt be raked out to cover the haws an inch and an half deep. This being done, and the bottom of the beds being made level and even, the haws ſhould be ſown, and afterwards gently tapped down with the back of the ſpade; and then the fine mould, which had been raked out of the beds, muſt be thrown over them, covering them an inch and an half deep. In the ſpring the plants will come up, and in the ſummer following ſhould be kept clear of weeds; though it does ſometimes happen, that few of them will appear till the ſecond ſpring after ſowing. Sometimes the young

Cratægus.

young plants are planted out from the ſeed-beds at one, two, or three years old; but the beſt plants are obtained by tranſplanting them into freſh mould the firſt or ſecond year, letting them remain in the nurſery two or three years longer. The practice of the London nurſerymen is this: The ſtrongeſt of the ſeed-bed plants having been drawn at two or three years old for ſale, they clear the beds entirely by drawing the remaining weak underling plants, and tranſplanting them into freſh beds in this manner, which they call *bedding them:* The ground having been trenched, and the tips of the plants, as well as the lower fibres of their roots having been taken off with a ſharp knife, they ſtrain a line along one ſide of the bed; and by chopping with a ſpade by the ſide of the line, leave a clift or drill of a depth proportioned to the length of the plants to be laid in; and drawing the looſe mould ſomewhat towards them, leave the ſide of the drill next to the line with a ſmooth poliſhed face. Againſt this face the plants are ſet up, leaning towards the line, about three inches aſunder, leaving their heads about an inch above the mould, and placing their roots at ſuch a depth as to bury their ſtems from two to three inches deeper than they ſtood in the ſeed-bed. The looſe mould being returned and preſſed gently to the roots with the foot, the line is removed, and another row planted in the ſame manner about a foot from the firſt.

The common hawthorn ſports in the following varieties; The large ſcarlet hawthorn; the yellow hawthorn; the white hawthorn; the maple-leaved hawthorn; the double-bloſſomed hawthorn: the Glaſtonbury thorn. The large ſcarlet hawthorn is no more than a beautiful variety of the common haw. It is exceedingly large, oblong, perfectly ſmooth, and of a bright ſcarlet; and from the additional ſplendor it acquires by the berries, it is propagated to cauſe variety in plantations for obſervation and pleaſure. Yellow haw is a moſt exquiſite plant. The buds at their firſt coming out in the ſpring are of a fine yellow, and the fruit is of the colour of gold. The tree is a great bearer, and retains its fruit all winter, cauſing a delightful effect in plantations of any kind. It is a native of Virginia, is greatly admired, and no collection of hardy trees ſhould be without it. White haw is but a paltry tree compared with the former. It hardly ever grows to the height of the common hawthorn, is an indifferent bearer, and the fruit is ſmall and a very bad white. Maple-leaved hawthorn will grow to be near twenty feet high, and has very few thorns. The leaves are larger than the common hawthorn, reſemble thoſe of the maple, and are of a whitiſh-green colour. The flowers are produced in large bunches in June, and are ſucceeded by remarkable fruit, of a ſhining red, which looks beautiful in the winter. Double-bloſſomed hawthorn produces a full flower, and is one of the ſweeteſt ornaments in the ſpring. Nature ſeems to have peculiarly deſigned this ſort for the pleaſure-garden; for though it be the common hawthorn only with the flowers doubled, yet it may be kept down to what ſize the owner pleaſes; ſo that it is not only ſuitable for wilderneſs-quarters, ſhrubberies, and the like, but is alſo uſeful for ſmall gardens, where a tree or two only are admitted. Theſe beautiful double flowers come out

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in large bunches in May, and the tree is ſo good a bearer that it will often appear covered with them. Their colour at their firſt appearance is a delicate white: They afterwards die to a faint red colour, and are frequently ſucceeded by ſmall imperfect fruit. Glaſtonbury thorn differs in no reſpect from the common hawthorn, only that it ſometimes flowers in the winter. It is ſaid to have originally been the ſtaff of Joſeph of Arimathea, that noble counſellor who buried Chriſt. He, according to the tradition of the abbey of Glaſtonbury, attended by eleven companious, came over into Britain, and founded, in honour of the Bleſſed Virgin, the firſt Chriſtian church in that iſle. As a proof of his miſſion, he is ſaid to have ſtuck his ſtaff into the ground, which immediately ſhot forth and bloomed. This tree is ſaid to have bloſſomed on Chriſtmas-day ever ſince, and is univerſally diſtinguiſhed by the name of the *Glaſtonbury thorn.* Hanbury ſays, I have many plants that were originally propagated from this thorn: and they often flower in the winter, but there is no exact time of their flowering; for in fine ſeaſons they will ſometimes be in blow before Chriſtmas, ſometimes they afford their bloſſoms in February, and ſometimes it ſo happens that they will be out on Chriſtmas day.

2. The azarolus, or azarole thorn, is a native of Italy and the ſouth of France. It will grow to be fifteen or ſixteen feet high. The leaves are large, nearly trifid, ſerrated and obtuſe. The flowers are large, come out in May, and in the different varieties are ſucceeded by fruit of different ſize, ſhape, and reliſh. The principal varieties of this ſpecies are: The azarole with ſtrong thorns; the azarole with no thorns; the jagged leaved azarole; the oriental medlar.

3. The aria theophracti, called the *white leaf-tree,* is a native of moſt of the cold countries of Europe. It will grow to be more than twenty feet high. This tree is engaging at all times of the year, and catches the attention even in the winter; for then we ſee it ſtand, though naked of leaves, with a fine ſtrait ſtem, with ſmooth branches, ſpotted with white, at the end of which are the buds, ſwelled for the next year's ſhoot, giving the tree a bold and fine appearance. In the ſpring the leaves come out of courſe, and look delightfully, having their upper ſurface green and the lower white. Their figure is oval; they are unequally ſerrated, about three inches long, and half as wide. Several ſtrong nerves run from the mid-rib to the border, and they are placed alternately on the branches which appear as if powdered with the fineſt meal. The flowers are produced at the end of the branches in May; they are white, grow in large bunches, having meally footſtalks; and are ſucceeded by red berries, which will be ripe in autumn.

5. The terminalis, wild ſervice, or maple-leaved ſervice, is a large growing tree, native of England, Germany, Switzerland, and Burgundy. It will arrive to near fifty feet, and is worth propagating for the ſake of the timber, which is very white and hard. This tree grows naturally in ſeveral woods in England; and it is the fruit of this ſpecies that is tied in bunches and expoſed for ſale in the autumn: It is gathered in the woods, and by ſome perſons is much liked. The leaves in ſome degree reſemble thoſe of the maple-tree in ſhape; their upper ſurface is a fine green, their un-

der hoary; and they grow alternately on the branches. The flowers come out in May, exhibiting themſelves in large cluſters at the ends of the branches: They are white, and are ſucceeded by the aforeſaid eatable fruit, which when ripe is of a brown colour, and about the ſize of a large haw.

5. The coccinea, or Virginian azarole, is a native of Virginia and Canada. It will grow to be near twenty feet high. The ſtem is robuſt, and covered with a light-coloured bark. The branches are produced without order, are of a dark brown colour, and poſſeſſed of a few ſharp thorns. The leaves are ſpear-ſhaped, oval, ſmooth, and ſerrated; of a thickiſh conſiſtence, and often remain on the tree the greateſt part of the winter. Each ſeparate flower is large; but as few of them grow together, the umbels they form are rather ſmall. They come out in May, and are ſucceeded by large dark-red-coloured fruit, which ripens late in the autumn. The varieties of this ſpecies are: The pear-leaved thorn; the plum-leaved thorn with very long ſtrong ſpines and large fruit; the plum-leaved thorn with ſhort ſpines and ſmall fruit.

6. The crus galli, or cockſpur thorn, is a native of Virginia and Canada, and grows to about twenty feet high. It riſes with an upright ſtem, irregularly ſending forth branches, which are ſmooth, and of a browniſh colour, ſpotted thinly with ſmall white ſpots. It is armed with thorns that reſemble the ſpurs of cocks, which gained it the appellation of cockſpur thorn. In winter the leaf-buds appear large, turgid, and have a bold and pleaſant look among others of different appearances. In ſummer this tree is very delightful. The leaves are oval, angular, ſerrated, ſmooth, and bend backwards. They are about four inches long, and three and a half broad; have five or ſix pair of ſtrong nerves running from the mid rib to the border; and die to a browniſh-red colour in the autumn. The flowers are produced in very large umbels, making a noble ſhow in May; and are ſucceeded by large fruit of a bright red colour, which have a good effect in the winter. The principal varieties of this ſpecies are: The cockſpur hawthorn with many thorns; the cockſpur hawthorn with no thorns; the cockſpur with eatable fruit, "The latter was ſent me (ſays Hanbury) from America with that name, and I have raiſed ſome trees of the ſeed; but they have not yet produced any fruit, ſo that I cannot pretend to ſay how far it may be deſirable; though I have been informed it is reliſhed in America by ſome of the inhabitants there."

7. The tomentoſa, gooſeberry-leaved Virginia hawthorn, grows to about ſeven or eight feet high. The branches are ſlender, and cloſely ſet with ſharp thorns. The leaves are cuneiform, oval, ſerrated, and hairy underneath. The flowers are ſmall, and of a white colour: They are produced from the ſides of the branches about the end of May; and are ſucceeded by yellow fruit, which ripens late in autumn. There is a variety of this called the *Carolina Hawthorn*, which has longer and whiter leaves, larger flowers and fruit, and no thorns.

8. The viridis, or green-leaved Virginia hawthorn, has the ſtem and branches altogether deſtitute of thorns. The leaves are lanceolate, oval, nearly trilobate, ſerrated, ſmooth, and green on both ſides. The flowers are white, moderately large, come out the end of May, and are ſucceeded by a roundiſh fruit, which will be ripe late in the autumn.

The reſpective ſpecies are all propagated by ſowing of the ſeeds; and the varieties are continued by budding them upon ſtocks of the white thorn. This latter method is generally practiſed for all the ſorts; though when good ſeeds can be procured, the largeſt and moſt beautiful plants are raiſed that way. 1. In order to raiſe them from ſeeds, let theſe be ſown ſoon after they are ripe, in beds of freſh, light, rich earth. Let alleys be left between the beds, for the conveniency of weeding, and let the ſeeds be covered over with fine mould about an inch deep. The ſummer following the beds muſt be kept clean of weeds, and probably ſome few plants will appear: But this is not common in any of the ſorts; for they generally lie till the ſecond ſpring after ſowing before they come up. At the time they make their appearance they muſt be watered if the weather proves dry; and this ſhould be occaſionally repeated all ſummer. They ſhould alſo be conſtantly kept clean from weeds; and in the autumn the ſtrongeſt may be drawn out, and ſet in the nurſery-ground, a foot aſunder, in rows that are two feet diſtant from each other; while the weakeſt may remain until another year. During the time they are in the nurſery, the ground between the rows ſhould be dug every winter, and the weeds conſtantly hoed down in the ſummer; and this is all the trouble they will require until they are planted out for good, which may be in two, three, or more years, at the pleaſure of the owner, or according to the purpoſes for which they are wanted. 2. Theſe trees are eaſily propagated by budding alſo; they will all readily take on one another; but the uſual ſtocks are thoſe of the common hawthorn. In order to have theſe the beſt for the purpoſe, the haws ſhould be got from the largeſt trees, ſuch as have the feweſt thorns and largeſt leaves. After they are come up, and have ſtood one year in the ſeed-bed, the ſtrongeſt ſhould be planted out in the nurſery, a foot aſunder and two feet diſtant in the rows; and the ſecond ſummer after many of them will be fit for working. The end of July is the beſt time for this buſineſs; and cloudy weather, night and morning, are always preferable to the heat of the day. Having worked all the different ſorts into theſe ſtocks, they may be let alone until the latter end of September, when the baſs matting ſhould be taken off. In the winter the ground between the rows ſhould be dug, and in the ſpring the ſtock ſhould be headed about half a foot above the bud. The young ſhoots the ſtocks will always attempt to put out, ſhould be as conſtantly rubbed off; for theſe would in proportion ſtarve the bud and ſtop its progreſs. With this care ſeveral of the ſorts have been known to ſhoot ſix feet by the autumn; and as they will be liable to be blown out of their ſockets by the high winds which often happen in the ſummer, they ſhould be ſlightly tied to the top of the ſtock that is left on for the purpoſe, and this will help to preſerve them.

CRATCHES, in the manege, a ſwelling on the paſtern, under the fetlock, and ſometimes under the hoof; for which reaſon it is diſtinguiſhed into the ſinew cratches, which affect the ſinew, and thoſe upon the cronet, called *quitter-bones*.

CRATER, Cup, in aſtronomy, a conſtellation of the ſouthern hemiſphere; whoſe ſtars, in Ptolemy's Catalogue, are ſeven; in Tycho's, eight; in Hevelius's, ten; in the Britannic Catalogue, thirty-one.

CRATER is alſo uſed to ſignify the mouth or opening of a volcano or burning mountain, from whence the fire is diſcharged. See VOLCANO.

CRATES, of Thebes, a famous philoſopher, was the diſciple of Diogenes the Cynic. It is ſaid that he threw all his money into the ſea, that he might the more freely apply himſelf to the ſtudy of philoſophy. Others aſſert that he placed it in another perſon's hands, with orders to give it to his children if they ſhould happen to be fools: For (ſaid Crates), if they ſhould be philoſophers, they will have no need of it: in which caſe it was to be given to the people. He flouriſhed about 328 years before Chriſt.

He ought not to be confounded with Crates, a famous academic philoſopher, the diſciple and friend of Polemon. This laſt Crates had Arceſilaus and other celebrated philoſophers for his diſciples; and flouriſhed about 300 years before Chriſt.

CRATEVA, the GARLIC PEAR: A genus of the monogynia order, belonging to the dodecandria claſs of plants; and in the natural method ranking under the 25th order, *Putamineæ*. The corolla is tetrapetalous; the calyx quadrifid; the berry inferior diſpermous. There are two ſpecies, both of them natives of ſeveral parts of India. They are both of the tree kind; and are chiefly diſtinguiſhed by their fruit. The tapia, or garlic pear, has a ſmooth round fruit about the ſize of an orange, with a hard brown ſhell or cover, which incloſes a meally pulp, filled with kidney-ſhaped ſeeds. It hath a ſtrong ſmell of garlic, and communicates the ſame to ſuch animals as feed upon it. The tender buds from the young branches being bruiſed and applied to the naked ſkin, will bliſter as effectually as cantharides. It riſes to the height of about 30 feet. The other grows to the ſize of a very large tree, with trifoliate leaves, ſawed on the edges. The flowers have the ſmell of roſes, and are ſucceeded by an oblong fruit of the ſize of an apple, covered with a very hard bony ſhell, and containing a ſoft fleſhy pulp, having the taſte of quinces. From the flowers of this plant is obtained by diſtillation a water highly odoriferous and cordial. The pulpy part of the fruit is prepared into various kinds of marmalades, which are exceedingly agreeable to the taſte, and are much uſed by the grandees in thoſe countries where the trees are native: they are alſo reckoned ſerviceable in dyſenteries. Both ſpecies may be propagated in Britain by ſeeds. Theſe are to be ſown upon a hot-bed in the ſpring; and when the plants come up, they are to be treated in the manner directed for the ANNONA.

CRATINUS, an ancient comic poet, of whom we ſhould ſcarcely have known any thing, had not Quintilian, Horace, and Perſius, mentioned him, Eupolis, and Ariſtophanes, as the great maſters of what we call the ancient comedy. It is gathered that he died in the 87th Olympiad. Suidas tells us that he wrote 21 plays, and that he was ſplendid and bright in his characters.

CRATIPPUS, a celebrated peripatetic philoſopher, was a native of Mitylene, where he taught philoſophy; but at length went to Athens, where Brutus and the ſon of Cicero were his diſciples. Pompey went to ſee him after the battle of Pharſalia, and propoſed to him his difficulties in relation to the belief of a Providence; when Cratippus comforted him, and by forcible arguments anſwered his objections. He wrote ſome pieces about divination: and is ſuppoſed to be the ſame with him whom Tertullian, in his book *De Anima*, has ranked among the writers upon dreams.

CRATO, a ſmall town of Portugal, in the province of Alentejo, with a rich priory. It is the chief commandery which the knights of Malta have in Portugal. W. Long. 8. 12 N. Lat. 38. 50.

CRAVAN, a town of France, in Burgundy, remarkble for its good wine, and for a battle fought there between the Engilſh and French. It is ſeated near the confluence of the rivers Cure and Yonne. E. Long. 3. 30. N. Lat. 47. 42.

CRAVEN, or CRAVENT, a word of reproach, uſed in trials by battel. See BATTEL.

CRAX; in ornithology, the curaſſou, a genus of birds belonging to the order of gallinæ. The baſe of the beak of each mandible is covered with wax; and the feathers of the head are curled. There are five ſpecies, viz. 1. The alecator, or Indian hen of Sloane, is about the ſize of a ſmall turkey. It is black, with a white belly. A yellow wax covers about one half of each mandible; the tongue is entire; the temples are bare and black; the tail is roundiſh and conſiſts of 14 prime feathers; the legs are ſtrong, and of a duſky brown colour. They are frequent at Guiana; and are called *poweſe* by the natives from their cry, which is ſomewhat ſimilar; are pretty numerous in the woods, and make no ſmall part of the food of the planters, being ſupplied therewith by the Indian hunters; and their fleſh is reckoned delicate, much like that of a turkey. They are eaſily brought up tame, and are frequently found in the Dutch ſettlements of Berbice, Eſſequebo, and Demerary. They are called at Braſil by the name of *curaſſo*. It is found in the warm parts of America. 2. The rubra, or Peruvian hen, is red, with a bluiſh head: it is a native of Peru. Theſe birds are natives of Mexico and Peru. They feed on fruits, and perch at nights on trees: the fleſh is white; and eſteemed very good food. They are frequently kept tame in the menageries in England, and readily mix with other poultry, feeding on bread and grain; but that climate is not near warm enough for their nature, they not being able to bear the dampneſs of the graſs of the meadows, which renders them ſubject to have their toes rot off. They will often live in this ſtate ſome time; and in one inſtance which Mr Latham ſaw, the whole of one foot was gone, and but part of one toe left on the other, before the creature died. 3. The mitu, or Braſilian pheaſant is black, with a duſky belly, and red wax: it is a native of Guinea and Brazil. 4. The globicera, has a yellow protuberance between the noſtrils, and is of a bluiſh black colour: it is likewiſe a native of Brazil. 5. The pauxi, or Meixcan pheaſant of Briſſonius, is of a bluiſh colour, with blue wax, and the tip of the tail and belly white: it is a native of Mexico.

Plate CLI.

CRAY-FISH, or CRAW-*Fiſh*. See CANCER.

The fleſh of cray-fiſh is cooling, moiſtening, and adapted to nouriſh ſuch as labour under atrophies. There are various methods of preparing theſe animals; they may be either boiled or fried, and then taken out of their ſhells, and made up in a variety of diſhes: but no parts of them are eatable except their claws and tails. Preparations and broths of cray-fiſh are celebrated not only for a palatable aliment, but alſo for anſwering ſome medicinal intentions, as being of a moiſtening quality, and ſheathing up and correcting acrimony. The broth is prepared of four or five craw-fiſh, which having their heads cut off, and their inteſtines extracted, are to be bruiſed and boiled in the broth of fleſh or poultry, until they become ſufficiently red; after which the liquor is to be ſtrained off and ſeaſoned, as the caſe may require. This broth may be rendered ſtill more medicinal by the addition of herbs, ſnails, or other ſubſtances; according to the intention of the phyſician. Their fleſh is accounted beſt in the ſummer months.

The delicate flavour of theſe fiſh depends, in a great meaſure on their food. When they have well-taſted food, their fleſh preſerves the reliſh of it: but when they feed on other things, they are often rendered of no value, by the flavour communicated to their fleſh by them. There are great quantities of theſe fiſh in the river Obra, on the borders of Sileſia; but the people find them ſcarce eatable, becauſe of a bitter aromatic flavour, very diſagreeable in food. It has been ſince obſerved, that the *calamus aromaticus* grows in vaſt abundance on the banks of that river, and that theſe creatures feed very greedily upon its roots. Theſe have a very remarkable bitterneſs mixed with their aromatic flavour, while freſh, which goes off very much in the drying; and on comparing the taſte of theſe roots with that of the cray-fiſh, there remains no doubt of the one being owing to the other.

They abound in the river Don in Muſcovy, where they are laid in heaps to putrefy; after which the ſtones called *crab's eyes* are picked out. Theſe animals are very greedy of fleſh, and flock in great numbers about carcaſes thrown into the water where they are, and never leave it while any remains. They alſo feed on dead frogs when they come into their way. In Swiſſerland there are ſome cray-fiſh which are red while they are alive, and others bluiſh. Some kinds of them alſo will never become red, even by boiling, but continue blackiſh.

The cray-fiſh diſcharges itſelf of its ſtomach, and, as M. Geoffroy thinks, of its inteſtines too. Theſe, as they putrefy and diſſolve, ſerve for food to the animal; during the time of the reformation, the old ſtomach ſeems to be the firſt food the new one digeſts. It is only at this time that the ſtones are found called *crab's eyes*; they begin to be formed when the old ſtomach is deſtroyed, and are afterwards wrapped up in the new one, where they decreaſe by degrees till they entirely diſappear.

CRAYER (Caſper de), was born at Antwerp in 1585, and was a diſciple of Raphael Coxis, the ſon of that Coxis who had ſtudied under Raphael; but he ſoon ſhowed ſuch proofs of genius, and of an elevated capacity, that he far ſurpaſſed his maſter, and therefore quitted him. Afterwards he made judicious obſervations on the particular excellencies of the moſt renowned maſters to which he had any acceſs; and taking nature for his conſtant director and guide, he formed for himſelf a manner that was exceedingly pleaſing. The firſt work which eſtabliſhed him in the favour of the court at Bruſſels, was a portrait of Cardinal Ferdinand, brother to the King of Spain, which he painted at full length, and as large as life. In that picture he ſucceeded ſo happily, that it was ſent to Madrid, and received there with ſuch concurrent approbation of the king and the whole court, that it laid the foundation of the fame and fortune of Crayer. For the king, as an acknowledgment of the painter's merit, ſent him a gold chain with a medal; and added, as a farther inſtance of his favour, an appointment for a conſiderable penſion. But nothing places the talents of Crayer in a ſtronger light, than the teſtimony of ſo excellent an artiſt as Rubens. That great man went to Antwerp particularly to viſit Crayer, and to ſee his work; and after examining attentively a picture of his painting, in the refectory of the abbey of Affleghem, he publicly declared that no painter could ſurpaſs Crayer. Nor was this maſter leſs diſtinguiſhed by Vandyck, who always expreſſed a real eſteem and friendſhip for him, and painted his portrait. He had ſomewhat leſs fire in his compoſitions than Rubens, but his deſign is frequently more correct. His compoſition generally conſiſted of a ſmall number of figures; and with diſcreet judgment, he avoided the encumbering his deſign with ſuperfluous particulars, or loading his ſubject with any thing that ſeemed not to contribute to its elegance or probability. He grouped his figures with ſingular ſkill, and his expreſſions have all the truth of nature. There is a remarkable variety in his draperies, and an equal degree of ſimplicity in their folds; and as to his colouring, it is admirable. Of all his cotemporary painters, he was accounted to approach neareſt to Vandyck, not only in hiſtory but in portrait. He principally painted religious ſubjects, and was continually at work, and although he lived to a great age, yet his temperance and conſtant regularity preſerved to him the full uſe of all his faculties; and to the laſt month of his life his pencil retained the ſame force and freedom which it poſſeſſed in his moſt vigorous time. The ſubject of that picture which was ſo honoured by the approbation of Rubens is the Centurian alighting from his horſe to proſtrate himſelf at the feet of our Saviour. It is a capital deſign of Crayer; and although it conſiſts of a great number of figures, the harmony and union are well preſerved.

CRAYON, a general name for all coloured ſtones, earths, or other minerals and ſubſtances, uſed in deſigning or painting in paſtel; whether they have been beaten and reduced to a paſte, or are uſed in their primitive conſiſtence, after ſawing or cutting them into long narrow ſlips. In this laſt manner are red crayons made of blood-ſtone or red chalk; black ones, of charcoal and black lead. Crayons of all other colours are compoſitions of earths reduced to paſte.

Crayon Painting. Whether the painter works with oil-colours, water-colours, or crayons, the grand object of his purſuit is ſtill the ſame: a juſt imitation of nature. But each ſpecies has its peculiar rules and methods. Painting with crayons requires in many reſpects a treatment different from painting in oil-colours; becauſe all colours uſed dry are in their nature of a much warmer complexion than when wet with oils, &c. For this reaſon, in order to produce a rich picture, a much greater portion of what painters term *cooling teints* muſt be applied in crayon-painting than would be judicious to uſe in oils. Without any danger of a miſtake, it is to be ſuppoſed, the not be-

being acquainted with this obſervation is one great cauſe why ſo many oil-painters have no better ſucceſs when they attempt crayon-painting. On the contrary, crayon-painters being ſo much uſed to thoſe teints which are of a cold nature when uſed wet, are apt to introduce them too much when they paint with oils, which is ſeldom productive of a good effect.

We ſhall now endeavour to give the ſtudent ſome directions towards the attainment of excellence in this art.

Of the Application of the Crayons, with ſome previous Diſpoſitions. The ſtudent muſt provide himſelf with ſome ſtrong blue paper, the thicker the better, if the grain is not too coarſe or knotty, though it is almoſt impoſſible to get any entirely free from knots. The knots ſhould be levelled with a penknife or razor, otherwiſe they will be exceedingly troubleſome. After this is done, the paper muſt be paſted very ſmooth on a linen cloth, previouſly ſtrained on a deal frame, the ſize according to the artiſt's pleaſure: on this the picture is to be executed; but it is moſt eligible not to paſte the paper on till the whole ſubject is firſt dead-coloured. The method of doing this is very eaſy, by laying the paper with the dead-colour on its face, upon a ſmooth board or table, when, by means of a bruſh, the backſide of the paper muſt be covered with paſte; the frame, with the ſtrained cloth, muſt then be laid on the paſted ſide of the paper; after which turn the painted ſide uppermoſt, and lay a piece of clean paper upon it, to prevent ſmearing it: this being done, it may be ſtroaked gently over with the hand; by which means all the air between the cloth and the paper will be forced out.

When the paſte is perfectly dry, the ſtudent may proceed with the painting. The advantages ariſing from paſting the paper on the frame according to this method, after the picture is begun, are very great, as the crayons will adhere much better than any other way; which will enable the ſtudent to finiſh the picture with a firmer body of colour and greater luſtre.

When the painters want to make a very correct copy of a picture, they generally make uſe of tiffany or black gauze, ſtrained tight on a frame, which they lay flat on the ſubject to be imitated, and with a piece of ſketching chalk trace all the outlines on the tiffany. They then lay the canvas to be painted on flat upon the floor, placing the tiffany with the chalked lines upon it, and with an handkerchief bruſh the whole over: this preſents the exact outlines of the picture on the canvas. The crayon-painter may alſo make uſe of this method when the ſubject of his imitation is in oils; but in copying a crayon-picture, he muſt have recourſe to the following method, on account of the glaſs.

The picture being placed upon the eaſel, let the outlines be drawn on the glaſs with a ſmall camel's hair pencil dipped in lake, ground thin with oils, which muſt be done with great exactneſs. After this is accompliſhed, take a ſheet of paper of the ſame ſize and place it on the glaſs, ſtroking over all the lines with the hand, by which means the colour will adhere to the paper, which muſt be pierced with pin-holes pretty cloſs to each other. The paper intended to be uſed for the painting muſt next be laid upon a table, and the pierced paper placed upon it; then with ſome fine-pounded charcoal, tied up in a piece of lawn, rub over the pierced lines, which will give an exact outline; but great care muſt be taken not to bruſh this off till the whole is drawn over with ſketching chalk, which is a compoſition made of whiting and tobacco-pipe clay, rolled like the crayons, and pointed at each end.

When a ſtudent paints immediately from the life, it will be moſt prudent to make a correct drawing of the outlines on another paper, the ſize of the picture he is going to paint, which he may trace by the preceding method, becauſe erroneous ſtrokes of the ſketching chalk (which are not to be avoided without great expertneſs) will prevent the crayons from adhering to the paper, owing to a certain greaſy quality in the compoſition.

The ſtudent will find the ſitting poſture, with the box of crayons in his lap, the moſt convenient method for him to paint. The part of the picture he is immediately painting ſhould be rather below his face; for, if it is placed too high, the arm will be fatigued. Let the windows of the room where he paints be darkened, at leaſt to the height of ſix feet from the ground; and the ſubject to be painted ſhould be ſituated in ſuch a manner, that the light may fall with every advantage on the face, avoiding too much ſhadow, which ſeldom has a good effect in portrait-painting, eſpecially if the face he paints from has any degree of delicacy.

Before he begins to paint, let him be attentive to his ſubject, and appropriate the action or attitude proper to the age of the ſubject: if a child, let it be childiſh; if a young lady, expreſs more vivacity than in the majeſtic beauty of a midle-aged woman, who alſo ſhould not be expreſſed with the ſame gravity as a perſon far advanced in years. Let the embelliſhments of the picture, and introduction of birds, animals, &c. be regulated by the rules of propriety and conſiſtency.

The features of the face being correctly drawn with chalks, let the ſtudent take a crayon of pure carmine, and carefully draw the noſtril and edge of the noſe next the ſhadow; then, with the fainteſt carmine teint, lay in the higheſt light upon the noſe and forehead, which muſt be executed broad. He is then to proceed gradually with the ſecond teint, and the ſucceeding ones, till he arrives at the ſhadows, which muſt be covered brilliant, enriched with much lake, carmine, and deep green. This method will at firſt offenſively ſtrike the eye, from its crude appearance; but in the finiſhing, it will be a good foundation to produce a pleaſing effect, colours being much more eaſily ſullied when too bright, than when the firſt colouring is dull, to raiſe the picture into a brilliant ſtate. The ſeveral pearly teints diſcernible in fine complexions muſt be imitated with blue verditer and white, which anſwers to the ultramarine teints uſed in oils. But if the parts of the face where theſe teints appear are in ſhadow, the crayons compoſed of black and white muſt be ſubſtituted in their place.

Though all the face when firſt coloured ſhould be laid in as brilliant as poſſible, yet each part ſhould be kept in its proper tone; by which means the rotundity of the face will be preſerved.

Let the ſtudent be careful when he begins the eyes to draw them with a crayon inclined to the carmine teint, of whatever colour the iriſes are; he muſt lay them in brilliant, and at firſt not loaded with colour, but executed lightly: no notice is to be taken of the pupil yet. The ſtudent muſt let the light of the eye incline very much to the blue caſt, cautiouſly avoiding a ſtaring white appearance, (which, when once introduced, is ſeldom overcome), preſerving a broad ſhadow thrown on its upper part, by the eyelaſh. A black and heavy teint is alſo to be avoided in the eye-brows; it is therefore beſt to execute them like a broad glowing ſhadow at firſt, on which, in the finiſhing, the hairs of the brow are to be painted; by which method of proceeding, the former teints will ſhow themſelves through, and produce the moſt pleaſing effect.

The ſtudent ſhould begin the lips with pure carmine and lake, and in the ſhadow uſe ſome carmine and black; the ſtrong vermilion teints ſhould be laid on afterwards. He muſt beware of executing them with ſtiff, harſh lines, gently intermixing each with the neighbouring colours, making the ſhadow beneath broad, and enriched with brilliant crayons. He muſt form the corner of the mouth with carmine, brown ochre, and greens, variouſly intermixed. If the hair is dark, he ſhould preſerve much of the lake and deep carmine teints therein; this may eaſily be overpowered by the warmer hair teints, which, as obſerved in painting the eye-brows, will produce a richer effect when the picture is finiſhed; on the contrary, if this method is unknown or neglected, a poverty of colouring will be diſcernible.

After the ſtudent has covered over, or as artiſts term it, has dead-coloured the head, he is to ſweeten the whole together, by rubbing it over with his finger, beginning at the ſtrongeſt light upon the forehead, paſſing his finger very lightly, and uniting it with the next teint, which he muſt continue till the whole is ſweetened together, often wiping his finger on a towel to prevent the colours being ſullied. He muſt be cautious not to ſmooth or ſweeten his picture too often, becauſe it will give riſe to a thin and ſcanty effect, and have more the appearance of a drawing than a ſolid painting; as nothing but a body of rich colours can conſtitute a rich effect. To avoid this (as the ſtudent finds it neceſſary to ſweeten with the finger), he muſt commonly repleniſh the picture with more crayon.

When the head is brought to ſome degree of forwardneſs, let the back-ground be laid in, which muſt be treated in a different manner, covering it as thin as poſſible, and rubbing it into the paper with a leather ſtump. Near the face the paper ſhould be almoſt free from colour, for this will do great ſervice to the head, and by its thinneſs give both a ſoft and ſolid appearance. In the back ground alſo, no crayon that has whiting in its compoſition ſhould be uſed, but chiefly ſuch as are the moſt brilliant and the leaſt adulterated. The ground being painted thin next the hair, will give the ſtudent an opportunity of painting the edges of the hair over in a light and free manner when he gives the finiſhing touches.

The ſtudent having proceeded thus far, the face, hair, and back-ground being entirely covered, he muſt carefully view the whole at ſome diſtance, remarking in what reſpect it is out of keeping, that is, what parts are too light and what too dark, being particularly attentive to the white or chalky appearances, which muſt be ſubdued with lake and carmine. The above method being properly put into execution, will produce the appearance of a painting, principally compoſed of three colours, viz. carmine, black, and white, which is the beſt preparation a painter can make for the producing a fine crayon picture.

The next ſtep is, to complete the back-ground and the hair, as the duſt, in painting theſe, will fall on the face, and would much injure it if that was completed firſt. From thence proceed to the forehead, finiſhing downward till the whole picture is completed.

In painting over the forehead the laſt time, begin the higheſt light with the moſt faint vermilion teint, in the ſame place where the faint carmine was firſt laid, keeping it broad in the ſame manner. In the next ſhade ſucceeding the lighteſt, the ſtudent muſt work in ſome light blue teints, compoſed of verditer and white, intermixing with them ſome of the deeper vermilion teints, ſweetening them together with great caution, inſenſibly melting them into one another, increaſing the proportion of each colour as his judgment ſhall direct. Some brilliant yellows may be uſed, but ſparingly; and towards the roots of the hair, ſtrong verditer teints, intermixed with greens, will be of ſingular ſervice. Cooling crayons, compoſed of black and white, ſhould ſucceed theſe and melt into the hair. Beneath the eyes, the ſweet pearly teints are to be preſerved, compoſed of verditer and white, and under the noſe, and on the temples, the ſame may be uſed; beneath the lips, teints of this kind alſo are proper, mixing them with the light greens and ſome vermilion.

In finiſhing the cheeks, let the pure lake clear them from any duſt contracted fom the other crayons; then with the lake may be intermixed the bright vermilion; and laſt of all (if the ſubject ſhould require it), a few touches of the orange-coloured crayon, but with extreme caution; after, ſweeten that part with the finger as little as poſſible, for fear of producing a heavy diſagreeable effect on the cheeks: as the beauty of a crayon-picture conſiſts in one colour ſhowing itſelf through, or rather between, another: this the ſtudent cannot too often remark, it being the only method of imitating beautiful complexions.

The eye is the moſt difficult feature to execute in crayons, as every part muſt be expreſſed with the utmoſt nicety, to appear finiſhed; at the ſame time that the painter muſt preſerve its breadth and ſolidity while he is particularizing the parts. To accompliſh this, it will be a good general rule for the ſtudent to uſe his crayon in ſweetening as much, and his finger as little, as poſſible. When he wants a point to touch a ſmall part with, he may break off a little of his crayon againſt the box, which will produce a corner fit to work with in the minuteſt parts. If the eye-laſhes are dark, he muſt uſe ſome of the carmine and brown ochre, and the crayon of carmine and black; and with theſe he may alſo touch the iris of the eye (if brown or hazel), making a broad ſhadow, cauſed by the eye-laſh. Red teints of vermilion, carmine, and lake, will execute the corners of the eye properly; but if the eye-lids are too red, they will have a diſagreeable ſore appearance. The pupil of the eye muſt be made of pure lamp-black: between this and the lower part of the iris, the light will catch very ſtrong, but it muſt not be made too ſudden, but be gently diffuſed round the pupil till it is loſt in ſhade. When the eye-balls are ſufficiently prepared, the ſhining ſpeck muſt be made with a pure white crayon, which ſhould be firſt broken to a point, and then laid on firm; but as it is poſſible they may be defective in neatneſs, they ſhould be corrected with a pin, taking off the redundant parts, by which means they may be formed as neat as can be required.

The difficulty, with reſpect to the noſe, is to preſerve the lines properly determined, and at the ſame time ſo artfully blended into the cheek, as to expreſs its projection, and yet no real line to be perceptible upon a cloſe examination; in ſome circumſtances it ſhould be quite blended with the cheek, which appears behind it, and determined entirely with a ſlight touch of red chalk. The ſhadow cauſed by the noſe is generally the darkeſt in the whole face, partaking of no reflection from its ſurrounding parts. Carmine and brown ochre, carmine and black, and ſuch brilliant crayons, will compoſe it beſt.

The ſtudent having before prepared the lips with the ſtrongeſt lake and carmine, &c. muſt with theſe colours make them completely correct; and when finiſhing, introduce the ſtrong vermilions, but with great caution, as they are extremely predominant. This, if properly touched, will give the lips an appearance equal, if not ſuperior, to thoſe executed in oils, notwithſtanding the ſeeming ſuperiority the latter has, by means of glazing (A), of which the former is entirely deſtitute.

When the ſtudent paints the neck, he ſhould avoid expreſſing the muſcles too ſtrong in the ſtem, nor ſhould the bones appear too evident on the cheſt, as both have an unpleaſing effect, denoting a violent agitation of the body; a circumſtance ſeldom neceſſary to expreſs in portrait-painting. The moſt neceſſary part to be expreſſed, and which ſhould ever be obſerved, (even in the moſt delicate ſubjects), is a ſtrong marking juſt above the place where the collar bones unite; and if the head is much thrown over the ſhoulders, ſome notice ſhould be taken of the large muſcle that riſes from behind the ear, and is inſerted into the pit between the collar bones. All inferior muſcles ſhould be, in general, quite avoided. The ſtudent will find this caution neceſſary, as moſt ſubjects, eſpecially thin perſons, have the muſcles of the neck much more evident than would be judicious to imitate. As few necks are too long, it may be neceſſary to give ſome addition to the ſtem, a fault on the other ſide being quite unpardonable, nothing being more ungraceful than a ſhort neck. In colouring the neck, let the ſtudent preſerve the ſtem of a pearly hue, and the light not ſo ſtrong as on the cheſt. If any part of the breaſt appears, its tranſparency muſt alſo be expreſſed by pearly teints; but the upper part of the cheſt ſhould be coloured with beautiful vermilions delicately blended with the other.

Of the Drapery. Dark blue, purple, black, pink, and all kinds of red draperies alſo, ſhould be firſt tinged with carmine, which will render the colours much more brilliant than any other method; over this ſhould be laid on the paper the middle teint (a medium between the light and dark teints, of which the drapery is to be painted), except the dark maſſes of ſhadow, which ſhould be laid on at firſt as deep as poſſible; theſe, ſweetened with the finger, being deſtitute of the ſmaller folds, will exhibit a maſterly breadth, which the leſſer folds, when added, ought by no means to deſtroy. With the light and dark teints, the ſmaller parts are next to be made with freedom, executing as much with the crayon, and as little with the finger as poſſible; in each fold touching the laſt ſtroke with the crayon, which ſtroke the finger muſt never touch. In the caſe of reflections, the ſimple touch of the crayon will be too harſh, therefore fingering will be neceſſary afterwards, as reflected lights are always more gentle than thoſe which are direct. With reſpect to reflections in general, they muſt always partake of the ſame colour as the object reflecting, but in the caſe of ſingle figures, it may be uſeful to make ſome particular obſervations.

In a blue drapery, let the reflections be of a greeniſh caſt; in green draperies, make them of a yellow teint; in yellow, of an orange; in orange, reflect a reddiſh caſt; in all reds, ſomething of their own nature, but inclined to the yellow: black ſhould have a reddiſh reflection; the reflection of a reddiſh teint will alſo preſent purples to the beſt advantage.

Of whatever colour the drapery is, the reflection on the face muſt partake thereof, otherwiſe the picture, like paintings on glaſs, will have but a gaudy effect.

Linen, lace, fur, &c. ſhould be touched ſpiritedly with the crayon, fingering very little, except the latter; and the laſt touches, even of this, like all other parts, ſhould be executed by the crayon, without ſweetening with the finger.

The methods above recommended have been practiſed by the moſt celebrated crayon-painters, whoſe works have been held in public eſtimation; but the knowledge of, and ability to execute, each ſeparate part with brilliancy and truth, will be found very inſufficient to conſtitute a complete painter, without his judgment enables him to unite them with each other, by correctneſs of drawing, propriety of light and ſhadow, and harmony of colouring. In order to accompliſh this, the ſtudent ſhould carefully avoid finiſhing one part in particular, till he has properly conſidered the connection it is to have with the reſt. The neglect of this is the principal reaſon why the performances of indifferent painters are ſo deſtitute of what is termed breadth, ſo conſpicuouſly beautiful in the works of great maſters. It muſt be granted that this obſervation relates more particularly to large compoſitions, where a diverſity of figures requires ſuch a judicious diſpoſition, that each may aſſiſt in the combination of a kind of univerſal harmony; yet, even in portrait-painting, the ſtudent ſhould be particularly attentive to obſerve this idea of breadth, if he is deſirous of acquiring that importance and dignity which conſtitutes excellence in painting.

Of the Materials. The perfection of the crayons conſiſts,

(A) The method with which painters in oils expreſs tranſparency in the lips is, by painting them firſt with light vermilion teints, and, when dry, touching them over with pure lake.

ſiſts, in a great meaſure, in their ſoftneſs; for it is impoſſible to execute a brilliant picture with them if they are otherwiſe; on which account great care ſhould be obſerved in the preparing them, to prevent their being hard. In all compoſitions, flake-white and white-lead ſhould be wholly rejected, becauſe the ſlighteſt touch with either of theſe will unavoidably turn black.

The uſual objection to crayon-paintings is, that they are ſubject to change; but whenever this happens, it is entirely owing to an injudicious uſe of the abovementioned whites, which will ſtand only in oils. To obviate the bad effects ariſing from the uſe of ſuch crayons, let the ſtudent make uſe of common whiting prepared in the following manner.

Take a large veſſel of water, put the whiting into it, and mix them well together; let this ſtand about half a minute, then pour off the top into another veſſel, and throw the gritty ſediment away; let what is prepared reſt about a minute, and then pour it off as before, which will purify the whiting and render it free from all dirt and grittineſs. When this is done, let the whiting ſettle, and then pour the water from it; after which, lay it on the chalk to dry, and keep it for uſe, either for white crayons, or the purpoſe of preparing teints with other colours, for with this all other teints may be ſafely prepared. If the ſtudent chooſes to make crayons of the whiting immediately after it is waſhed, it is not neceſſary to dry it on the chalk, for it may be mixed inſtantly with any other colour, which will ſave conſiderable trouble. All colours of a heavy or gritty nature, eſpecially blue verditer, muſt be purified by waſhing after this method.

The ſtudent muſt be provided with a large, flexible pallet-knife, a large ſtone and muller to levigate the colours, two or three large pieces of chalk to abſorb the moiſture from the colours after they are levigated, a piece of flat glaſs to prevent the moiſture from being abſorbed too much, till the colours are rolled into form, and veſſels for water, ſpirits, *&c.* as neceſſity and convenience ſhall direct.

I. Reds. It is rather difficult to procure either good carmine or good lake. Good carmine is inclined to the vermilion teint, and good lake to the carmine teint. The carmine crayons are prepared in the following manner.

1. Carmine. As their texture is inclinable to hardneſs, inſtead of grinding and rolling them, take a ſufficient quantity of carmine, lay it upon the grinding-ſtone, mix it with a levigating knife with ſpirits of wine till it becomes ſmooth and even. The chalk-ſtone being ready, lay the colour upon it to abſorb the ſpirit; but be careful that it is laid on in a proper ſhape for painting. If it is levigated too thin, the crayons will be too flat; and if too thick, it will occaſion a waſte of colour, by their adhering to the pallet-knife; but practice will render the proper degree of conſiſtency familiar. The ſimple colour being prepared, the next ſtep is to compoſe the different teints by a mixture with whiting; the proportion to be obſerved conſiſting of 20 gradations to one, which may be clearly underſtood by the following directions. Take ſome of the ſimple colour, and levigate it with ſpirits of wine, adding about one part of waſhed whiting to three parts of carmine, of which, when properly incorporated, make two parcels. The next gradation ſhould be compoſed of equal quantities of carmine and whiting, of which four crayons may be made. The third compoſition ſhould have one fourth carmine and three fourths whiting; of this make ſix crayons, which will be a good proportion with the reſt. The laſt teint ſhould be made of whiting, very faintly tinged with carmine, of which make about eight crayons, which will complete the abovementioned proportion. As theſe compound teints are levigated, they are to be laid immediately upon the chalk, that the moiſture may be abſorbed to the proper degree of dryneſs for forming into crayons, which may be known by its loſing the greater part of its adheſive quality when taken into the hand: if the conſiſtency is found to be right, it may be then laid upon the glaſs, which having no pores will prevent the moiſture from becoming too dry before it is convenient to form it into crayons, otherwiſe the crayons would be full of cracks and very brittle, which will be a great inconvenience when they are uſed in painting.

2. Lake. This is a colour very apt to be hard; to prevent which the ſtudent muſt obſerve the following particulars. Take about half the quantity of lake intended for the crayons and grind it very fine with ſpirits of wine; let it dry, and then pulverize it, which is eaſily done if the lake is good; then take the other half, and grind it with ſpirits, after which mix it with the pulverized lake, and lay it out directly in crayons on the chalk. This colour will not bear rolling. The ſimple colour being thus prepared, proceed with the compound crayons as directed before, and in the ſame degrees of gradation as the carmine teints.

3. Vermilion. The beſt is inclined to the carmine teint. Nothing is required to prepare this colour more than to mix it on the ſtone with ſoft water or ſpirits, after which it may be rolled into crayons. The different teints are produced by a mixture of the ſimple colour with whiting, according to the proportions already given.

II. Blues. 1. Pruſſian blue is a colour very apt to bind, and is rendered ſoft with more difficulty than carmine and lake. The ſame method of preparation is to be followed with this as directed with reſpect to lake, only it is neceſſary to grind a larger quantity of the pure colour, as it is chiefly uſed for painting draperies. The different teints may be made according to neceſſity, or the fancy of the painter. 2. Blue-verditer is a colour naturally gritty, and therefore it is neceſſary to waſh it well. Its particles are ſo coarſe as to require ſome binding matter to unite them, otherwiſe the crayons will never adhere together. To accompliſh this, take a quantity ſufficient to form two or three crayons, to which add a piece of ſlacked plaſter of Paris about the ſize of a pea; mix theſe well together, and form the crayons upon the chalk. This blue is extremely brilliant, and will be of great uſe in heightening draperies, *&c.* The teints muſt be formed with whiting as directed in the former inſtances, and are highly ſerviceable for painting fleſh, to produce thoſe pearly teints ſo beautiful in crayon-pictures. It is not neceſſary to mix the compounds with ſpirits, as clear water will be ſufficient.

III. Greens. Brilliant-greens are produced with great difficulty. In Switzerland, they have a method of making them far ſuperior to ours. We uſually take yellow ochre, and after grinding it with ſpirits, mix it with the powder of Pruſſian blue, then temper it with a knife, and lay the crayons on the chalk, without rolling them. Inſtead of this, ſome uſe king's yellow mixed with Pruſſian blue, and others brown ochre and Pruſſian blue. The crayons made of the two laſt may be rolled. Various teints may be produced by theſe colours, according to fancy or neceſſity; ſome to partake more of the blue, and others of the yellow.

IV. Yellows. 1. King's-yellow is the moſt uſeful and the moſt brilliant, levigated with ſpirits of wine, and compoſe the different teints as before directed. Yellow ochre and Naples yellow ground with ſpirits will make uſeful crayons. 2. Orange is produced with king's-yellow and vermilion ground together with ſpirits, and the teints formed as in other caſes, but no great quantity of them is required.

V. Browns. 1. Cullen's-earth is a fine dark brown. After ſix or eight of the ſimple crayons are prepared, ſeveral rich compound teints may be produced from it, by a mixture with carmine, in various degrees. Black, carmine, and this colour, mixed together, make uſeful teints for painting hair; ſeveral gradations may be produced from each of theſe by a mixture with whiting. Roman or brown ochre is an excellent colour, either ſimgle or compounded with carmine. Whiting tinged in ſeveral degrees with either of theſe, will prove very ſerviceable in painting. 2. Umber may be treated in juſt the ſame manner, only it is neceſſary to levigate it with ſpirit of wine.

VI. Purples. Pruſſian blue ground with ſpirits and mixed with pulverized lake, will produce a good purple. Carmine thus mixed with Pruſſian blue, will produce a purple ſomething different from the former. Various teints may be made from either of theſe compounds by a mixture with whiting.

VII. Black. 1. Lamp-black is the only black that can be uſed with ſafety, as all others are ſubject to mildew: but as good lamp-black is very ſcarce the ſtudent will, perhaps, find it moſt expedient to make it himſelf; the proceſs of which is as follows: Provide a tin cone, fix it over a lamp at ſuch a height that the flame may juſt reach the cone for the ſoot to gather within it. When a ſufficient quantity is collected, take it out, and burn all the greaſe from it in a crucible. It muſt then be ground with ſpirits, and laid on the chalk to abſorb the moiſture. Various grey teints may be formed from this by a mixture with whiting, as mentioned in former inſtances.—2. Vermilion mixed with carmine: this is a compoſition of great uſe, and teints made from this with whiting will be found to be very ſerviceable. 3. Carmine and black is another good compound, of which five or ſix gradations ſhould be made, ſome partaking more of the black, and others having the carmine moſt predominant, beſides ſeveral teints by a mixture with whiting. 4. Vermilion and black is alſo a very uſeful compound, from which ſeveral different teints ſhould be made. 5. Pruſſian blue and black is another goood compound, and will be found of ſingular ſervice in painting draperies.

It is impoſſible to lay down rules for the forming every teint neceſſary in compoſing a ſet of crayons, there being many accidental compoſitions, entirely dependent on fancy and opinion. The ſtudent ſhould make it a rule to ſave the leavings of his colours: for of theſe he may form various teints, which will occaſionally be uſeful.

Of rolling the crayons, and diſpoſing them for painting. The different compoſitions of colours muſt be cut into a proper magnitude, after they are prepared, in order to be rolled into paſtils, for the convenience of uſing them. Each crayon ſhould be formed in the left hand with the ball of the right, firſt formed cylindrically, and then tapered at each end. If the compoſition is too dry, dip the finger in water; if too wet, the compoſition muſt be laid upon the chalk again to abſorb more of the moiſture. The crayons ſhould be rolled as quick as poſſible; and when finiſhed, muſt be laid upon the chalk again, to abſorb all remaining moiſture. After the gradation of teints from one colour are formed, the ſtone ſhould be well ſcraped and cleanſed with water before it is uſed for another colour.

When the ſet of crayons is completed according to the rules preſcribed, they ſhould be arranged in claſſes for the convenience of painting with them. Some thin drawers, divided into a number of partitions, is the moſt convenient method of diſpoſing them properly. The crayons ſhould be depoſited according to the ſeveral gradations of light. The bottom of the partitions muſt be covered with bran, as a bed for the colours; becauſe it not only preſerves them clean, but prevents their breaking.

The box made uſe of when the ſtudent paints, ſhould be about a foot ſquare, with nine partitions. In the upper corner, on the left hand (ſuppoſing the box to be in the lap when he paints), let him place the black and grey crayons, thoſe being the moſt ſeldom uſed; in the ſecond partition, the blues; in the third, the greens and browns; in the firſt partition on the left hand of the ſecond row, the carmines, lakes, vermilions, and all deep reds; the yellows and orange in the middle, and the pearly teints next; and as theſe laſt are of a very delicate nature, they muſt be kept very clean, that the gradations of colour may be eaſily diſtinguiſhed: in the loweſt row, let the firſt partition contain a piece of fine lining rag to wipe the crayons with while they are uſing; the ſecond, all the pure lake and vermilion teints; and the other partition may contain thoſe teints which, from their complex nature, cannot be claſſed with any of the former.

CRAZE-mill, or *Crazing-Mill*, a mill in all reſpects like a griſt-mill to grind corn, and is ſo called by the tin-miners, who uſe it to grind their tin, which is yet too great, after trambling.

CREAM, a general name applicable to all ſubſtances that ſeparate from a liquor, and are collected upon its ſurface: but is more particularly applied to the following.

Cream of Lime, is that part of the lime which had been diſſolved in the water in its cauſtic ſtate, but having again attracted ſome fixed air from the atmoſphere, becomes incapable of ſolution, and therefore ſeparates from the water in the mild ſtate of chalk or limeſtone.

Cream of Milk, generally called ſimple *cream*, is the moſt oily part of the milk; which being naturally only mixed, and not diſſolved in the reſt, ſoon ſeparates from them, as being ſpecifically lighter: after which it collects on the ſurface; from which it is generally ſkimmed, to complete the diſengagement of the oily from the caſeous and ſerous parts that is to make butter*. Cream of milk is not only an agreeable aliment when recent, but is alſo uſeful in medicine as a lenient, when applied to tetters and eryſipelas attended with pain and proceeding from an acrid humour.

Cream of Tartar. See Chemistry, n° 886.

CREAT, in the manege, an uſher to a riding maſter; or a gentleman bred in the academy, with intent to make himſelf capable of teaching the art of riding the great horſe.

CREATION, in its primary import, ſeems to ſignify the bringing into being ſomething which did not before exiſt. The term is therefore moſt generally applied to the original production of the materials whereof the viſible world is compoſed. It is alſo, however, uſed in a ſecondary or ſubordinate ſenſe, to denote thoſe ſubſequent operations of the Deity upon the matter ſo produced, by which the whole ſyſtem of nature and all the primitive genera of things received their form, qualities, and laws.

There is no ſubject concerning which there have been more diſputes than this of creation. It is certain that none of the ancient philoſophers had the ſmalleſt idea of its being poſſible to produce a ſubſtance out of nothing, or that even the power of the Deity himſelf could work without any materials to work upon. Hence ſome of them, among whom was Ariſtotle, aſſerted that the world was eternal both as to its matter and form. Others, though they believed that the gods had given the world its form, yet imagined the materials whereof it is compoſed to have been eternal. Indeed the opinions of the ancients, who had not had the benefit of revelation, were on this head ſo confuſed and contradictory, that nothing of any conſequence can be deduced from them. The freethinkers of our own and of former ages have denied the poſſibility of creation, as being a contradiction to reaſon; and of conſequence have taken the opportunity from thence to diſcredit revelation. On the other hand, many defenders of the ſacred writings have aſſerted, that creation out of nothing, ſo far from being a contradiction to reaſon, is not only probable, but demonſtrably certain. Nay, ſome have gone ſo far as to ſay, that from the very inſpection of the viſible ſyſtem of nature, we are able to infer that it was once in a ſtate of non-exiſtence. It would be impoſſible for us, however, to enter into the multiplicity of arguments uſed on both ſides; nor can we pretend to ſettle it, as the ſubject is confeſſedly above human comprehenſion.

1 What works of creation God is known to have performed.

As to the works of creation which the Deity is known to us to have performed; all other beings, beſide himſelf, are his creatures. Men and other animals that inhabit the earth and the ſeas, all the immenſe varieties of herbs and plants of which the vegetable kingdom conſiſts; the globe of the earth, and the expanſe of the ocean; theſe we know to have been produced by his power. Beſides the terreſtrial world which we inhabit, we ſee many other material bodies diſpoſed around it in the wide extent of ſpace. The moon, which is in a particular manner connected with our earth, and even dependent upon it; the ſun, and the other planets with their ſatellites, which, like the earth, circulate round the ſun, and appear to derive from him light and heat; thoſe bodies which we call fixed ſtars, and conſider as illuminating and cheriſhing with heat each its peculiar ſyſtem of planets; and the comets which at certain periods ſurpriſe us with their appearance, and the nature of whoſe connection with the general ſyſtem of nature, or with any particular ſyſtem of planets, we cannot pretend to have fully diſcovered;—theſe are ſo many more of the Deity's works, from the contemplation of which we cannot but conceive the moſt awful ideas of his creative power.

Matter, however, whatever the varieties of form under which it is made to appear, the relative diſpoſition of its parts, or the motions communicated to it, is but an inferior part of the works of creation. We believe ourſelves to be animated with a much higher principle than brute matter; in viewing the manners and economy of the lower animals, we can ſcarce avoid acknowledging even them to conſiſt of ſomething more than various modifications of matter and motion: The other planetary bodies which ſeem to be in circumſtances nearly analogous to thoſe of our earth, are ſurely, as well as it, deſtined for the habitations of rational, intelligent beings. The exiſtence of intelligences of an higher order than man, though infinitely below the Deity, appears extremely probable:—Of thoſe ſpiritual beings called Angels we have expreſs intimation in ſcripture; (ſee the article Angels.) Such are our notions concerning the exiſtence of beings eſſentially diſtinct from matter, and in their nature far ſuperior to it: theſe, too, muſt be the creatures of the Deity, and of his works of creation the nobleſt part. But the limits of creation we muſt not pretend to define. How far the regions of ſpace extend, or how they are filled, we know not. How the planetary worlds, the ſun and the fixed ſtars, are occupied, we do not pretend to have aſcertained. We are even ignorant how wide a diverſity of forms, what an infinity of living animated beings may inhabit our own globe. So confined is our knowledge of creation; yet ſo grand, ſo awful, that part which our narrow underſtandings can comprehend!

2 The periods of time at which God executed his works of creation.

Concerning the periods of time at which the Deity executed his ſeveral works of creation, it cannot be pretended that mankind have had opportunities of receiving very particular information. From viewing the phenomena of nature, and conſidering the general laws by which they are regulated, we cannot draw any concluſive or even plauſible inference with reſpect to the preciſe period at which the univerſe muſt have begun to exiſt. We know not, nor can we hope to aſcertain, whether the different ſyſtems of planets circulating round our ſun and the other fixed ſtars, were all created at one period, or each at a different period. We cannot even determine, from any thing that appears on the face of nature, whether our earth was not created at a later period than any of her fellow planets which revolve round the ſame ſun. Aſtronomers are, from time to time, making new diſcoveries in the heavens; and it is impoſſible to ſay whether ſome of theſe ſucceſſive diſcoveries may not be owing to ſucceſſive creations.

Philoſophers have, indeed, formed ſome curious conjectures

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*See *Butter, Milk, and Cheeſe.*

jectures concerning the antiquity of the earth, from the appearances of its ſurface, and from the nature and diſpoſition of its interior ſtrata. The beds of lava in the neighbourhood of volcanoes have afforded ground for ſome calculations, which, though they do not fix the period of the earth's origin, are yet thought to prove that period to have been much more remote than the earlieſt age of ſacred or profane hiſtory. * In the neighbourhood of mount Ætna, or on the ſides of that extenſive mountain, there are beds of lava covered over with a conſiderable thickneſs of earth: and at leaſt another, again, which though known from ancient monuments and hiſtorical records to have iſſued from the volcano at leaſt 2000 years ago, is ſtill almoſt entirely deſtitute of ſoil and vegetation: in one place a pit has been cut through ſeven different ſtrata of lava; and theſe have been found ſeparated from each other by almoſt as many thick beds of rich earth. Now, from the fact, that a ſtratum of lava 2000 years old is yet ſcantily covered with earth, it has been inferred by the ingenious canon Recupero, who has laboured 30 years on the natural hiſtory of mount Ætna, that the loweſt of theſe ſtrata which have been found divided by ſo many beds of earth, muſt have been emitted from the volcanic crater at leaſt 14000 years ago; and conſequently that the age of the earth, whatever it may exceed this term of years, cannot poſſibly be leſs. Other facts of a ſimilar nature likewiſe concur to juſtify this conjecture.

But all theſe facts are as nothing in compariſon with the long ſeries which would be requiſite to eſtabliſh ſuch a conjecture as an incontrovertible truth. And, beſides, any evidence which they can be ſuppoſed to afford, may be very eaſily explained away. The bed of lava which in the courſe of 2000 years has ſcarce acquired a covering of earth, is confeſſed to ſtand in a ſituation in which it is expoſed to the ſpray of the ſea, and to all the violence of winds and rains. In ſuch a ſituation, it cannot be thought that a thick bed of earth could, in any length of time, be formed on it: we might as well expect depth of ſoil and vigorous vegetation on the craggy cliffs of hills. In crevices here and there over it in which the earth has been retained, there is a depth of ſoil which ſupports large trees. This fact, therefore, admits of no ſuch inference as that which Recupero has pretended to deduce from it. The local circumſtances, again, of the ſeven ſtrata that have been pierced through, are very different. They are ſituated at Jaci Reale, in a ſituation where ſhowers of aſhes from the volcano muſt frequently fall; and where whatever falls muſt be naturally retained and accumulated:—ſo that ſeven beds of earth might be formed on theſe ſeven ſtrata of lava much ſooner than one thin layer could be formed on the ſtratum abovementioned. In other places, ſome of which are within the influence of the ſame awful volcano, and ſome adjacent to that of Veſuvius, ſoil is known to have accumulated on lava with the help of ſhowers of aſhes from the volcanoes, with ſufficient rapidity to juſtify this ſuppoſition concerning the coverings of the ſtrata at Jaci Reale. From the obſervation of theſe phenomena of volcanoes, therefore, no facts have been gained that can help us to determine with any certainty the earth's age. And ſo wide is the variety of circumſtances to be here taken into account, that it cannot be hoped that this *deſideratum* will be ever ſupplied from this quarter. See further the article EARTH: nº 177 and 178.

But by examining the compoſition and arrangement of the interior ſtrata of the globe, and by viewing the general appearance of its ſurface, the ingenuity of philoſophers has, with better hopes, ſought to gueſs at the length of time during which it muſt have exiſted. Obſerving the exuviæ of ſea and land animals depoſited at profound depths under ground, and accompanied with vegetable bodies in a good ſtate of preſervation, as well as with oleaginous and bituminous ſubſtances which have in all probability been formed from vegetable bodies; and remarking at the ſame time with what confuſion the other materials, compoſing the cruſt of this terreſtrial ball, are, in various inſtances, not arranged, but caſt together; they have concluded that the earth muſt have exiſted for many an age before the earlieſt events recorded in ſacred or profane hiſtory, and muſt have undergone many a revolution, before it ſettled in its preſent ſtate. Such at leaſt are the ideas which Buffon and M. de. Luc, and alſo Dr Hutton ‡, ſeem deſirous to impreſs us with concerning its changes and antiquity.—It will be only doing juſtice to theſe philoſophers to acknowledge, that they have collected, with amazing induſtry, almoſt every fact in the natural hiſtory of the earth that can ſerve to give plauſibility to their conjectures. But ſtill their facts, beſides the inconſiſtency of many of them, are by far too ſcanty to warrant the concluſions which they have pretended to deduce from them. See the article EARTH

3
Accounts of the antiquity of the earth from profane hiſtory.

The voice of profane hiſtory is far from being deciſive concerning the age of the world; nor is it to be expected that it ſhould. When the earth firſt aroſe into exiſtence, we can be at no loſs to conceive that mankind were not ſpectators of the event: and we may naturally imagine that the firſt human beings who occupied it, would be too much buſied in furniſhing themſelves with the immediate neceſſaries and the conveniences of life, to think of curious reſearches into *its* origin, or even their own. Profane hiſtory is not, however, without accounts of the age of the earth and the origin of human ſociety; but thoſe accounts are various and contradictory.—Plato in his dialogue intitled *Critias*, mentions his celebrated Atalantis to have been buried in the ocean about 9000 years before the age in which he wrote. He aſſerts it to have been well known to the Egyptian prieſts and to the cotemporary inhabitants of Attica. The learned world, indeed, generally agree in regarding his accounts of that iſland as a fiction, which the author himſelf did not deſign to be underſtood in any other light: ſome, however, are more credulous, and others go ſo far as acknowledge doubts: and, if the exiſtence of ſuch an iſland, at a period ſo diſtant, be admitted as a fact worthy of any credit, the age of the world may be reckoned as at leaſt conſiderably more than 12,000 years. The pretenſions of the Chineſe repreſent the world as ſome hundreds of thouſands of years older: and we are alſo told * that the aſtronomical records of the ancient Chaldæans carried back the origin of ſociety to a very remote period; no leſs than 473,000 years. The Egyptian prieſts reckoned between Menes and Sethon 341 generations †. But theſe accounts are ſo diſcordant, and ſo ſlenderly ſupported by evidence, that we cannot heſitate to reject them all as falſe; the fables of hiſtorians ſcarce merit ſo much attention as the hypotheſes of philoſophers.

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* *Brydone's Tour thro' Sicily and Malta.*

‡ *Ed. Phil. Tranſ.* vol. i.

* *Univerſal Hiſt.* vol. i. *Preface.*

† *Herod.* l. ii c. 14.

4
The era of the creation as ſtated in profane hiſtory.

When from profane we turn to ſacred hiſtory, we may reaſonably expect more accurate and more credible information concerning the antiquity of the globe. As the authenticity of the Holy Scriptures is ſo incontrovertibly eſtabliſhed, wherever they afford evidence concerning any fact, that evidence muſt be regarded as deciſive. A fact ſo important as the preſent may be thought highly worthy of a place in them. Unfortunately, however, even the ſacred writings do not fix the area of the creation with ſufficient accuracy; they leave us, in ſome meaſure, at a loſs whether to extend what they ſay concerning that era to the whole contents of created ſpace, or to confine it to our earth and its inhabitants: different copies give different dates; and even in the ſame copy, different parts relating the ſame events, either diſagree or do not ſpeak deciſively with regard to the length of the time in which they paſſed.—In the beginning of the ſixth chapter of the firſt book of Kings, the time which elapſed between the departure of the children of Iſrael from Egypt, and the period at which Solomon laid the foundation of his temple, is ſaid to have been 480 years: And in the book of Judges again, the age of all the patriarchs amounts to 592 years.† The Hebrew copy of the bible, which we Chriſtians for good reaſons conſider as the moſt authentic, dates the creation of the word 3944 years before the Chriſtian era. The Samaritan bible, again, fixes the era of the creation 4305 years before the birth of Chriſt. And the Greek tranſlation, known by the name of the *Septuagint* verſion of the bible, gives 5270 as the number of the years which intervened between thoſe two periods. As many other different calculations of the years contained in the ſame intermediate ſpace of time, might be formed upon other dates in the ſacred volume, differing in the different copies. By comparing the various dates in the ſacred writings, examining how theſe have come to diſagree and to be diverſified in different copies, endeavouring to reconcile the moſt authentic profane with ſacred chronology, and eking out deficiency of dates and evidence with conjecture; ſome ingenious men have formed ſchemes of chronology, plauſible indeed, but not ſupported by ſufficient authorities, which they would gladly perſuade us to receive in preference to any of thoſe abovementioned. Uſher makes out from the Hebrew bible 4004 years, as the term between the creation and the birth of Chriſt; Joſephus, according to Dr Wills and Mr Whiſton, makes it 4658 years; and M. Pezron, with the help of the Septuagint, extends it to 5872 years. Uſher's ſyſtem is the moſt generally received.

But though theſe different ſyſtems of chronology are ſo inconſiſtent and ſo ſlenderly ſupported, yet the differences among them are ſo inconſiderable in compariſon with thoſe which ariſe before us when we contemplate the chronology of the Chineſe, the Chaldeans, and the Egyptians, and they agree ſo well with the general information of authentic hiſtory and with the appearances of nature and of ſociety, that they may be conſidered as nearly fixing the true period of the creation of the earth.

5
No information on this head to be obtained from any other ſource but ſacred hiſtory.

Profane hiſtory cannot be expected to contain an account of the firſt events which paſſed after the creation of the ſubſtances of which the univerſe conſiſts. The conjectures of ancient philoſophers on this ſubject cannot merit attention; for vague tradition, and the appearances of nature, the only data on which they could proceed in forming their conjectures, could admit of no fair inductions concerning thoſe events; and beſides, inſtead of liſtening to tradition, or examining the appearances of nature, they generally conſulted imagination, and imagination alone, on ſuch occaſions. Here, therefore, we have nothing to hope but from the ſacred writings. From them we may expect hiſtorical information, not to be obtained from any other ſource. What they communicate is communicated on divine authority; and it is only on ſuch authority we can receive any accounts concerning the creation.

6
Hints concerning the creation in the book of Job.

A few hints in the book of Job, afford the earlieſt information to be found in the ſcriptures concerning the creation of the world. "Where waſt thou when I laid the foundations of the earth, when the morning ſtars ſang together, and all the ſons of God ſhouted for joy*?" "Behold, he put no truſt in his ſervants, and his angels he charged with folly†." "And unto man, (or to Adam), he ſaid, Behold, the fear of the Lord is wiſdom, and to depart from evil is underſtanding‡." Theſe paſſages rather hint at than relate facts. But it has been inferred from them, that there were ſtars in the firmament, and angels in heaven, before the formation of our globe; that angels as well as man have fallen; and that other injunctions, beſides that of abſtaining from the forbidden fruit, were laid on Adam when he was firſt placed in Paradiſe‖. If the interpretation be admitted as juſt, the firſt of theſe facts may be conſidered as forming, as it were, a point with which our knowledge of the works of the Deity commences: the period of time at which the ſecond event took place is not ſpecified; and the precept to Adam muſt no doubt have be been uttered after he was formed and inſpired with intelligence. Yet with regard to the firſt of the above quotations from the book of Job, the only one that is of importance to us at preſent it muſt be acknowledged, that it has been differently underſtood. The morning ſtars might ſing together, and the ſons of God ſhout for joy, on account both of their own creation and of the creation of the earth at one time; and yet Job, having been himſelf made a conſcious being at a much later period, not be able to tell where he was at that era of exulting gratitude and congratulation.

7
Moſaic account of the creation.

Moſes relates that* "in the beginning God created the heavens and the earth. And the earth (continues he) was without form and void; and darkneſs was upon the face of the deep: and the ſpirit of God moved upon the face of the waters. And God ſaid, Let there be light, and there was light. And God ſaw the light, that it was good: and God divided the light from the darkneſs. And God called the light day, and the darkneſs he called night: and the evening and the morning were the firſt day." During five ſucceeding days the work of creation was carried on. On the ſecond day, a firmament was made to ſeparate the waters, and that firmament called *heaven:* on the third day, the waters were collected into ſeas, and the land from which the waters retired cauſed to produce graſs and trees and other plants: on the fourth day, lights were made to appear in the firmament: to enlighten the earth, to divide the day from the night, and to diſtinguiſh time into ſeaſons and years: on the fifth day, the ſeas were peopled with whales and other fiſhes, and the air with fowls: on the ſixth day, the earth was furniſhed with reptiles and quadrupeds of all kinds; and on the ſame day, the firſt human pair, the progenitors of all the human race, were created in God's own image.

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† *Univerſal Hiſt.* vol. i. *Preface.*

* Chap. xxxviii. ver. 4 & 7.

† Ch. iv. ver. 18.

‡ Ch. xxviii. ver. 28.

‖ *Milne's Lectures*, Lect. 1.

* Gen. i. 1.

8 Difficulties occurring in the above account.

Some difficulties occur in comparing this account of the creation with the laws which appear at preſent to regulate the ſyſtem of nature. We find it hard to conceive how the earth, while yet a ſtranger to the influence of the ſun, could experience the viciſſitude of day and night; and are aſtoniſhed at the rapidity with which trees and herbage firſt overſpread its ſurface. The condition of matter when the earth was without form and void, and the operation of the ſpirit of God on the face of the waters, are equally myſterious.

9 Attempts to ſolve thoſe difficulties. Dr Burnet's theory.

Some ingenious men have eagerly laboured to remove theſe difficulties. Among theſe is Dr Burnet, whoſe theory of the earth has now been long conſidered as fanciful and ill-founded. He ſuppoſes all the celeſtial bodies, even the ſun and all the other planets of the ſolar ſyſtem, to have exiſted long before the earth. The chaos on which the ſpirit of God moved, conſiſted, according to him, of the firſt principles from which all terreſtrial bodies have been formed. When thoſe laws by which the material world is regulated firſt began to operate on the maſs, he ſuppoſes that its groſſer and heavier parts would ſink towards the centre, and there form a ſolid ball. Around this ſolid ball two ſpecies of particles would ſtill float together in confuſion. Of theſe he thinks one, being more volatile, would by degrees make its eſcape from the other, would leave it ſtill recumbent on the ſolid centre, and ſpread around it in an atmoſphere. The middle ſtratum he compoſes of aqueous and oleaginous fluids; and he makes no doubt, that after the air had made its eſcape, the levity of the oleaginous fluids would enable them to riſe above the aqueous, and diſpoſe themſelves next the ſurface of the liquid maſs. On them he ſuppoſes the impure atmoſphere to have then depoſited a quantity of terrene particles, ſufficient to form, by intermixture with the oils, a thick cruſt of rich earth for the production of plants and herbage, and to afford an habitation to animals. This delicate ſhell he was careful not to furrow with ſeas or load with mountains; either of theſe would have reduced all to confuſion. Such is *his* earth; and after moulding it with ſo much ingenuity, and into ſo happy a form, he contents himſelf, without venturing to uſe the ſame freedoms with the remaining part of Moſes's account of the creation.

10 Objections to Dr Burnet's theory.

But Moſes affords nothing that can be with any propriety uſed in the foundation of ſuch a theory: he tells not whether the chaos conſiſted of thoſe terrene, and aqueous, and oleaginous, and aërial particles which Dr Burnet finds in it; he confines not the ſeas within a cruſt of earth; nor does he inform us that the ſcenery of nature was not diverſified by hills and vales. Beſides, the author of this theory has, without any evidence, ſuppoſed matter to have been originally under the influence of laws very different from thoſe by which it is at preſent regulated. Oil, indeed, while fluid, floats above water: but in a concrete ſtate, it ſinks in water like other ſolid bodies. If reduced into that ſtate by combination with terrene matters, ſufficient to render the mixture proper for the nouriſhment and production of vegetables; its ſpecific gravity will be ſtill greater, and it will conſequently ſink ſo much the ſooner. How a concrete ſubſtance, conſiſting of earth and oil, could float on water, appears an inexplicable enigma. But we need not here take farther pains in combating and triumphing over this theory, which has long ſince fallen and ſunk to its grave.

11 Mr Whiſton's theory.

Mr Whiſton treats both the ſcriptures and the laws of nature with greater reverence. Yet he certainly involves himſelf in no trifling difficulties in attempting to ſolve thoſe which Moſes preſents. He ſuppoſes the ſun, moon, and ſtars to be all more ancient than the earth. The chaos from which the earth was formed, he repreſents as having been originally the atmoſphere of a comet. The ſix days of the creation he would perſuade us to believe equal to ſix of our years: for he is of opinion, that the earth did not revolve daily round its axis, but only annually round its orbit, till after the fall of man.

On the firſt day or year, therefore, the more ponderous parts of the chaos were according to this theory conglomerated into an orb of earth, the chinks and interſtices over that orb filled up with water, and the exterior part or atmoſphere rarefied, ſo as to admit ſome faint glimmering of the rays of the ſun.

On the ſecond day, the atmoſphere was diffuſed to its due extent around the earth, and reduced to a degree of rarity and purity which rendered it ſtill more ſuitable for the tranſmiſſion of light; the earth was ſtill more conſolidated; and the waters being almoſt entirely excluded from the interſtices which they before occupied, were partly ſpread over the ſurface of the earth, and partly raiſed in vapour into the atmoſphere or firmament.

On the third day, the earth's ſurface became ſo irregular, in one place riſing into hills, in another ſinking into vales, as to cauſe the waters, which were before equally diffuſed, to collect into ſeas and lakes, leaving large tracts of ground unoccupied. And no ſooner was a part of the earth's ſurface left bare by the waters, than the general influence of the ſun produced on it a rich covering of herbage, and all the different ſpecies of vegetables.

On the fourth day, the earth was rendered ſubject to the regular influence of the ſun, moon, and ſtars.

On the fifth day or year, things were ſo far advanced, that fiſhes and fowls were now produced from the waters.

On the ſixth day was the earth furniſhed with animals; and the lord of all the other animals, man, was now created.

12 Objections to Mr Whiſton's theory.

Such is Mr Whiſton's account of the phenomena of the Moſaic creation. But he likewiſe aſſumes much more than can be reaſonably granted. The atmoſphere

ſphere of a comet could not well be the primitive chaos; it is not an obſcure, but a pellucid fluid; and its exterior ſtrata, if of the ſame nature with the matter of our earth, muſt be ſcorified by its near approaches to the ſun. Had the earth not begun to move round its axis till after the work of creation was completed, the immoderate degrees of heat and cold which its different parts would have alternately felt, would in all probability have proved fatal to both plants and animals. Even the moſt artful interpretation of Moſes's words cannot repreſent him as meaning to inform us that the ſun and moon were created at different periods. But philoſophy will ſcarce permit us to imagine that the moon was formed before the earth. And therefore we cannot upon good grounds agree with Mr Whiſton, that the creation of the earth was later than that of the other bodies of the ſolar ſyſtem.

13
M. de Luc's theory and objections.

Among others who have endeavoured to explain the original formation of the earth, and the changes which it has undergone, is M. de Luc. This coſmologiſt, like Mr Whiſton, thinks that the days of the creation were much longer periods of time than our preſent days. He ſeems to think that the earth had exiſted long before the Moſaic creation; but began at that era to experience new changes, and to be regulated by new laws; that all the different events deſcribed by Moſes in his hiſtory of the creation, actually took place in the order in which he relates them; but that Moſes's days are indefinite ſpaces of time, which muſt have been very long, but of which we cannot hope to aſcertain the preciſe length. Theſe are ingenious conjectures; but they do not appear neceſſary, nor are they juſtified by facts. For a fuller and more cloſe inveſtigation of this part of the ſubject, we muſt refer to the article EARTH: and ſhall now cloſe the preſent article with a ſhort explanation of what appears to us the moſt natural way of underſtanding Moſes's account of the creation.

It has been conjectured*, with great probability, that the creation of which Moſes is the hiſtorian, was neither confined to the earth alone, nor extended to the whole univerſe. The relation which all the planets of the ſolar ſyſtem bear to the ſame illuminating body countenances the conjecture, that they, together with the luminary by which they are enlightened, were all created at one period: but it would perhaps be to conceive too meanly of the benevolence, wiſdom, and active power of the Deity to ſuppoſe that before that period theſe had never been exerted in any work of creation. Yet even here we have not demonſtrative evidence.

On the ſuppoſition that the whole ſolar ſyſtem was created at once, which has at leaſt the merit of doing no violence to the narrative of Moſes, the creation of the ſun and the other planets may be underſtood to have been carried on at the ſame time with the creation of the earth. In that caſe, even in the courſe of the firſt day, though not longer than our preſent days, thoſe bodies might be reduced to ſuch order, and their relative motions ſo far eſtabliſhed, as to begin the diſtinction between light and darkneſs, day and night.

On the ſecond day, we may naturally underſtand from Moſes's narrative, that the atmoſphere was purified, and the ſpecific gravities of aqueous vapour and atmoſpheric air ſo adjuſted, as to render the latter capable of ſupporting the former.

On the third day the waters were firſt collected into lakes and ſeas: but in what manner, we cannot well determine. Some call in the operation of earthquakes; others tell us, that when the earth was firſt formed, the exterior ſtrata were, at different parts over its ſurface, of different ſpecific gravities; and that the more ponderous parts now ſunk nearer the common centre, while the lighter parts ſtill remaining equally remote from it as before, formed iſlands, continents, hills, and mountains. But theſe are mere fancies; and we have not facts to offer in their ſtead. On the latter part of this day vegetables were cauſed to ſpring up over the earth. Their growth muſt have been much more rapid than we ever behold it now: but by what particular act of ſupernatural power that might be effected, we ſhould in vain inquire.

On the fourth day the ſun, moon, and ſtars, were made to appear. But according to the conjecture which we have mentioned as plauſible, though without aſcribing to it the evidence of certain truth, thoſe heavenly bodies are to be conſidered as having been created before this day. But they might now begin to exert their full influence on the earth in the ſame manner as they have ſince continued to do.

The creation of the inanimate world was now finiſhed, and the earth prepared for the reception of animals. On the fifth day, therefore, were the living inhabitants of the air and the waters created.

On the ſixth day the inferior animals inhabiting the earth were firſt created; and after that, the whole work was crowned by the creation of a male and female of the human ſpecies. To the account of the creation of the animals, nothing certain can be added in explanation of Moſes's narrative. No more but one pair of the human ſpecies were at firſt created: the ſame oeconomy might poſſibly be obſerved in the creation of the inferior animals.

CREBILLON (Proſper Joliot de), a French writer of tragedy, and uſually ranked after Corneille and Racine, was born at Dijon in 1674. He was originally deſtined to the profeſſion of the law, and placed at Paris with that view; but the impetuoſity of his paſſions rendering him unfit for buſineſs, he was urged by ſome friends, who diſcerned very well his natural turn, to attempt dramatic compoſitions. He complied, but not till after many refuſals; and gave at length a tragedy, which met with great ſucceſs. He then marched on in the career he had begun, but was checked by a fit of love for an apothecary's daughter; which fit of love ended in marriage. His father, doubly enraged at his ſon for thus ſurrendering himſelf to the two demons of love and poetry, diſinherited him; but falling ſick ſome years after, in 1707, he re-eſtabliſhed him in all his rights, and died. Crebillon was, however, little better for his acquiſitions, the greateſt part being probably waſted before they came; and thus, though high in fame and at the prime of life, he ſtill continued poor. He loſt his wife in 1711, and fortune long frowned upon him, till at laſt he obtained a place in the French academy, and the employment of cenſor of the police. He was afterwards in good circumſtances, and happy to the end of his life, which was a very long one; for he did not die till 1762, aged 88. He was much regretted and lamented, as old as he was; being a very worthy man, and poſſeſſed of many and great virtues. He was of a temperament extremely robuſt, without which he could not have held out ſo long; for he eat prodigiouſly, and continued to the laſt ſo to do. He ſlept little, and lay as hard as if upon the floor; not from any pious principle of mortifying, but becauſe he liked it. He was always ſurrounded with about 30 dogs and cats; and uſed to ſmoak a good deal of tobacco, to keep his room ſweet againſt their exhalations. Whenever he was ill, he uſed to manage himſelf according to his own fancy and feelings; for he always made a jeſt of phyſic and phyſicians. He was a dealer in *bons mots*. Being aſked one day in full company, which of his works he thought the beſt? "I don't know (ſays he) which is my beſt production; but this (pointing to his ſon) is certainly my worſt."

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* Univ. Hiſt. vol. i. p. 25.

CRECY, Creſcy, or Creſſy. See Creſſy.

CREDENTIALS, letters of recommendation and power, eſpecially ſuch as are given to ambaſſadors or public miniſters, by the prince or ſtate that ſends them to foreign courts.

CREDIBILITY, a ſpecies of evidence, leſs indeed than abſolute certainty or demonſtration, but greater than mere poſſibility: it is nearly allied to probability, and ſeems to be a mean between poſſibility and demonſtration.

CREDIT, in commerce, a mutual truſt or loan of merchandize or money, on the reputation of the probity and ſolvability of a dealer.

Credit is either public or private. Every trader ought to have ſome eſtate, ſtock, or portion of his own, ſufficient to carry on the traffic he is engaged in: they ſhould alſo keep their dealings within the extent of their capital, ſo that no diſappointment in their returns may incapacitate them from ſupporting their credit. Yet traders of worth and judgment may ſometimes lie under the neceſſity of borrowing money for carrying on their buſineſs to the beſt advantage; but then the borrower ought to be ſo juſt to his own reputation and to his creditors, as to be well aſſured that he has ſufficient effects within his power to pay off his obligations in due time. But if a trader ſhould borrow money to the extent of his credit, and launch out into trade ſo as to employ it with the ſame freedom as if it was his own proper ſtock, ſuch a way of management is very precarious, and may be attended with dangerous conſequences. Merchants ought never to purchaſe their goods for exportation upon long credit, with intent to diſcharge the debt by the return of the ſame goods; for this has an injurious influence on trade ſeveral ways: and if any merchant has occaſion to make uſe of his credit, it ſhould always be for the borrowing of money, but never for the buying of goods; nor is the large credit given to wholeſale traders a prudential or juſtifiable practice in trade.

The public credit of a nation is ſaid to run high when the commodities of that nation find a ready vent, are ſold at a good price, and when dealers may be ſafely truſted with them: alſo when lands and houſes find ready purchaſers; when money is to be borrowed at a low intereſt: when people think it ſafe and advantageous to venture large ſtocks in trade; and when notes, mortgages, &c. will paſs for money.

Letters of Credit, are thoſe given to perſons in whom a merchant, &c. can truſt, to take money of his correſpondent abroad, in caſe he happens to need it.

Credit is alſo uſed for the currency which papers or bills have in the public or among dealers. In this ſenſe credit is ſaid to riſe, when, in negociating the ſhares of the company, they are received and ſold at prices above *par*, or the ſtandard of their firſt creation. Diſcredit is oppoſed to credit, and is uſed where money, bills, &c. fall below *par*.

Credit was alſo anciently a right which lords had over their vaſſals; conſiſting in this, that during a certain time they might oblige them to lend them money. In this ſenſe, the Duke of Britanny had credit during fifteen days on his own ſubjects, and thoſe of the biſhop of Nantes; and the biſhop had the ſame credit or right among his ſubjects and thoſe of that prince.

CREDITON, a market-town in Devonſhire, conſiderable for a good woollen manufactory: it is ſituated about 9 miles north-weſt of Exeter, in W. Long. 3. 50. and N. Lat. 50. 50.

CREDITOR, a perſon to whom any ſum of money is due, either by obligation, promiſe, or otherwiſe. See Debt.

CREDULITY denotes a weakneſs of mind, by reaſon of which a perſon yields his aſſent to propoſitions or facts, before he has conſidered their evidence.

CREECH (Thomas), eminent for his tranſlations of ancient authors both in proſe and verſe, was ſon of Thomas Creech, and born near Sherborne in Dorſetſhire in 1659. He was educated in grammar learning under Mr Curganven of Sherborne, to whom he afterwards dedicated a tranſlation of one of Theocritus's Idylliums; and entered a commoner of Wadham college in Oxford in 1675. Wood tells us that his father was a gentleman; but Giles Jacob ſays, in his Lives and characters of Engliſh Poets, that his parents circumſtances not being ſufficient to afford him a liberal education, his diſpoſition and capacity for learning raiſed him up a patron in Colonel Strangeways, whoſe generoſity ſupplied that defect. Be that as it will, Creech diſtinguiſhed himſelf much, and was accounted a good philoſopher and poet, and a diligent ſtudent. June 13. 1683. he took the degree of maſter of arts, and not long after was elected probationer fellow of All-ſouls college; to which, Jacob obſerves, the great reputation acquired by his tranſlation of Lucretius recommended him. Wood tells us, that upon this occaſion he gave ſingular proofs of his claſſical learning and philoſophy before his examiners. He alſo took the degree of B. D. on the 18th of March 1696. He now began to be well known by the works he publiſhed; but Father Niceron obſerves, that they were of no great advantage to his fortune, ſince his circumſtances were always indifferent. In 1699, having taken holy orders, he was preſented by his college to the living of Welwyn in Hertfordſhire; but this he had not long enjoyed before he put an end to his own life. The motives of this fatal cataſtrophe have been variouſly repreſented. The author of the *Nouvelles de la Republique des Lettres* informs us, that in the year 1700 Mr Creech fell in love with a woman who treated him with great neglect, though ſhe was complaiſant enough to ſeveral others. This affront he could not bear, and reſolved not to ſurvive it. Whereupon he ſhut himſelf up in his ſtudy, where he hanged himſelf about the end of June 1700, and was found in that circumſtance three days after. The Poetical Regiſter ſays nothing of the particular manner of his death, but only that he unfortunately made away with himſelf in the year 1701; and aſcribes this fatal cataſtrophe of Mr Creech's life to the moroſeneſs of his temper, which made him leſs eſteemed than his great merit deſerved, and engaged him in frequent animoſities and diſputes upon that account. But from an original letter of Arthur Charlett, preſerved in the Bodleian library, it has lately been diſcovered, that this unhappy event was owing to a very different cauſe. There was a fellow collegian of whom Creech frequently borrowed money; but repeating his applications too often, he met one day with ſuch a cold reception, that he retired in a fit of gloomy diſguſt, and in three days was found hanging in his ſtudy. Creech's principal performances are, 1. A Tranſlation of Lucretius. 2. A Tranſlation of Horace; in which, however, he has omitted ſome few odes. 3. The Idylliums of Theocritus, with Rapin's Diſcourſe of Paſtorals. 4. A tranſlation of Manilius's Aſtronomicon. Beſides tranſlations of ſeveral parts of Virgil, Ovid, and Plutarch; printed in different collections.

CREED, a brief ſummary of the articles of a Chriſtian's belief.

The moſt ancient form of creeds is that which goes under the name of the apoſtolic creed: beſides this, there are ſeveral other ancient forms and ſcattered remains of creeds to be met with in the primitive records of the church. The firſt is the form of apoſtolical doctrine, collected by Origen; the ſecond is a fragment of a creed preſerved by Tertullian; the third remains of a creed is in the works of Cyprian; the fourth, a creed compoſed by Gregory Thaumaturgus, for the uſe of his own church; the fifth, the creed of Lucian the martyr; the ſixth, the creed of the apoſtolical conſtitutions. Beſides theſe ſcattered remains of the ancient creeds, there are extant ſome perfect forms, as thoſe of Jeruſalem, Ceſarea, Antioch, &c.

The moſt univerſal creeds are, the APOSTOLICAL, the ATHANASIAN, and the NICENE creeds. See theſe articles.

Theſe three creeds are uſed in the public offices of the church of England; and ſubſcription to them is required of the clergy, and of diſſenting teachers properly qualified by the toleration act, as the eighth article declares that they may be proved by the ſureſt teſtimonies of ſcripture.

CREEK, a part of a haven, where any thing is landed from the ſea. So many landing-places as there are in a harbour or port, ſo many creeks there are. It is alſo ſaid to be a ſhore or bank whereon the water beats, running in a ſmall channel from any part of the ſea; from the Latin *crepido*. This word is uſed in the ſtat. 4 Hen. IV. c. 20. and 5 Eliz. c. 5.

CREENGLES. See CRINGLE.

CREEPER, in ornithology. See CERTHIA.

CREEPER, in naval affairs, an inſtrument of iron reſembling a grappling, having a *ſhank*, and four hooks or claws. It is uſed to throw into the bottom of any river or harbour, with a rope faſtened to it, to hook and draw up any thing from the bottom which may have been loſt. See Plate CL.

CRELLIUS (John), a famous Socinian, born in 1590, in a village near Noremberg. In 1612 he went into Poland, where the Unitarians had a ſchool, in which he became profeſſor of divinity, and miniſter at Crackow, where he died in 1632, aged 42. He was the author, 1. Of a famous Treatiſe againſt the Myſtery of the Trinity; 2. Commentaries on a part of the New Teſtament; and other works. All of them are ſcarce.

CREMA, a city and biſhop's ſee of Italy, capital of a diſtrict of the Milaneſe, called from it *Cremaſco*: it ſtands almoſt in the middle between Milan and Mantua, in E. Long. 10. 15. and N. Lat. 45. 20.

CREMASTER, in anatomy, the name of a muſcle of the teſticle, of which there is one on each ſide. See ANATOMY, *Table of the Muſcles*.

CREMATION is ſometimes uſed for burning, particularly when applied to the ancient cuſtom of burning the dead. This cuſtom is well known to have prevailed among moſt eaſtern nations, and continued with their deſcendants after they had peopled the different parts of Europe. Hence we find it prevailing in Greece, Italy, Gaul, Britain, Germany, Sweden, Norway, and Denmark, till Chriſtianity aboliſhed it.

CREMONA (anc. geog.), a Roman colony, with municipal rights, ſettled beyond the Po, below the confluence of the Addua, on the report of Hannibal's march into Italy (Polybius): a town at this day ſtill maintaining its name and flouriſhing ſtate. It was an opulent and mercantile city; but ſuffered greatly in the civil wars of Auguſtus (Virgil). In the war with Vitellius, it was deſtroyed by the partizans of Veſpaſian; but was ſoon after rebuilt by the munificence of the citizens and exhortations of Veſpaſian, (Tacitus). Now capital of the Cremoneſe, in the duchy of Milan. E. Long. 10. 30. Lat. 45.

CRENATED, in botany. See BOTANY-*Index*.

CRENELLE, or IMBATTLED, in heraldry, is uſed when any honourable ordinary is drawn, like the battlements on a wall to defend men from the enemies ſhot. This attribute belongs to the arms of ſuch as have defended caſtles for their prince or country, or of ſuch as are ſkilled in architecture.

CRENOPHYLAX, in antiquity, a magiſtrate of Athens, who had the inſpection of fountains.

CREODIBA, in the cuſtoms of the middle age, a robbery and murder committed in a wood, where the body of the perſon killed was burnt in order to prevent any diſcovery of the crime. The word, ſays Wendelinus, is compounded of *cruy* and *diven*, that is, "wood-robbers."

CREOLES, a name given to the families deſcended from the Spaniards who firſt ſettled at Mexico in America. Theſe are much more numerous than the Spaniards properly ſo called, and the Mulattoes, which two other ſpecies of inhabitants they diſtinguiſh; and are excluded from all conſiderable employments.

CREON, king of Corinth, was ſon of Syſiphus. He promiſed his daughter Glauce to Jaſon, who had repudiated Medea. To revenge the ſucceſs of her rival, Medea ſent her for a preſent a gown covered with poiſon. Glauce put it on, and was ſeized with ſudden pains.

Her body took fire, and ſhe expired in the greateſt torments. The houſe alſo was conſumed by the fire, and Creon and his family ſhared Glauce's fate.

Creon, ſon of Menœtius, was father of Jocaſta, the wife and mother of Oedipus. At the death of Laius, who had married Jocaſta, Creon aſcended the vacant throne of Thebes. As the ravages of the Sphynx were intolerable, Creon offered his crown and daughter in marriage to him who could explain the enigmas which the monſter propoſed. Oedipus was happy in his explanations, and he aſcended the throne of Thebes and married Jocaſta without knowing that ſhe was his mother, and by her he had two ſons, Polynices and Eteocles. Theſe two ſons mutually agreed after their father's death to reign in the kingdom each a year alternately. Eteocles firſt aſcended the throne by right of ſeniority; but when he was once in power he refuſed to reſign at the appointed time, and his brother led againſt him an army of Argives to ſupport his right. The war was decided by a ſingle combat between the two brothers. They both killed one another, and Creon aſcended the throne till Leodamus the ſon of Eteocles ſhould be of a ſufficient age to aſſume the reins of government. In his regal capacity he commanded that the Argives, and more particularly Polynices, who was the cauſe of all the bloodſhed, ſhould remain unburied. If this was in any manner diſobeyed, the offenders were to be buried alive. Antigone the ſiſter of Polynices tranſgreſſed, and was accordingly puniſhed. Hæmon the ſon of Creon, who was paſſionately fond of Antigone, killed himſelf on her grave, when his father refuſed to grant her pardon. Creon was afterwards killed by Theſeus, who had made war with him becauſe he refuſed burial to the Argives.

CREPANCE, in the manege, a chop or cratch in a horſe's leg, given by the ſpunges of the ſhoes of one of the hinder feet croſſing and ſtriking againſt the other hinder foot. This cratch degenerates into an ulcer.

CREPIDÆ, among the Romans, a kind of ſlippers or ſhoes, which were always worn with the *pallium*, as the *calcei* were with the *toga*.

CREPIS, hawk-weed: A genus of the polygamia ſuperflua order, belonging to the ſyngeneſia claſs of plants; and in the natural method ranking under the 49th order, *Compoſitæ*. The receptacle is naked; the calyx calyculated with deciduous ſcales; the pappus feathery and ſtalked. There are 14 ſpecies, moſt of them herbaceous annuals, riſing to the height of a foot or a foot and an half; and having their branches terminated by ligulated compound red and yellow flowers. Theſe are very large, and conſiſt of many flat florets ſpread over one another imbricatim, and when fully blown appear as if radiated. They are very conſpicuous and beautiful: and appear in June, July, and Auguſt. They are ſucceeded by plenty of ſeed, which, if permitted to ſcatter on the ground, will produce a number of young plants without further trouble.

CREPITATION, that noiſe which ſome ſalts make over the fire in calcination, called alſo *detonation*.

Crepitation is alſo uſed in ſurgery, for the noiſe made by the ends or pieces of bones, when the ſurgeon moves a limb to aſſure himſelf by his ear of the exiſtence of a fracture.

CREPUNDIA, in antiquity, a term uſed to expreſs ſuch things as were expoſed along with children, as rings, jewels, &c. ſerving as tokens whereby they afterwards might be known.

CREPUSCULUM, in aſtronomy, twilight; the time from the firſt dawn or appearance of the morning to the riſing of the ſun; and again, between the ſetting of the ſun and the laſt remains of day.

Papias derives the word from *creperus*; which, he ſays, anciently ſignified *uncertain*, *doubtful*, q. d. *a dubious light*. The crepuſculum is uſually computed to begin and end when the ſun is about 18 degrees below the horizon; for then the ſtars of the ſixth magnitude diſappear in the morning, and appear in the evening. It is of longer duration in the ſolſtices than in the equinoxes, and longer in an oblique than in a right ſphere.

The crepuſcula are occaſioned by the ſun's rays refracted in our atmoſphere, and reflected from the particles thereof to the eye. See Twilight.

CRESCENT, the new moon, which, as it begins to recede from the ſun, ſhows a little rim of light, terminating in points or horns, which are ſtill increaſing till it become full and round in the oppoſition. The word is formed from *creſco*, "I grow."

The term is alſo uſed for the ſame figure of the moon in its wane or decreaſe, but improperly; becauſe the points or horns are then turned towards the weſt, whereas they look to the eaſt in the juſt creſcent.

Crescent, in heraldry, is a bearing in form of a half moon. The Ottomans bear ſinople, a creſcent montant, argent.

The creſcent is frequently uſed as a difference in coat-armour, to diſtinguiſh it for that of a ſecond brother or junior family.

The figure of the creſcent is the Turkiſh ſymbol; or rather is that of the city Byzantium, which bore this device from all antiquity; as appears from medals ſtruck in honour of Auguſtus, Trajan, &c.

The creſcent is ſometimes montant, i. e. its points look towards the top of the chief, which is its moſt ordinary repreſentation; whence ſome contend, that the creſcent, abſolutely ſo called, implies that ſituation; though other authors blazon it montant, when the horns are towards the dexter-ſide of the eſcutcheon, in which poſition others call it *incroiſſant*.

Creſcents are ſaid to be *adoſſed*, when their backs or thickeſt parts are turned towards each other; their points looking to the ſides of the ſhield. *Creſcent inverted*, is that whoſe points look towards the bottom: *turned creſcents*, are placed like thoſe adoſſed; the difference is, that all their points look to the dexter-ſide of the ſhield: *conturned creſcents*, on the contrary, look to the ſiniſter ſide: *affronted* or *appointed creſcents*, are contrary to the adoſſed, the points looking towards each other.

Crescent is alſo the name of a military order, inſtituted by Renatus of Anjou, King of Sicily, &c. in 1448; ſo called from the badge or ſymbol thereof, a creſcent of gold enamelled. What gave occaſion to this eſtabliſhment was, that Renatus took for his device a creſcent, with the word *loz*, "praiſe," which, in the ſtyle of rebus, makes *loz in creſcent*, q. d. *by advancing in virtue, one merits praiſe*.

CRESCENTIA, the CALABASH-TREE: A genus of the angioſpermia order, belonging to the didynamia claſs of plants; and in the natural method ranking under the 25th order, *Putamineæ*. The calyx is bipartite and equal; the corolla gibbous; the berry pedicellated or ſtalked, unilocular, and polyſpermous; the ſeeds bilocular. There are two ſpecies.

1. The cujete, with oblong narrow leaves and a large oval fruit, is a native of Jamaica and the Leeward Iſlands. It hath a thick trunk covered with a whitiſh bark, which riſes from 20 to 30 feet high, and at the top divides into many branches, forming a large and regular head, garniſhed with leaves, which come out irregularly, ſometimes ſingle; at other times many ariſe out of the ſame knot: the flowers are produced from the ſides of the large branches, and ſometimes from the trunk, ſtanding upon long footſtalks. They have but one petal, which is irregular; and they are of a greeniſh yellow colour, ſtriped and ſpotted with brown. Theſe are ſucceeded by very large fruit, generally ſpherical, ſometimes oval; and at other times they have a contracted neck like a bottle; and are ſo large, that when the pulp and ſeeds are cleaned out, the ſhells will contain three pints or two quarts of liquid. The fruit is covered externally with a thin ſkin of a greeniſh-yellow colour when ripe. When this is peeled off, there appears a hard ligneous ſhell, incloſing a pale yellowiſh ſoft pulp of a tart unſavoury flavour, ſurrounding a great number of flat heart-ſhaped ſeeds. 2. The latifolia, or broad-leaved calabaſh, ſeldom riſes more than 15 or 20 feet high, with an upright trunk, covered with a white ſmooth bark, ſending out many lateral branches at the top, garniſhed with leaves three inches in length, and one and a quarter broad, ranged alternately. The flowers come out as in the former ſpecies; but are ſmaller, and of a deeper yellow colour. The fruit of this ſort is ſometimes round, ſometimes oval, but of very unequal ſizes. Both theſe ſpecies are eaſily propagated by ſeeds; but the plants are too tender to live in Britain, unleſs they are conſtantly kept in a ſtove.

The ſhells of calabaſhes are made uſe of for various purpoſes. At Barbadoes, beſides drinking-cups and punch-bowls, there are made of them ſpoons, diſhes, and other utenſils for the ſlaves. Some of theſe ſhells are ſo large, as to be capable of holding 15 pints of water. The pulp is ſeldom eaten, except by cattle in the time of drought. The wood, which is hard and ſmooth, is made into ſtools, chairs, and other furniture.

CRESCIMBENI (John Maria), an Italian, was born at Macerata in Ancona, 1663. His talents for poetry and eloquence developed themſelves early. His verſes at firſt had too much pomp and point; but reſiding in Rome, and reading the beſt Italian poets, brought him back to nature. He not only reformed himſelf, but undertook to reform bad taſte in general. From this motive he projected the eſtabliſhment of a new academy, under the name of *Arcadia*; the members of which at firſt did not exceed 14, but afterwards increaſed much. They called themſelves the ſhepherds of Arcadia, and each took the name of ſome ſhepherd and ſome place in that ancient kingdom. The founder of this ſociety was appointed the director of it in 1690, and held this honourable poſt 38 years; namely, to the year of his death, which happened in 1728. Among a great number of works, in verſe and proſe, the principal is, An Hiſtory of the Italian Poetry, very much eſteemed, and reprinted, 1731, at Venice, in ſix volumes 4to. This hiſtory is accompanied with a commentary, containing anecdotes of Italian poets. He publiſhed alſo an Hiſtory of the Academy of Arcadia, together with the Lives of the moſt illuſtrious Arcadians: and many other works.

CRESCY, or CRESSY. See CRESSY.

CRESS, WATER-CRESS, or CRESSES, in botany. See SISYMBRIUM.

Indian Cress. See TROPÆOLUM.

CRESSY, a port town of Picardy in France, about 44 miles ſouth of Calais, and 27 north-weſt of Abbeville, remarkable on account of the victory obtained there over the French by Edward III. of England, in the year 1346. E. Long. 2. 0. N. Lat. 50. 20.

Edward having encountered and overcome many difficulties in his expedition, was at laſt ſo cloſely followed and haraſſed by the French army, commanded by the King of France in perſon, that he determined to make a ſtand at this place, and to give his purſuers a check. For this purpoſe he choſe his ground with great judgment, on the gentle declivity of a hill, with a thick wood in his rear. He ordered deep entrenchments to be made on each flank, and waited with firmneſs the approach of his enemies. The King of France, dreading nothing ſo much as the eſcape of the Engliſh, began the march of his great army from Abbeville early in the morning, Auguſt 26. and continued it ſeveral hours with great eagerneſs, till he received intelligence that the Engliſh had halted at Creſſy, and were prepared to give him battle. He was adviſed at the ſame time not to engage that day, when his troops were much fatigued with their march, and in great diſorder; and he was diſpoſed to have taken this advice. But the diſcipline of theſe times was ſo imperfect, that the orders given for halting were not obeyed; and one corps of this mighty hoſt impelling another, they continued advancing till they came into the preſence of their enemies in much confuſion.

Henry's Hiſtory, Vol. IV. p. 178.

Edward had employed the forenoon of this important day in drawing up his army in the moſt excellent order, in three lines. The firſt line, which conſiſted of 800 men at arms, 4000 Engliſh archers, and 600 Welſh foot, was commanded by his young, amiable, and heroic ſon, the Prince of Wales, aſſiſted by the Earls of Warwick and Oxford, and ſeveral other noblemen. The ſecond line, compoſed of 800 men at arms, 4000 halbardiers, and 2400 archers, was led by the Earls of Arundel and Northampton; the laſt line, or body of reſerve, in which were 700 men at arms, 5300 billmen, and 6000 archers, was ranged along the ſummit of the hill, and conducted by the King in perſon, attended by the Lords Moubray, Mortimer, and others. When the army was completely formed, Edward rode along the lines, and by his words and looks inſpired his troops with the moſt ardent courage and ſtrongeſt hopes of victory. He then commanded the cavalry to diſmount, and the whole army to ſit down upon the graſs, in their ranks, and refreſh themſelves with meat, drink, and reſt. As ſoon as the French army came in view, they ſprung from the ground, full of ſtrength and ſpirit, and ſtood ready to receive them.

The King of France, aſſiſted by the Kings of Bo-

hemia

Creſſy.

hemia and Majorca, the Dukes of Lorraine and Savoy, and ſeveral other ſovereign princes, with the flower of the French nobility, laboured to reſtore ſome degree of order to his prodigious army, and drew it up alſo in three lines, but very indiſtinctly formed. The firſt line was commanded in chief by the King of Bohemia; the ſecond by the Earl of Alençon, the King of France's brother; and the third by Philip in perſon; and each of theſe lines contained a greater number of troops than the whole Engliſh army.

The battle of Creſſy was begun about three o'clock in the afternoon, Auguſt 26. by a great body of Genoeſe croſs-bowmen, in the French ſervice, who let fly their quarrels at too great a diſtance to do any execution, and were preſently routed by a ſhower of arrows from the Engliſh archers. The Earl of Alençon, after trampling to death many of the flying Genoeſe, advanced to the charge, and made a furious attack on that corps commanded by the Prince of Wales. The Earls of Arundel and Northampton advanced with the ſecond line to ſuſtain the Prince, and Alençon was ſupported by as many troops as could crowd to his aſſiſtance. Here the battle raged for ſome time with uncommon fury; and the Earl of Warwick, anxious for the fate of the day and the ſafety of the Prince, ſent a meſſenger to the King, intreating him to advance with the third line. Edward, who had taken his ſtand on a wind-mill on the top of the hill, from whence he had a full view of both armies, aſked the meſſenger, if his ſon was unhorſed, or wounded, or killed? and being anſwered, that the Prince was unhurt, and performed prodigies of valour, "Go then," ſaid he, "and tell my ſon and his brave companions, that I will not deprive them of any part of the glory of their victory." This flattering meſſage being made known, inſpired the Prince and his troops with redoubled ardour; and the king of Bohemia, the Earl of Alençon, and many other great men, being ſlain, the whole firſt and ſecond lines of the French army were put to flight. Philip, undiſmayed at the ſlaughter of his troops, and the fall of ſo many princes, advanced to the charge with the line under his immediate command. But this body ſoon ſhared the ſame fate with the other two; and Philip, after having been unhorſed, and wounded in the neck and thigh, was carried off the field by John de Hainault, and fled with no more than five knights and about 60 ſoldiers in his company, of all his mighty army, which at the beginning of the battle conſiſted of more than 120,000 men. Such was the famous victory of Creſſy, the greateſt ever gained by any King of England. After the battle, the King flew into the arms of the Prince of Wales, and graſping him to his boſom, cried in an ecſtacy of joy, "My dear ſon, you have this day ſhowed yourſelf worthy of the knighthood which you lately received, and of the crown for which you have ſo bravely fought; perſevere in your honourable courſe." The Prince, as modeſt as he was brave, ſunk down on his knees, his face covered with bluſhes, and begged his father's bleſſing. Edward continued with his army at Creſſy three days, employed in numbering and burying the dead. The French had left on this bloody ſcene the King of Bohemia, 11 other princes, 80 bannerets, 1200 knights, 1500 gentlemen, 4000 men of arms, and 30,000 other ſoldiers.

Creſt || Crete.

CREST, in armoury, denotes the uppermoſt part of an armoury; or that part riſing over the caſk or helmet.—Next to the mantle, ſays Guillim, the creſt or cognizance claims the higheſt place, being ſeated on the moſt eminent part of the helmet; yet ſo as to admit an interpoſition of ſome eſcrol, wreath, chapeau, crown, &c.

The ancient warriors wore creſts to ſtrike terror in their enemies, as the ſight of the ſpoils of animals they had killed; or to give them the more formidable mien, by making them appear taller, &c.

In the ancient tournaments, the cavaliers had plumes of feathers, eſpecially thoſe of oſtriches and herons, for their creſts; theſe tufts they called *plumarts*; and were placed in tubes, on the tops of high caps or bonnets. Some had their creſts of leather; others of parchment, paſteboard, &c. painted or varniſhed, to keep out the weather; others of ſteel, wood, &c. on which were ſometimes repreſented a member or ordinary of the coat; as, an eagle, fleur-de-lys, &c. but never any of thoſe called *honourable ordinaries*, as pale, feſſe, &c. The creſts were changeable at pleaſure; being reputed no other than as an arbitrary device or ornament.

Herodotus attributes the riſe of creſts to the Carians, who firſt bore feathers on their caſks, and painted figures on their bucklers; whence the Perſians called them *cocks*.

The creſt is eſteemed a greater mark of nobility than the armoury, as being borne at tournaments; to which none were admitted till they had given proof of their nobility. Sometimes it ſerves to diſtinguiſh the ſeveral branches of a family. It has alſo ſerved, on occaſion, as the diſtinguiſhing badge of factions. Sometimes the creſt is taken from the device; but more uſually it is formed of ſome piece of the arms: thus, the emperor's creſt is an eagle; that of Caſtile, a caſtle, &c. Families that exchange arms, as the houſes of Brunſwick and Cologne have done, do not change their creſts; the firſt ſtill retain the horſe, and the latter the mermaid.

CREST, in heraldry, the figure placed above the helmet in an atchievement. See HERALDRY.

CREST-fallen, a fault of an horſe, when the upper part of his neck, called the *creſt*, hangs to one ſide: this they cure by placing it upright, clipping away the ſpare ſkin, and applying plaſters to keep it in a proper poſition.

CRETA, or CHALK, in natural hiſtory. See CHALK.

CRETE, one of the largeſt iſlands in the Mediterranean, lying between 22 and 27 degrees of eaſt longitude, and between 35 and 36 degrees of north latitude. According to Strabo, this iſland is 287 miles in length; and according to Pliny, 270; and according to Scylax; 312. As to its breadth, it is not, as Pliny obſerves, above 55 miles where wideſt; whence it was ſtyled, as Stephanus obſerves, the *Long Iſland*. It has the Archipelago to the north, the African ſea to the ſouth, the Carpathian ſea to the eaſt, and the Ionian to the weſt. Anciently it was known by the names of *Aeria*, *Chthonia*, *Idæa*, *Curete*, *Macaris*, &c. but its moſt common name was that of *Crete*.

The Cretan mythologiſts, quoted by Diodorus Siculus, relate that the firſt inhabitants of the Iſland were the Dactyli, Idæi, who dwelt around mount Ida;

they were regarded as magicians, becauſe they poſſeſſed a variety of knowledge, and were particularly ſkilled in religious myſteries. Orpheus, who diſtinguiſhed himſelf ſo highly in poetry and muſic, was their diſciple. They diſcovered the uſe of fire, iron, and braſs, and invented the art of working theſe metals in Berecynthius, a mountain near Aptera. Thoſe invaluable diſcoveries procured them divine honours. One of them, named Hercules, rendered himſelf famous by his courage and great exploits. He inſtituted the Olympic games: though poſterity, by a miſtake ariſing from his bearing the ſame name, have aſcribed that inſtitution to the ſon of Alcmena; who, indeed, trode in the ſteps of his predeceſſor, and raiſed himſelf alſo to immortality.

The Dactyli Idæi were the anceſtors of the Curetes. Theſe laſt, at firſt inhabited the foreſts and caves of the mountains. Afterwards they entered into domeſtic life, and contributed, by their inſtitutions, to the civilization of mankind. They taught men to collect flocks of ſheep, to tame the ferocity of wild animals for domeſtic purpoſes, and to invite bees into hives, that they might rifle them of the fruit of their labours. They firſt prompted men to the chaſe, and taught the uſe of the bow. They were the inventors of ſwords and of military dances. The noiſe which they made, by dancing in armour, hindered Saturn from hearing the cries of Jupiter, whoſe education Rhea had entruſted to them. With the aſſiſtance of the nymphs, they brought up that god in a cave in mount Ida, feeding him with the milk of the goat Amalthea, and with honey.

To this period mythology aſſigns the origin of the Titans; their abode near Gnoſſus, where ſtood the palace of Rhea; their travels over the whole earth; their war againſt Ammon, and his defence by Bacchus; the nuptials of Jupiter and Juno, celebrated nigh the river Therenus in Crete; the gods, goddeſſes, and heroes who deſcended from them.

The moſt illuſtrious of thoſe heroes were Minos and Rhadamanthus. They are ſaid to have been the ſons of Jupiter and Europa, who was conveyed into the iſland on a bull. Minos becoming king, built ſeveral cities; the moſt conſiderable of which are—Gnoſſus, on that ſide of the iſland which faces Aſia, Phœſtus on the ſouthern ſhore, and Cydon on the weſtern, facing Peloponneſus. He gave to his ſubjects a code of admirable laws, which he pretended to have received from his father Jupiter in the grotto of mount Ida.

Rhadamanthus diſtinguiſhed himſelf by the impartiality of his judgments, and by the inflexible ſeverity with which he inflicted puniſhment on the impious and wicked. His empire extended over the chief iſles of the Archipelago, and the inhabitants of the adjacent coaſts of Aſia ſubmitted to him on account of his high reputation for probity and juſtice. Mythologiſts have conſtituted him judge in the regions below, to determine the future ſtate of the righteous and the wicked. They have conferred on him the ſame honours which were beſtowed on Minos, the juſteſt of kings.

Thus far have been followed the Cretan traditions as they are related by Diodorus; but hiſtorians differ about the truth of them. There are a variety of opinions concerning the firſt inhabitants of Crete. Strabo, who has diſcuſſed them with great erudition, ſays, after ſeveral pages on the ſubject, “I am not fond of fables; yet I have detailed theſe at ſome length, becauſe they are connected with theology. Every diſcourſe concerning the gods ſhould examine the religious opinions of antiquity, and diſtinguiſh them from fable. The ancients were pleaſed to conceal their knowledge of nature under a veil. It is now impoſſible to unfold the meaning of their enigmas. But by expoſing to light the numerous allegories which they have left us, and by examining attentively their mutual relations and differences, genius may perhaps be able to unfold the truths which are couched under them.”

But leaving mythology for the more certain records and monuments of hiſtory, we find that Crete received its name from Crés, the firſt of its monarchs. He was author of ſeveral uſeful inventions, which contributed to the happineſs of his ſubjects. Prompted by gratitude, they endeavoured to perpetuate the memory of his favours, and to immortalize his name, by naming the iſland after him.

In order to diſtinguiſh the true Cretans from ſtrangers, they were named *Eteocretes*. A number of colonies, from different parts of Greece, ſettled in the iſland. The agreeableneſs of the climate, and the fertility of the ſoil, invited them to fix their habitation there. The Lacedæmonians, Argives, and Athenians, were the principal people who ſent colonies into Crete. This is what makes Homer ſay, “Crete is an extenſive iſland in the midſt of the ſtormy main. The ſoil is rich and fertile. It contains an immenſe number of inhabitants. It is adorned with an hundred cities. Its inhabitants ſpeak in various languages. We find there Achæans, valiant Eteocretes, Cydonians, Dorians, and godlike Pelaſgians.” The Eteocretes inhabited the ſouthern diviſion of the iſland; they built there the city of Prœſus, and erected a temple to Dictæan Jove.

Crés was not the only monarch who reigned in the iſland of Crete. He had a ſeries of ſucceſſors. But hiſtory affords little information concerning them: only the names of a few of them are preſerved, and a ſmall number of events which happened under the reign of ſome others,—but blended and disfigured with an intermixture of fable. Among theſe monarchs we find two Jupiters, and two of the name of Minos. However, moſt writers confound them, and aſcribe to one thoſe tranſactions and exploits which ſhould be ſhared between the two.

This remark chiefly regards Minos, who was eſteemed the wiſeſt legiſlator of antiquity. The office aſſigned him in the regions below, is a clear and certain proof of his having gained an exalted reputation by his juſtice. Greece, ſays Plato, has with great propriety adopted the laws of Crete; for they are founded on the ſolid baſis of reaſon and equity, and have a natural tendency to render the people, who live in ſubjection to them, opulent and happy. One of thoſe laws forbade “the Cretans ever to carry their feſtivity ſo far as to intoxicate themſelves with wine.” The following was very ſuitable to repreſs the preſumptuous ardour of youth, “Let young people not canvaſs the laws with an indiſcreet curioſity; let them not examine whether the lawgiver has done right or wrong in promulgating them; but let them join unanimouſly in declaring them good, ſince they proceed from the gods. If any of the old men perceive ſomething in them meriting amendment, let him mention it to the magiſtrate, or diſcuſs it with his equals, but never in the preſence of the young people." That excellent code was engraven on tables of braſs; and Talos, chief miniſter to Minos, viſited all the towns and cities in the iſland, three times a-year, to obſerve in what manner the laws were executed and obeyed. The king of Crete, well knowing that the marvellous is neceſſary to command the belief and enforce the obedience of the people, pretended that he had received thoſe laws from his father Jupiter, in the grotto of mount Ida. In the ſame manner, Lycurgus, before promulgating his laws, repaired to Delphos, and gave out they had received the ſanction of Apollo. A like reaſon induced Numa to pretend to an intimacy with the nymph Egeria, and Mahomet to aſcribe his doctrines and inſtitutions to the revelation of the angel Gabriel.

In contradiction to this account, others of the ancients deſcribe Minos as a prince impotently abandoned to the fury of his paſſions, and a barbarous conqueror. Falling paſſionately in love with the nymph Dictynna, who refuſed to gratify his wiſhes, he purſued her to the brink of the ſhore, and forced her to plunge into the ſea, where ſhe was ſaved by ſome fiſhermen, who received her in their nets. He was the firſt of the Greeks who appeared in the Mediterranean at the head of a naval armament. He conquered the Cyclades, expelled the Carians, eſtabliſhed Cretan colonies in thoſe iſlands, and committed the government of them to his ſon.

Being informed, while he was at Paros, that his ſon Androgeus was ſlain at Athens, he declared war againſt Egeus, and impoſed on him a diſgraceful tribute; from the payment of which Theſeus delivered his country. He took arms againſt Niſus, king of Megara, made him priſoner by the treachery of his daughter Scylla, and put him to death, together with Megarus, the ſon of Hippomanes, who had brought ſome forces to his aſſiſtance. Dædalus, who had by ſome means incurred his diſpleaſure, deſpairing of pardon from ſo ſevere and inflexible a prince, employed the reſources of his inventive genius, in order to eſcape from his power. He fled to Sicily, gained the protection of King Cocalus, and obtained an aſylum in his court. Valerius Flaccus has deſcribed his flight in a very lively and pictureſque manner. "Thus Dædalus, with the wings of a bird, aſcended from mount Ida. Beſide him flew the comrade of his flight, with ſhorter wings. They appeared like a cloud riſing in the air. Minos, ſeeing his vengeance thus eluded, glowed with impotent rage. In vain he followed with his eyes the ſecure flight of his enemies through the wide expanſe of heaven. His guards returned to Gortynia with their quivers filled with arrows." The Cretan monarch did not, however, give up his prey. He equipped a fleet, purſued the fugitive to Sicily, and fell before the walls of Camicum.

It is plain, that thoſe actions cannot agree to the character of that juſt monarch, whoſe merits raiſed him to the office of determining, in the regions below, the unalterable fate of the righteous and the wicked. We may, therefore, reaſonably conclude, that Minos the legiſlature is a different perſon from the conqueror; that it was the former who gained a laſting reputation by his wiſdom and juſtice; and the latter who ſubdued moſt of the iſlands of the Archipelago, but being enſlaved by his paſſions, tarniſhed his glory by his cruelty and mercileſs thirſt for vengeance.

The laſt king of Crete was Idomeneus. This prince, accompanied by Merion, conducted 24 ſhips to the aſſiſtance of Agamemnon. Homer informs us of the illuſtrious exploits by which he ſignalized himſelf before the walls of Troy. At his departure, he committed the government of his kingdom to Leucus his adopted ſon, promiſing him the hand of his daughter Cliſithera if he governed wiſely in his abſence. That ambitious young man ſoon forgot the favours which had been ſo laviſhly beſtowed on him. Gaining a number of partiſans, he in a ſhort time aſpired to the immediate poſſeſſion of the crown. His impatience would not wait till he ſhould obtain it lawfully by marriage. Flattering himſelf, from the long abſence of the king, that he was perhaps fallen before Troy, he determined to mount the throne. Mida, wife to Idomeneus, and the princeſs Cliſithera, were an obſtacle to his wiſhes. But ambition knows no reſtraint, and tramples under foot the moſt ſacred obligations. The baſe wretch having ſeduced the people from their allegiance, and captivated the affections of the nobles, ſacrificed thoſe unfortunate victims in the temple. When Idomeneus, crowned with laurels, landed on the coaſt of Crete, Leucus, who had now firmly eſtabliſhed his power, attacked him with an armed force, and obliged him to reimbark. A different account is alſo given of the baniſhment of Idomeneus. Servius ſays, that he had vowed, in a ſtorm, to ſacrifice to the gods the firſt perſon that his eyes ſhould behold on the Cretan ſhore; that his ſon having met him firſt after his arrival, he fulfilled his vow, by ſacrificing him; and that the iſland, being ſoon after depopulated by peſtilence, the inhabitants looked upon that affliction as the effect of divine vengeance, and expelled the parricide; who retiring to Italy, founded Salentum, on the Meſſapian coaſt. But that opinion appears entirely groundleſs. Hiſtory mentions no ſon of Idomeneus. If he had a ſon of his own blood, why did he adopt Leucus? Why did he entruſt to him the government of the iſland, when he promiſed him his daughter in marriage? The more probable opinion is, that the plague was introduced into the iſland by his ſhips, when he returned from the ſiege of Troy, as Herodotus aſſerts; and that Leucus artfully made uſe of that pretext to expel his lawful ſovereign from the iſland. But it appears that the uſurper did not long enjoy the fruit of his crimes. Soon after the departure of Idomeneus, monarchy was aboliſhed, and the government of Crete became republican. The republic of Crete has been celebrated by the panegyric of Plato, ſerved Lycurgus as a model for that which he eſtabliſhed in Lacedemon, and was beheld by all Greece with reſpect and admiration. Strabo has thought it not unworthy of its pencil, and has conſecrated the leading features of its conſtitution to laſting fame in his immortal work. It was indeed a ſyſtem of legiſlature, whoſe direct tendency was to call forth the buds of virtue in the heart of infancy; to open and expand them in youth ; to inſpire man, as he reached maturity, with the love of his country, of glory, and of liberty ; and to comfort and ſupport the infirmities of age with the reſpect and eſteem due to the experience and wiſdom of that period of life. It laboured to form affectionate friends, patriotic citizens, and worthy magiſtrates. It made no uſe, however, of a multitude of acts and ſtatutes to produce thoſe ineſtimable advantages. They flowed all from one ſource ; the public education of youth, judiciouſly directed. The virtuous examples ſet before youth in the courſe of that education, the illuſtrious deeds which were recited to them with high applauſe, the honours conferred on valour and on noble actions, the opprobrium invariably caſt on vice ; theſe were the only means which the Cretan lawgiver made uſe of to form a warlike, humane, and virtuous nation.

The Cretan government, ſoon after the expulſion of Idomeneus, became ariſtocratical. The power was divided between the nobles and the people. Yet as the chief employments were occupied by the nobles, they directed the adminiſtration of affairs. Ten magiſtrates were annually elected, by a majority of voices in the national aſſembly. Theſe were named *Coſmoi*, and their public office and character were the ſame with thoſe of the Ephori at Sparta. They were the generals of the republic in time of war, and directed all affairs of any importance. They had the right of chooſing certain old men for counſellors. Thoſe old men, to the number of twenty-eight, compoſed the Cretan ſenate. They were choſen from among ſuch as had diſcharged the office of Coſmoi, or had diſtinguiſhed themſelves by extraordinary merit and blameleſs probity. Thoſe ſenators continued in office during life, poſſeſſed a weighty influence, and were conſulted in every affair of any importance. This body was a barrier oppoſed by the wiſdom of the legiſlator againſt the ambition of the ten chief rulers. He had impoſed another reſtraint on their power, by limiting the period of their adminiſtration to one year. His foreſight went ſtill farther. The ſuffrages of the people might be obtained by bribery or perſonal influence, and of conſequence their choice might ſometimes fall on a man unworthy of ſo honourable an office. When that happened, he who had been undeſervedly advanced to the dignity of Coſmos was degraded, either in a national aſſembly, or ſimply by the voices of his colleagues. This, doubtleſs, is what Plato alludes to, when he ſays. "Neither the commonwealth, which approaches too near to a monarchical conſtitution, nor that which affects a licentious liberty, is founded on the ſolid baſis of a juſt medium between anarchy and deſpotiſm. O Cretans ! O Lacedemonians ! by eſtabliſhing yours on firmer foundations, you have avoided thoſe fatal extremes."

Such were the diſtribution of power and the adminiſtration of public affairs in the Cretan government. Its ſimplicity was admirable. A people who were bleſſed with the ſacred enjoyment of liberty, but poſſeſſed not ſufficient knowledge and diſcernment to direct themſelves, elected magiſtrates, to whom they delegated their authority. Thoſe magiſtrates, thus arrayed with ſovereign power, choſe ſenators to aſſiſt and direct their deliberations. Theſe counſellors could neither enact or decide of themſelves : but they held their office for life ; and that circumſtance contributed to ſtrengthen their influence and to increaſe their experience. The magiſtrates were animated by the moſt powerful motives to diſtinguiſh themſelves when in office, by unwearied activity in the public ſervice. On one ſide, they were reſtrained by the fear of degradation ; on the other, actuated by the hope of becoming one day members of the national council.

Yet let us enquire what means the Cretan lawgiver uſed to form virtuous citizens. All the Cretans were ſubjected to the power of their magiſtrates ; and divided into two claſſes, the adults and the youth. Men arrived at maturity were admitted into the firſt. The ſecond conſiſted of all the young men who were not below the age of ſeventeen. The ſociety of adults eat together in public halls. Their rulers, magiſtrates, poor and rich, ſeated together, partook, without diſtinction, of the ſame ſimple fare. A large bowl, filled with wine and water, which went round the company from one to another, was the only drink that they were allowed. None but the old men had a right to call for more wine. Doubtleſs, that people, ſo celebrated for wiſdom, were not ſtrangers to the power of beauty ; for a woman was appointed to preſide at each table. She openly diſtributed the moſt exquiſite meats to thoſe who had diſtinguiſhed themſelves by their valour or wiſdom. That judicious preference was ſo far from exciting envy or jealouſy, that it only prompted every perſon to deſerve it by brave and prudent conduct. Near where the citizens ſat, two tables were laid, which they named *Hoſpital* ; all ſtrangers and travellers were entertained at theſe : and there was alſo a particular houſe ſet apart by the public, in which they might ſpend the night.

To ſupply the public expences, every citizen was obliged to bring a tenth part of this annual income into the treaſury. The chief magiſtrates were to take care that every perſon contributed his proportion. In Crete, ſays Ariſtotle, one part of the fruits of the earth, of the produce of the flocks, of the revenues of the ſtate, and of the taxes and cuſtoms, is ſacred to the gods : the other is diſtributed among the members of the community ; ſo that men, women, and children, all ſubſiſt at the public expence.

After dinner, the magiſtrates and ſenators uſually ſpent ſome time in deliberating on the affairs of the ſtate ; they next recounted the noble deeds which had been done in war, celebrated the courage of their moſt diſtinguiſhed warriors, and animated the youth to heroic valour. Thoſe aſſemblies were the firſt ſchool of the youth. At the age of ſeven, the boy was permitted to handle the bow ;—from that time he was admitted into the ſociety of the adults, where he continued till the age of ſeventeen. There, ſitting on the ground, and clothed in a plain and coarſe dreſs, he ſerved the old men, and liſtened, with reſpectful ſilence, to their advices. His young heart was inflamed with the recital of noble deeds in arms, and glowed with ardour to imitate them. He acquired habits of ſobriety and temperance. And being conſtantly witneſs of illuſtrious examples of moderation, wiſdom, and patriotiſm ; the ſeeds of virtue were thus ſown and foſtered in his heart before he attained the uſe of reaſon.

He was early accuſtomed to arms and to fatigue, that he might learn to endure exceſſive heat or cold, to clamber and leap among hills and precipices, and to bear manfully the blows and wounds which he might receive amid the gymnaſtic exerciſes or in battle. His education was not confined to the gymnaſtic exerciſes; he was alſo taught to ſing the laws, which were written in verſe, with a certain ſpecies of melody; in order that the charms of muſic might diſpoſe him to learn them with more pleaſure, and might impreſs them more deeply on his heart, and that, if he ſhould ever tranſgreſs them, he might not have the excuſe of ignorance to offer. He next learned hymns in honour of the gods, and poems compoſed in praiſe of heroes. When he reached his ſeventeenth year, he retired from the ſociety of the adults, and became a member of that of the young men.

Here his education was ſtill carried on. He exerciſed himſelf in hunting, wreſtling, and fighting with his companions. The lyre played tunes of martial muſic; and he learned to follow exactly the ſounds and meaſure of the muſician. Thoſe ſports and exerciſes were ſometimes attended with danger; becauſe arms of ſteel were ſometimes uſed in them. One dance, in which the youth aſpired moſt ardently to excel, was the Pyrrhic, originally invented in Crete. The performers in that dance were arrayed in complete armour:—they wore a light ſhort coat, which did not fall below the knee, and was bound with a girdle going twice round the waiſt; on their feet and legs were buſkins; above theſe they bore their arms,—and performed various military evolutions to the ſound of muſical inſtruments. "The Lacedemonians and Cretans," (ſays Libanius), "cultivated dancing with amazing ardour; they conſidered, that their laws had directed them to practiſe it for the moſt important purpoſes; and it was ſcarce leſs diſhonourable for a Lacedemonian or Cretan to neglect the military dances, than to deſert his poſt in battle."

Thoſe Cretans who were opulent and high-born, were permitted to form ſocieties of young men of their own age. They often ſtrove, with emulation, who ſhould form the moſt numerous one. The father of the young man who formed one of thoſe ſocieties, uſually preſided in it. He had a right to educate thoſe warlike youth, to exerciſe them in running and in hunting, to confer rewards and inflict puniſhments.

Friendſhip was in high eſtimation among the Cretans; but, ſays Strabo, the manner in which they conducted the intercourſe of friendſhip was pretty extraordinary. Inſtead of mild perſuaſion, they made uſe of voilence, to gain the objects of their affections. He who conceived an affection for a young man of his own age, and wiſhed to attach him to himſelf by indiſſoluble bonds, formed a ſcheme for carrying him off by violence. Three days before putting it into execution, he communicated it to his comrades. They could not then interfere to prevent it; becauſe if they had, they would have appeared to think the young man unworthy of ſuch an exceſſive attachment. At the appointed day they aſſembled to protect their companion. If the raviſher appeared to them not unworthy of the object of his affection, they made, at firſt, a faint reſiſtance in obedience to the law—but, at laſt, joyfully favoured his enterpriſe; if, on the other hand, they thought him unworthy of the object of his choice, they made ſuch reſiſtance as to prevent him from executing his deſign. The feigned reſiſtance continued till the raviſher had conducted his friend into the hall of that ſociety to which he belonged. They did not regard him who poſſeſſed ſuperior beauty and gracefulneſs of perſon as the moſt amiable; but him who had moſt diſtinguiſhed himſelf by his modeſty and valour.

The raviſher loaded his young friend with favours, and conducted him wherever he deſired: they were accompanied by thoſe who had favoured the rape: he carried him from feaſt to feaſt, procured him the pleaſures of the chace and good cheer; and after uſing all poſſible means to gain his heart for the courſe of two months, brought him back to the city, and was obliged to give him up to his parents. But firſt he preſented him with a ſuit of armour, an ox, and a drinking-cup; which were the uſual and legal preſents on ſuch occaſions. Sometimes his generoſity went ſtill farther; and he made more expenſive preſents; to defray the expence of which his comrades contributed. The young man ſacrificed the ox to Jupiter, and gave an entertainment to thoſe who had aſſiſted when he was carried off. He then declared his ſentiments concerning a connection with his raviſher, and told whether or not it was agreeable to him. If he had reaſon to complain of the treatment which he had received, the law allowed him to forſake a friend ſo unworthy of the name, and to demand his puniſhment.

It would have been diſgraceful, adds Strabo, to a young man, who was handſome and well-born, to be rejected by his friends on account of the depravity of his manners. Thoſe who had been carried off received public honours. Theirs were the firſt places in the halls and at the race. They were permitted to wear, during the reſt of life, thoſe ornaments which they owed to the tenderneſs of friendſhip; and that mark of diſtinction teſtified to all who ſaw them, that they had been the objects of ſome fond attachment.

When the youth had finiſhed their exerciſes, and attained the legal age, they became members of the claſs of adults; being then conſidered as men, they were permitted to vote in the national aſſemblies, and were entitled to ſtand candidates for any public office. They were then obliged to marry; but did not take home their wives till ſuch time as they were capable of managing their domeſtic concerns.

"The legiſlator (ſays Strabo) had conſidered liberty as the greateſt bleſſing that citizens can enjoy. Liberty alone can ſecure the property of the citizens of any ſtate. Slavery either robs them of it, or renders it precarious. The firſt care of nations ſhould therefore be to preſerve their liberty. Concord ſtrengthens and ſupports her empire; ſhe flouriſhes wherever the ſeeds of diſſenſion are extinguiſhed. Almoſt all thoſe hoſtilities which prevail among nations or individuals ſpring either from an inordinate deſire of wealth or the love of luxury. Introduce, inſtead of thoſe baneful principles, frugality, moderation, and equality of conditions; you will thus baniſh envy, hatred, injuſtice, and haughty diſdain." This was what the Cretan lawgiver happily effected. And the community, which was regulated by his wiſe inſtitutions roſe to glory, opulence, and power; and was honoured with the panegyrics of the moſt celebrated philoſophers of Greece: but the higheſt honour it ever obtained, was that of ſerving Lycurgus as a model for the admirable form of government which he eſtabliſhed at Sparta.

The republic of Crete continued to flouriſh till the age of Julius Cæſar. No other ſtate has enjoyed ſo long a period of ſtrength and grandeur. The legiſlature, regarding liberty as the only ſure baſis of a nation's happineſs, had inſtituted a ſyſtem of laws, the natural tendency of which was, to inſpire men with an ardent paſſion for liberty, and with ſuch virtue and valour as are neceſſary to ſupport and defend it. All the citizens were ſoldiers; all of them were ſkilled in the art of war. The valiant youth of other nations reſorted to Crete, to learn the exerciſes, manœuvres, and evolutions, of the military art. "Philopœmen (ſays Plutarch) being impatient of indolence, and eager to acquire ſkill in arms, embarked for Crete. After ſpending a conſiderable time in the nobleſt exerciſes among that brave people, who were ſkilled in the art of war, and accuſtomed to an auſtere and temperate life, he returned to the Achæans. The knowledge which he had acquired made him ſo eminent among them, that he was immediately appointed general of their cavalry."

On the other hand, the legiſlator, being perſuaded that conqueſts are generally unjuſt and criminal, that they often exhauſt the ſtrength of the victorious nation, and almoſt always corrupt its manners, endeavoured to preſerve the Cretans from the ambition of conqueſt. The fertility of the iſland abundantly ſupplied their wants. They needed not that commerce ſhould introduce among them the riches of foreign countries, along with which luxury and her train of attendant vices would alſo be introduced; and he knew how to inſpire them with an indifference for ſuch acquiſitions without expreſsly forbidding them. The gymnaſtic exerciſes, which occupied the leiſure of the gallant youths; the pleaſures of the chace; the ardour of friendſhip; the public ſhows, at which all the different orders of the community, both men and women, uſed to aſſemble; the love of equality, order, and their country, with which he inflamed every breaſt; the wiſe inſtitutions, which united a whole nation ſo cloſely that they compoſed but one family;—all theſe ties attached the Cretans to their native iſland: and finding at home that happineſs which was the object of their wiſhes, they never thought of wandering abroad in ſearch of an imaginary glory, or of extending their empire over other nations. Therefore, from the period at which that ſtate aſſumed a republican form till the time when they were attacked by the arms of Rome, the nation was not once known to ſend an hoſtile force into the territories of any of their neighbours. This inſtance of moderation is unparalleled in hiſtory; no other nation can divide the glory of it with the Cretans. Individuals indeed might leave their country to engage in foreign armies. Thoſe princes and ſtates who knew their valour and ſkill in archery eagerly ſought to take them into their pay; all the neighbouring monarchs were deſirous of having in their armies a body of Cretan archers. Over the whole world none were more celebrated than they for bending the bow. "The arrows of Gortynia (ſays Claudian) aimed from a truſty bow, are ſure to wound, nor ever miſs the deſtined mark."

Though the multitude of independent cities which flouriſhed in Crete did not unite their arms to ſubjugate the neighbouring iſlands, and drench them with the blood of their inhabitants; yet they were not ſo wiſe as to live in peace among themſelves. Diſcord often ſtalked among them with her flaming torch. The moſt powerful wiſhed to enſlave the reſt. Sometimes Gnoſſus and Gortynia marched with ſocial banners againſt their neighbours, levelled their fortreſſes, and ſubjected them to their power; at other times they attacked each other with hoſtile violence, and ſaw their braveſt youth periſh amid the horrors of civil war. Lyctos and Cydon oppoſed an invincible barrier to their ambition, and preſerved their own liberty. The laſt of theſe cities had acquired ſuch ſtrength and influence, that ſhe held the balance between the rival powers of the iſland. Thoſe wars deſtroyed a number of the cities, and drenched the native country of Jupiter with blood.

To what ſource muſt we attribute thoſe inteſtine diſſentions? One part of the iſland was occupied by the Eteocretes, the original inhabitants; the reſt was peopled with colonies from Athens, Sparta, Argos, and Samos. Perhaps the ancient grudges which had ſubſiſted among thoſe ſtrangers, being ſtill unextinguiſhed in their breaſts, were eaſily rekindled by accident or circumſtances, and inflamed with new fury. We may alſo ſuppoſe, that the moſt powerful among them, exulting in their ſuperiority, would endeavour to take advantage of the weakneſs of the reſt, and diſregard all laws but thoſe of force; beſides, the glowing ardour of the youth, trained to military exerciſes, was ever ready to fly to arms. Such, probably, were the cauſes which fomented diſcord and hoſtility among a people living under the ſame religion, cuſtoms, and laws. Whatever theſe might be, the Cretans, being perſuaded that the firm union of their ſoldiers was eſſential to victory, arrayed the braveſt youths of the army in ſplendid robes, and cauſed them to ſacrifice to friendſhip before engaging in battle. In ſome countries it would be very proper to oblige the generals, on ſuch occaſions, to ſacrifice to concord. If ſuch a ſacrifice were performed with ſincerity, it might preſerve their glory unſtained, and prevent ſuch deluges of blood from being waſted without producing any advantages to the ſtate.

Their paſſion for war did not extinguiſh in the breaſts of the Cretans that exquiſite ſenſibility which is the mother and nurſe of the fine arts. "The Cretans (ſays Sozomen) gave an illuſtrious proof of their munificence to genius, by making Homer a preſent of a thouſand pieces of ſilver; and to perpetuate the memory of this act of generoſity, they recorded it by an inſcription on a public column." In Crete, adds Ptolemy, men are ſtill more deſirous of cultivating their underſtandings than of exerciſing their bodily powers. Often when diſſentions aroſe, the voice of wiſdom and the charms of poeſy recalled them to reaſon and harmony. Thales of Gortynia, the preceptor of Lycurgus, was one of their moſt celebrated philoſophers. Being both a poet and legiſlator, he made an happy uſe of his abilities and knowledge to extinguiſh among his countrymen the kindling ſparks of diſcord. "His poems were moral diſcourſes in verſe, which recalled

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the people to concord and ſubmiſſion to the laws. Uſing a regular meaſure, he recommended the auſterity of his ſubject by the inſinuating and powerful charm of ſentiment. So powerful were the effects of his verſes, which addreſſed at once the ears, the heart, and the underſtanding of his hearers, that their rage was gradually ſoftened. Next, opening their hearts to the love of peace, the advantages of which he deſcribed in glowing colours, they forgot their inteſtine diſſentions, and ranged themſelves around the ſtandard of concord." That ſage is ſaid to have invented tunes for the military dances and for the Cretan Pyrrhic. Men who felt ſo ſtrongly the influence of poetry and muſic could ſcarcely be enemies to pleaſure. Accordingly they had a cuſtom of diſtinguiſhing their fortunate days with white flint ſtones, their unfortunate days with black. At the end of the year they counted the number of their white ſtones, and reckoned that they had lived only ſo many days as were diſtinguiſhed for having been fortunate. They did not think mere exiſtence, without the enjoyment of pleaſure, worthy of the name of *life*. For this reaſon, they cauſed to be inſcribed on their tombs: "He lived ſo many days; he continued in exiſtence ſo long."

A paſſion for glory is eaſily awaked in a feeling and generous breaſt. The Cretans eagerly repaired to the famous ſolemnities of Greece, and were often crowned at the Olympic, Nemæan, and Pythian games: others of them were favourites of the muſes, and verſified the predictions of prophets, or celebrated the glorious deeds of their heroes. Several of them diſtinguiſhed themſelves by hiſtorical compoſitions. At the moſt ancient games, a prize is ſaid to have been beſtowed on the poet who ſung the nobleſt hymn in honour of Apollo: Chryſothemis of Crete ſung and gained the prize.

The ravages of time have deprived us of almoſt all their works; and if Pindar had not preſerved the memory of ſome of their crowns, we ſhould not know even the names of the conquerors who wore them. The temple of Dianna at Epheſus, built by the Cretan Cteſipon and his ſon Metagenes, was not proof againſt the frantic hand of the incendiary. Thoſe ingenious architects had built it on the principles of the Ionic order: to the coſtlineſs of the materials, the elegance of the architecture, the ſymmetry of the parts, and the majeſty and perfection of the whole, they had added ſolidity and ſtrength, without which the reſt muſt have been of ſmall value. Their names have deſcended to poſterity, but the pillars of that monument which has perpetuated their memory have been diſperſed or deſtroyed. Scarce a veſtige remains of that building which was eſteemed one of the ſeven wonders of the world.

Nations are effaced from the earth like the monuments of their power, and after the revolution of ſeveral ages we can ſcarce trace in their poſterity any remains of their ancient character. Some of them exiſt longer, others ſhorter; but we may almoſt always calculate the period of their duration by the excellence of their laws, and the fidelity with which they ſupport and obey them. The republic of Crete, being eſtabliſhed on a ſolid baſis, knew no foreign maſter for a period of ten centuries. She bravely repelled the attacks of thoſe princes who attempted to enſlave her. At length the time arrived when the warlike and victorious Romans aſpired to the empire of the world, and would ſuffer none but their ſubjects or ſlaves to inhabit within the reach of their arms. Florus does not ſcruple to acknowledge, that the Romans had no other motives for invading Crete but the ambitious deſire of ſubduing the renowned native country of Jupiter. "If any perſons wiſh to know the reaſons which induced us to attack Crete (ſays he), the true reaſon was our deſire to ſubdue ſo celebrated an iſland. The Cretans had appeared to favour Mithridates, and the Romans thought proper to declare war againſt them on that pretext. Mark Antony, father of the triumvir, attacked them with ſtrong hopes of ſucceſs, but was ſeverely puniſhed for his preſumption and imprudence. The Cretans took a great part of his fleet, hung up his ſoldiers and ſailors on the maſts amid the ſails and cordage, and returned in triumph into their harbours."

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The Romans never forgot nor forgave a defeat. As ſoon as the Macedonian war was brought to an happy concluſion, they again took arms againſt the Cretans to revenge their ignominy and loſs. Quintus Metellus was ſent to Crete with a powerful armament. He met with an obſtinate and vigorous reſiſtance. Parnarus and Laſthenes, two experienced leaders, collecting a body of 20,000 young warriors, all eager for battle, and of determined courage, employed their arms and arrows ſucceſsfully againſt the Romans, and protracted the fate of Crete for three years. Theſe conquerors could not make themſelves maſters of the iſland before deſtroying its braveſt warriors. They loſt a great number of troops, and bought a bloody victory at the price of many a danger and much fatigue. However, their uſual good fortune at length prevailed. The firſt care of the conqueror was to aboliſh the laws of Minos, and to eſtabliſh in their room thoſe of Numa. Strabo, that enlightened philoſopher, complains of this act of ſeverity; and informs us, that in his days the original laws of Crete were no longer in force, becauſe the Romans compelled the conquered provinces to adopt their civil code. To ſecure themſelves ſtill more fully in the poſſeſſion of the iſland, they ſent a powerful colony to Gnoſſus.

From that era to the preſent time, that is, for a period of 1900 years, the Cretans have no longer formed a ſeparate nation, nor made any figure among the ſtates and kingdoms of the world: their noble and ingenuous manners, their arts and ſciences, their valour and their virtues, are no more. They have loſt theſe with the loſs of liberty. So true is it that man is born for himſelf; and that, when deprived of that aid which Nature has deſigned to ſtrengthen and ſupport his weakneſs, the flame of genius and the ardent glow of valour are extinguiſhed in his breaſt; he becomes incapable of vigorous reſolution, and ſinks below the natural virtue and dignity of the ſpecies.

The iſland of Crete, joined with the ſmall kingdom of Cyrene, on the Lybian coaſt, formed a Roman province. It was at firſt governed by a proconſul; a queſtor and an aſſiſtant were afterwards ſent there; at laſt, as Suetonius informs us, it was put under the government of a conſul. This iſland was one of the firſt places in the world that were favoured with the light of the goſpel. St Paul introduced the Chriſtian faith into Crete: and his diſciple Titus, whom he left there to to cheriſh and cultivate the precious plant, became the firſt biſhop of the iſland. In the reign of the emperor Leo, it had twelve biſhops, who were all ſubject to the patriarch of Conſtantinople. Conſtantine ſeparated Crete from Cyrene in the new diviſion which he made of the provinces of the empire. Leaving three ſons, Conſtantius, Conſtantine, and Conſtans, he aſſigned Thrace and the eaſtern provinces to the firſt; to the ſecond, the empire of the Weſt; the iſland of Crete, Africa, and Illyria, to the third.

When Michael Balbus ſat on the throne of Conſtantinople, the rebellion of Thomas, which laſted three years, cauſed him to neglect the other parts of the empire. The Agarenians (a people of Arabia), who had conquered the fineſt provinces of Spain, ſeized that opportunity. They fitted out a conſiderable fleet, plundered the Cyclades, attacked the iſland of Crete, and made themſelves maſters of it without oppoſition. In order to ſecure their conqueſt, they built a fortreſs which they named *Khandak*, "intrenchment." From that cidatel the barbarians made inroads into the interior parts of the iſland, carrying havock and devaſtation wherever they appeared. By repeated attacks, they ſubdued all the cities in Crete except Cydon. Michael made ſome ineffectual efforts to expel them from Crete. The emperor Baſilius, the Macedonian, was not more ſucceſsful. They defeated him in a bloody battle; but being vanquiſhed by one of his generals, they were ſubjected to the payment of an annual tribute. At the end of ten years, the Arabians refuſed the tribute. It was reſerved for Nicephorus Phocas, who was afterwards emperor, to deliver this fine iſland from the yoke of the infidels. He landed on the iſland with a numerous army, boldly attacked them, and routed them in various engagements. The Saracens, no longer daring to meet ſo formidable a general in the field, fled for protection to their fortreſſes. Phocas being plentifully ſupplied with all the warlike machines neceſſary for a ſiege, levelled their walls, and alarmed their hearts with terror. He took their cities and fortreſſes, and drove them into Khandak their metropolis and laſt reſource. In the courſe of nine months he ſubdued the whole iſland, took their king Curup and his lieutenant Aremas priſoners, and reunited to the empire a province which had been 127 years in the hands of the Infidels. It remained under the dominion of the Romans till the time when Baldwin Count of Flanders, being raiſed to the throne, liberally rewarded the ſervices of Boniface Marquis of Montſerrat, by making him king of Theſſalonica, and adding the iſland of Crete to his kingdom. That lord, being more covetous of gold than glory, ſold it to the Venetians in the year 1194; under whom it aſſumed the name of Candia. See the ſequel of its hiſtory under that article.

CRETIO, in antiquity a certain number of days allowed the heir to conſider whether he would act as heir to the deceaſed or not; after which time, if he did not act, he was excluded from the eſtate.

CREUX, a term in ſculpture, much uſed by the French; though not yet, that we know of, naturalized among us: but the want of a word of equal import in Engliſh, as it has frequently put us under a neceſſity of uſing this in the courſe of the preſent work; ſo it pleads ſtrongly for its admiſſion into our language.

Creux originally ſignifies a *hollow*, *cavity*, or *pit*, out of which ſomething has been ſcooped or dug; hence it is uſed to denote that kind of ſculpture and graving where the lines and figures are cut and formed within the face or plane of the plate or matter engraven on. In which ſenſe it ſtands oppoſed to relievo: where the lines and figures are emboſſed, and appear prominent above the face of the matter.

CREW, the company of ſailors belonging to a ſhip, boat, or other veſſel.

The ſailors that are to work and manage a ſhip are regulated by the number of laſts it may carry; each laſt making two ton. The crew of a Dutch ſhip, from 40 to 50 laſts, is ſeven ſailors and a ſwabber; from 50 to 60 laſts, the crew conſiſts of eight men and a ſwabber; and thus increaſes at the rate of one man for every ten laſts; ſo that a ſhip of 100 laſts has 12 men, &c. Engliſh and French crews are uſually ſtronger than Dutch; but always in about the ſame proportion. In a ſhip of war there are ſeveral particular crews, or gangs, as the boatſwains crew, the carpenter's crew, the gunner's crew, &c.

CREVIER (John Baptist Lewis), a Pariſian, was trained under the celebrated Rollin, and afterwards became profeſſor of rhetoric. Upon the death of his maſter, in 1741, he took upon him to finiſh his Roman Hiſtory. He publiſhed other works, and was greatly ſerviceable to the cauſe of virtue and religion as well as letters. His death happened, 1765, in a very advanced age. Beſides the continuation juſt mentioned, he publiſhed, 1. An edition of *Livius, cum Notis*, in 6 vols 4to, 1748; and afterwards another edition, better adapted to the uſe of his pupils, in 6 vols. ſmall 8vo. 2. *La Hiſtoire des Empereurs de Romains Juſqu'a Conſtantin*, 1749, 12 tom. 12mo. 3. *Hiſtoire de l'Univerſité de Paris*, 7 tom. 12mo. 4. *Rhetorique Françoiſe*, a juſt and uſeful work. 5. *Obſervations ſur l'Eſprit des Loix.* Here he ventured out of his depth; he ſhould have kept within the precincts of the belles lettres.

CREUSA, in fabulous hiſtory, daughter of Creon king of Corinth. As ſhe was going to marry Jaſon, who had divorced Medea, ſhe put on a poiſoned garment, which immediately ſet her body on fire, and ſhe expired, in the moſt excruciating torments. She had received this gown as a gift from Medea, who wiſhed to take that revenge upon the infidelity of Jaſon. Some call her *Glauce*. (*Ovid. de Art. Am.* 1. v. 335.) A daughter of Priam, king of Troy by Hecuba. She married Æneas, by whom ſhe had, among other children, Aſcanius. When Troy was taken, ſhe fled in the night with her huſband; but they were ſeparated in the midſt of the confuſion and tumult, and Æneas could not recover her, nor hear where ſhe was. Some ſay that Cybele ſaved her, and carried her to her temple, of which ſhe became prieſteſs. *Pauſ.* 10. c. 26.—*Virg. Æn.* 2. v. 562.

CREX, in ornithology, a ſpecies of Rallus.

CRIB, the rack or manger of a ſtable, or the ſtall or cabbin of an ox. It is alſo uſed for any ſmall habitation, as a cottage, &c.

Crib, in the Engliſh ſalt-works, a name given to a ſort of caſe uſed in ſome places inſtead of the *drab*, to put the ſalt into as it is taken out of the boiling pan.

Cribbage, a game at cards, to be learnt only by practice.

CRIBRATION, in pharmacy, the paſſing any ſubſtance through a ſieve or ſearce, in order to ſeparate the finer particles from the groſſer.

Cribrosum os, in anatomy, called alſo *os ethmoides*. See *Anatomy*, nº 17.

CRICELASIA, the driving a ring or hoop. Driving a hoop was one of the ancient gymnaſtics: this hoop was as high as the breaſt of the perſon who uſed it. It was commended for rendering the limbs pliable, and for ſtrengthening the nerves.

CRICETUS, in zoology. See Mus.

CRICHTON (James), a Scots gentleman, who lived in the 16th century, and who, on account of his extraordinary endowments both of body and mind, obtained the appellation of "the admirable Crichton;" by which title he has continued to be diſtinguiſhed down to the preſent day. The time of this celebrated perſon's birth is ſaid, by the generality of writers, to have been in 1551; but, according to Lord Buchan[*], it appears, from ſeveral circumſtances, that he was born in the month of Auguſt 1560. There is a difference likewiſe between the Earl of Buchan and other biographers, with regard to the family of Crichton, and the rank and ſituation of his father. The common accounts aſſert, that James Crichton's father was Robert Crichton of Clunie, in the county of Perth; and that this Robert Crichton commanded Queen Mary's army at the battle of Langſide in the year 1568. But from the Earl of Buchan we learn, that this gentleman was of Elliock in the ſame county, and that he was lord advocate of Scotland in queen Mary's reign from 1561 to 1573; part of which time he held that office in conjunction with Spens of Condie. The mother of James Crichton was Elizabeth Stuart, the only daughter of Sir James Stuart of Beath, who was a deſcendant of Robert duke of Albany, the third ſon of king Robert the ſecond, by Elizabeth Muir or More, as ſhe is commonly called. It is hence evident, that when the admirable Crichton boaſted (as he did abroad), that he was ſprung from Scottiſh kings, he ſaid nothing but what was agreeable to truth.

James Crichton is ſaid to have received his grammatical education at Perth, and to have ſtudied philoſophy in the univerſity of St Andrew. His tutor in that univerſity was Mr John Rutherford, a profeſſor at that time famous for his learning, and who diſtinguiſhed himſelf by writing four books on Ariſtotle's logic and a commentary on his poetics. According to Aldus Manutius, who calls Crichton firſt couſin to the king, he was alſo inſtructed, along with his majeſty, by Buchanan, Hepburn, and Robertſon, as well as by Rutherford; and he had ſcarcely arrived to the 20th year of his age, when he had run through the whole circle of the ſciences, and could ſpeak and write to perfection in ten different languages. Nor was this all; for he had likewiſe improved himſelf to the higheſt degree in riding, dancing, and ſinging, and in playing upon all ſorts of inſtruments.

Crichton, being thus accompliſhed, went abroad upon his travels, and is ſaid to have gone to Paris; of his tranſactions at which place the following account is given. He cauſed ſix placards to be fixed on all the gates of the ſchools, halls, and colleges belonging to the univerſity, and on all the pillars and poſts before the houſes of the moſt renowned men for literature in the city, inviting all thoſe who were well verſed in any art or ſcience, to diſpute with him in the college of Navarre, that day ſix weeks, by nine of the clock in the morning, where he would attend them, and be ready to anſwer to whatever ſhould be propoſed to him in any art or ſcience, and in any of theſe 12 languages, Hebrew, Syriac, Arabic, Greek, Latin, Spaniſh, French, Italian, Engliſh, Dutch, Flemiſh, and Sclavonian; and this either in verſe or proſe at the diſcretion of the diſputant. During this whole time, inſtead of cloſely applying to his ſtudies, he regarded nothing but hunting, hawking, tilting, vaulting, riding of a well-managed horſe, toſſing the pike, handling the muſket, and other military feats; or elſe he employed himſelf in domeſtic games, ſuch as balls, concerts of muſic vocal and inſtrumental; cards, dice, tennis, and the like diverſions of youth. This conduct ſo provoked the ſtudents of the univerſity, that, beneath the placard which was fixed on the Navarre gate, they cauſed the following words to be written: "If you would meet with this monſter of perfection, to make ſearch for him either in the tavern or bawdy-houſe, is the readieſt way to find him." Nevertheleſs, when the day appointed arrived, Crichton appeared in the college of Navarre, and acquitted himſelf beyond expreſſion in the diſputation, which laſted from nine o'clock in the morning till ſix at night. At length, the preſident, after extolling him highly for the many rare and excellent endowments which God and nature had beſtowed upon him, roſe from his chair, and, accompanied by four of the moſt eminent profeſſors of the univerſity, gave him a diamond ring, and a purſe full of gold, as a teſtimony of their love and favour. The whole ended with the repeated acclamations and huzzas of the ſpectators: and henceforward our young diſputant was called, "the admirable Crichton." It is added, that he was ſo little fatigued with the diſpute, that he went on the very next day to the Louvre, where he had a match of tilting (an exerciſe then in much requeſt), and in the preſence of ſome of the princes of the court of France, and a great many ladies, carried away the ring 15 times ſucceſſively.

About two years after this we find him at Rome, where he affixed a placard upon all the eminent places of the city, in the following terms: *Nos Jacobus Crichtonus Scotus, cuicunque rei propoſitæ ex improviſo reſpondebimus*. In a city which abounded in wit, this bold challenge, to anſwer to any queſtion that could be propoſed to him without his being previouſly advertiſed of it, could not eſcape the ridicule of a paſquinade. It is ſaid, however, that being nowiſe diſcouraged, he appeared at the time and place appointed; and that, in the preſence of the pope, many cardinals, biſhops, doctors of divinity, and profeſſors in all the ſciences, he diſplayed ſuch wonderful proofs of his univerſal knowledge, that he excited no leſs ſurpriſe than he had done at Paris. Boccalini, who was then at Rome, gives ſomething of a different relation of the matter. According to this author, the paſquinade againſt Crichton, which was to the following effect, "*And he that will ſee* it *let him go to*

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[*] MS. Memoir read to the Society of Antiquaries at Edinburgh.

the ſign of the Falcon and it *ſhall be ſhown,*" made ſuch an impreſſion upon him, that he left a place where he had been ſo groſsly affronted as to be put upon a level with jugglers and mountebanks.

From Rome he went to Venice: where he contracted an intimate friendſhip with Aldus Manutius, Laurentius Maſſa, Speron Speronius, Johannes Donatus, and various other learned perſons, to whom he preſented ſeveral poems in commendation of the city and univerſity. At length he was introduced to the Doge and Senate, in whoſe preſence he made a ſpeech, which was accompanied with ſuch beauty of eloquence, and ſuch grace of perſon and manner, that he received the thanks of that illuſtrious body, and nothing was talked of through the whole city but this *rara in terris avis*, this prodigy of nature. He held, likewiſe, diſputations on the ſubjects of theology, philoſophy, and mathematics, before the moſt eminent profeſſors, and large multitudes of people. His reputation was ſo great, that the deſire of ſeeing and hearing him brought together a vaſt concourſe of perſons from different quarters to Venice. It may be collected from Manutius, that the time in which Crichton exhibited theſe demonſtrations of his abilities was in the year 1580.

During his reſidence at Venice, he fell into a bad ſtate of health, which continued for the ſpace of four months. However, before he was perfectly recovered, he went, by the advice of his friends, to Padua, the univerſity of which city was at that time in great reputation. The next day after his arrival, there was a meeting of all the learned men of the place, at the houſe of Jacobus Aloyſius Cornelius; when Crichton opened the aſſembly with an extemporary poem in praiſe of the city, the univerſity, and the company who had honoured him with their preſence. After this, he diſputed for ſix hours with the moſt celebrated profeſſors on various ſubjects of learning; and he expoſed, in particular, the errors of Ariſtotle and his commentators, with ſo much ſolidity and acuteneſs, and at the ſame time with ſo much modeſty, that he excited univerſal admiration. In concluſion, he delivered extempore an oration in praſe of ignorance, which was conducted with ſuch ingenuity and elegance, that his hearers were aſtoniſhed. The exhibition of Crichton's talents was on the 14th of March 1581. Soon after he appointed a day for another diſputation to be held at the palace of the biſhop of Padua; not for the purpoſe of affording higher proofs of his abilities, for that could not poſſibly be done, but in compliance with the earneſt ſolicitations of ſome perſons who were not preſent at the former aſſembly. However, ſeveral circumſtances occurred which prevented this meeting from taking place. Such is the account of Manutius: but Imperialis relates, that he was informed by his father, who was preſent upon the occaſion, that Crichton was oppoſed by Archangelus Mercenatius, a famous philoſopher; and that he acquitted himſelf ſo well as to obtain the approbation of a very honourable company, and even of his antagoniſt himſelf.

Amidſt the diſcourſes which were occaſioned by our young Scotſman's exploits, and the high applauſes that were beſtowed upon his genius and attainments, ſome perſons there were who endeavoured to detract from his merit. For ever, therefore, to confound theſe invidious impugners of his talents, he cauſed a paper to be fixed on the gates of St John and St Paul's church, wherein he offered to prove before the univerſity, that the errors of Ariſtotle, and of all his followers, were almoſt innumerable; and that the latter had failed both in explaining their maſter's meaning, and in treating on theological ſubjects. He promiſed likewiſe to refute the dreams of certain mathematical profeſſors; to diſpute in all the ſciences; and to anſwer to whatever ſhould be propoſed to him or objected againſt him. All this he engaged to do, either in the common logical way or by numbers and mathematical figures, or in 100 ſorts of verſes, at the pleaſure of his opponents. According to Manutius, Crichton ſuſtained this conteſt, without fatigue, for three days; during which time he ſupported his credit, and maintained his propoſitions, with ſuch ſpirit and energy, that, from an unuſual concourſe of people, he obtained acclamations and praiſes, than which none more magnificent were ever heard by men.

From Padua, Crichton ſet out for Mantua; where there happened to be at the time a gladiator, who had foiled, in his travels, the moſt famous fencers in Europe, and had lately killed three who had entered the liſts with him in this city. The duke of Mantua was much grieved at having granted this man his protection, as he found it to be attended with ſuch fatal conſequences. Crichton, being informed of his Highneſs's concern, offered his ſervice, not only to drive the murderer from Mantua, but from Italy, and to fight him for 1500 piſtoles. Though the duke was unwilling to expoſe ſuch an accompliſhed gentleman to ſo great a hazard; yet, relying upon the report he had heard of his warlike atchievements, he agreed to the propoſal; and the time and place being appointed, the whole court attended to behold the performance. At the beginning of the combat Crichton ſtood only upon his defence; while the Italian made his attack with ſuch eagerneſs and fury, that having overacted himſelf, he began to grow weary. Crichton now ſeized the opportunity of attacking his antagoniſt in return; which he did with ſo much dexterity and vigour, that he ran him through the body in three different places, of which wounds he immediately died. The acclamations of the ſpectators were loud and extraordinary upon this occaſion; and it was acknowledged by all of them, that they had never ſeen Art grace Nature, or Nature ſecond the precepts of Art, in ſo lively a manner as they had beheld theſe two things accompliſhed on that day. To crown the glory of the action, Crichton beſtowed the prize of his victory upon the widows of the three perſons who had loſt their lives in fighting with the gladiator.

It is aſſerted, that inconſequence of this and his other wonderful performances, the duke of Mantua made choice of him for preceptor to his ſon Vincentio di Gonzaga, who is repreſented as being of a riotous temper and a diſſolute life. The appointment was highly pleaſing to the court. Crichton, to teſtify his gratitude to his friends and benefactors, and to contribute to their diverſion framed, we are told, a comedy, wherein he expoſed and ridiculed all the weakneſſes and failures of the ſeveral employments in which men are engaged. This compoſition was regarded as one of the moſt ingenious ſatires that ever was made upon mankind. But the moſt aſtoniſhing part of the ſtory is, that Crichton ſuſtained 15 characters in the repreſentation of his own play. Among the reſt, he acted the divine, the philoſopher, the lawyer, the mathematician, the phyſician, and the ſoldier, with ſuch inimitable grace, that every time he appeared upon the theatre he ſeemed to be a different perſon.

From being the principal actor in a comedy, Crichton ſoon became the ſubject of a dreadful tragedy. One night, during the time of carnival, as he was walking along the ſtreets of Mantua, and playing upon his guitar, he was attacked by half a dozen people in maſks. The aſſailants found that they had no ordinary perſon to deal with, for they were not able to maintain their ground againſt him. In the iſſue, the leader of the company being diſarmed, pulled off his maſk, and begged his life, telling him that he was the prince his pupil. Crichton immediately fell upon his knees, and expreſſed his concern for his miſtake; alleging, that what he had done was only in his own defence, and that if Gonzaga had any deſign upon his life, he might always be maſter of it. Then taking his own ſword by the point, he preſented it to the prince, who immediately received it, and was ſo irritated by the affront which he thought he had ſuſtained in being foiled with all his attendants, that he inſtantly ran Crichton through the heart.

Various have been the conjectures concerning the motives which could induce Vincentio di Gonzaga to be guilty of ſo ungenerous and brutal an action. Some have aſcribed it to jealouſy, aſſerting that he ſuſpected Crichton to be more in favour than himſelf with a lady whom he paſſionately loved; and Sir Thomas Urquhart has told a ſtory upon this head which is extravagant and ridiculous in the higheſt degree. Others, with greater probability, repreſent the whole tranſaction as the reſult of a drunken frolic; and it is uncertain, according to Imperialis, whether the meeting of the prince and Crichton was by accident or deſign. However, it is agreed on all hands that Crichton loſt his life in this rencounter. The time of his deceaſe is ſaid, by the generality of his biographers, to have been in the beginning of July 1583; but Lord Buchan fixes it to the ſame month in the preceding year. There is a difference, likewiſe, with regard to the period of life at which Crichton died. The common accounts declare that he was killed in the 32d year of his age: but Imperialis aſſerts that he was only in his 22d when that calamitous event took place; and this fact is confirmed by Lord Buchan.

Crichton's tragical end excited a very great and general lamentation. If Sir Thomas Urquhart is to be credited, the whole court of Mantua went three quarters of a year into mourning for him; the epitaphs and elegies that were compoſed upon his death and ſtuck upon his hearſe, would exceed, if collected, the bulk of Homer's works; and, for a long time afterwards, his picture was to be ſeen in moſt of the bedchambers and galleries of the Italian nobility, repreſenting him on horſeback, with a lance in the one hand and a book in the other. The ſame author tells us, that Crichton gained the eſteem of kings and princes, by his magnanimity and knowledge; of noblemen and gentlemen, by his courtlineſs and breeding; of knights, by his honourable deportment and pregnancy of wit; of the rich, by his affability and good fellowſhip; of the poor, by his munificence and liberality; of the old, by his conſtancy and wiſdom; of the young, by his mirth and gallantry; of the learned, by his univerſal knowledge; of the ſoldiers, by his undaunted valour and courage; of the merchants and artificers, by his upright dealing and honeſty; and of the fair ſex, by his beauty and handſomeneſs, in which reſpect he was a maſterpiece of nature.

Joannes Imperialis, in his life of Crichton, ſays, That he was the wonder of the laſt age, the prodigious production of nature; the glory and ornament of Parnaſſus, in a ſtupendous and unuſual manner; and that, in the judgment of the learned world, he was the phœnix of literature, and rather a ſhining particle of the Divine Mind and Majeſty than a model of what could be attained by human induſtry. The ſame author, after highly celebrating the beauty of his perſon, aſſerts, that his extraordinary eloquence and his admirable knowledge of things teſtified that he poſſeſſed a ſtrength of genius wholly divine. "What (adds this writer) can more exceed our comprehenſion, than that Crichton, in the 21ſt year of his age, ſhould be maſter of ten different languages, and perfectly well verſed in philoſophy, mathematics, theology, polite literature, and all other ſciences? Beſides, was it ever heard in the whole compaſs of the globe, that to theſe extraordinary endowments of the mind ſhould be added a ſingular ſkill in fencing, dancing, ſinging, riding, and in every exerciſe of the gymnaſtic art?" Nay, Imperialis, in his account of Crichton's death, declares, that the report of ſo ſad a cataſtrophe was ſpread to the remoteſt parts of the earth; that it diſturbed univerſal nature; and that in her grief for the loſs of the wonder ſhe had produced, ſhe threatened never more to confer ſuch honour upon mankind. Compared with theſe extravagancies, the aſſertion of Bayle that Crichton was one of the greateſt prodigies of wit that ever lived, and the teſtimony of Fœlix Aſtolfus concerning his wonderful memory, may be conſidered as modeſt encomiums.

Such are the accounts which, by a ſucceſſion of writers, and particularly ſince the time of Mackenzie, have been given of the admirable Crichton. Theſe accounts are indeed ſo wonderful that many perſons have been diſpoſed to conſider them as in a great meaſure, if not entirely, fabulous. We ſhall therefore ſubjoin from the *Biographia Britannica* the following obſervations of Dr Kippis, with a view to aſcertain what portion of faith is due to the different parts of the preceding narrative, or at leaſt to aſſiſt the reader in forming a proper judgment concerning them.

The Doctor begins with obſerving, "That no credit can be granted to any facts which depend upon the ſole authority of Sir Thomas Urquhart. Mr Pennant indeed ſpeaks of him with approbation; and Dr Samuel Johnſon laid a ſtreſs on his veracity, in the account of Crichton which he dictated to Dr Hawkſworth, and is inſerted in the 81ſt number of the Adventurer; of which account it may be obſerved, that it is only an elegant ſummary of the life written by Mackenzie. But with all deference to theſe reſpectable names, I muſt declare my full perſuaſion that Sir Thomas Urquhart is an author whoſe teſtimony to facts is totally unworthy

thy of regard ; and it is ſurpriſing that a peruſal of his works does not ſtrike every mind with this conviction. His productions are ſo inexpreſſibly abſurd and extravagant, that the only rational judgment which can be pronounced concerning him is, that he was little, if at all, better than a madman. To the character of his having been a madman muſt be added that of his being a liar. Severe as this term may be thought, I apprehend that a diligent examination of the treatiſe which contains the memorials concerning Crichton would ſhow that it is ſtrictly true. But of his total diſregard to truth there is inconteſtable evidence in another work of his, intitled, The true Pedigree and Lineal Deſcent of the moſt ancient and honourable Family of the Urquhart's in the Houſe of Cromarty, from the Creation of the World until the year of God 1652. In this work it is almoſt incredible what a number of falſities he has invented both with reſpect to names and facts. Perhaps a more flagrant inſtance of impoſture and fiction was never exhibited ; and the abſurdity of the whole pedigree is beyond the power of words to expreſs. It can only be felt by thoſe who have peruſed the tract itſelf. Such a man therefore can juſtly be intitled to no degree of credit, eſpecially when he has a purpoſe to ſerve, as was the caſe with Sir Thomas Urquhart. His deſign was to exalt his own family and his own nation at any rate. With reſpect to his own nation, there was no occaſion for having recourſe to fiction, in order to diſplay the luſtre of Scotland, in the eminent men whom it has produced in arms and literature. The pencil of truth alone would have been amply ſufficient for the purpoſe.

“ So far therefore as Sir Thomas Urquhart's authority is concerned, the wonderful exhibitions of Crichton at Paris, his triumph at Rome, his combat with the gladiator, his writing an Italian comedy, his ſuſtaining fifteen characters in the repreſentation of that comedy, the extraordinary ſtory of the amour which is deſcribed as the cauſe of his death, the nine months mourning for him at Mantua, and the poems hung round his hearſe to the quantity of Homer's works, muſt be regarded as in the higheſt degree doubtful, or rather abſolutely falſe. I cannot forbear mentioning two circumſtances, which ſhow how much Sir Thomas Urquhart was deſtitute of prudence, as well as of ſcrupuloſity, in his violations of truth. He ſays that the duke of Mantua was pleaſed to confer upon the young lady that was Crichton's miſtreſs and future wife, a penſion of five hundred ducats a year ; and that the prince alſo beſtowed as much upon her during all the days of his life, “ which was (adds Sir Thomas) but ſhort ; for he did not long enjoy himſelf after the croſs fate of ſo miſerable an accident. Now it is well known that Vincenzo di Gonzaga ſucceeded his father in the dukedom of Mantua in 1587, and that he did not die till the year 1612 ; which was almoſt, if not entirely, thirty years after Crichton's deceaſe. The other inſtance of the imprudence of Sir Thomas Urquhart in the contrivance of his fictions, occurs at the concluſion of his narrative, where he aſſerts that the verity of the ſtory which he hath related concerning the incomparable Crichton, ‘ may be certified by two thouſand men yet living who have known him.’ *Two thouſand men yet living!* that is, in 1652, ſixty-nine or ſeventy years after Crichton's death, for ſuch was the time of Sir Thomas's publication. Our author would have been ſadly puzzled to collect together theſe two thouſand living witneſſes who could certify the verity of his ſtory.

“ With regard, however, to the account which is given of the prodigious exertions of Crichton, both corporal and mental, at Paris, Mackenzie imagines that he has found a full confirmation of them in a paſſage produced by him from the *Diſquiſitions* of Stephen Paſquier, and which he conſiders as the teſtimony of an eye-witneſs. But the whole of what has been built upon it by Mackenzie and ſucceeding biographers, is founded on a miſtake. In the quotation from the *Diſquiſitions*, the name of Crichton is not mentioned, and the author doth not appear to have been perſonally preſent at the exhibitions of the extraordinary youth there deſcribed. The expreſſions which are ſuppoſed to carry that meaning may well be referred not to the writer himſef, but to his countrymen the French, before whom the young man is ſaid to have diſplayed his ſurpriſing talents. But the diſcuſſion of this point is totally needleſs, becauſe the paſſage in queſtion is not an original authority. The book intitled *Stephani Paſchieri Diſquiſitiones*, is only an abridgment in Latin of Paſquier's *Des Recherches de la France*. Now in this laſt work there is indeed an account of a wonderful youth, ſuch as is related in Mackenzie's quotation, and from which that paſſage was formed. But this wonderful youth, whoever he might be, was not the admirable Crichton : for Paſquier, who does not tell his name, expreſsly ſays that he appeared in the year 1445 (A). The evidence, therefore, produced by Mackenzie falls entirely to the ground.

(A) This matter has lately been ſet in a clear light by a learned and judicious writer in the Edinburgh Magazine for May 1787, whoſe letter is as follows.

“ SIR,

“ We are informed by Sir John Hawkins, that Dr Johnſon dictated from memory that account of the perſon vulgarly named *the Admirable Crichton*, which is to be found in one of the papers of the Adventurer.

“ That account is plainly an abridgment of the Life of Crichton by Dr George Mackenzie. Dr Mackenzie ſuppoſes that Paſquier, the French lawyer and antiquary, was an eye witneſs of the feats performed in arts as well as in arms by Crichton. This is one of the groſſeſt errors in biography which has occurred to me in the courſe of my reading : and it is an error which I perceive is gaining ground daily, and bids fair in a ſhort time to be received as an indiſputable truth.

“ The error ſeems to have ariſen from the following circumſtance : Dr Mackenzie had never read the original work of Paſquier intitled *Recherches de la France* ; what he quotes concerning *the wonderful young man*

Crichton.

ground. Indeed, if the ſtory of Crichton's exploits at Paris had been true, no man was more likely to be acquainted with them than Stephen Paſquier, who lived at that time, and who would be fond enough of recording tranſactions ſo extraordinary. It may farther be obſerved, that Thuanus, who was likewiſe a contemporary, and who in his own life is very particular in what relates to learned men, makes no mention of Crichton. The only authority for his having ever reſided in France at all (Sir Thomas Urquhart excepted) is that of Dr John Johnſon, who ſays *Gallia pectus excolit*. But this amounts to no proof of the truth of the tranſactions related by Urquhart. The whole which can be deduced from it is, that Crichton, in the courſe of his travels, might make ſome ſtay in France for the purpoſe of improvement. Even this, however, doth not agree with the narration of Imperialis, who informs us, that when troubles aroſe in Scotland on account of religion, and queen Mary fell into ſo many calamities, Crichton was ſent by his father directly from that country to Venice as a place of ſecurity.

“ It is acknowledged by Sir John Hawkins, that Sir Thomas Urquhart has produced no authorities in ſupport of his ſurpriſing narrations. But this defect, Sir John thinks, is ſupplied in the life of Crichton which is given in Mr Pennant's Tour. I am under the neceſſity of ſaying, that this is by no means the caſe. The article in Pennant was not drawn up by that ingenious and learned gentleman, but is the tranſcript of a pamphlet, that was printed ſome years ago at Aberdeen; and which pamphlet is nothing more than a republication, with a few verbal alterations, of the Life of Crichton written by Mackenzie. It doth not, therefore, furniſh a ſingle additional teſtimony in confirmation of Sir Thomas Urquhart's ſtories, excepting in the miſtaken inſtance from Paſquier. In other reſpects it only borrows facts from Sir Thomas Urquhart, without eſtabliſhing them upon freſh proofs. It is obſervable, that the earlier biographers of Crichton had no knowledge of moſt of the tranſactions enlarged upon by this extravagant writer; for if they had known them, they would have been eagerly diſpoſed to relate them, and to do it with every circumſtance of exaggeration. How much this was the character of Thomas Dempſter, with regard to his own countrymen, is ſufficiently underſtood, and hath frequently been remarked; and yet his account of Crichton is uncommonly modeſt, compared with thoſe of ſucceeding authors. The extravagance of Imperialis in reſpect to Crichton has already appeared. There ſeems indeed to have been an univerſal tendency in the writers of this young Scotſman's life to produce wonder and aſtoniſhment. Mackenzie remarks, that Imperialis could not but know the truth of all, or at leaſt of moſt of, the things he has related concerning Crichton, ſince he lived upon the places in which they were tranſacted, and had them from an eye and ear-witneſs, even his own father. It is, however, to be remembered, that Imperialis's *Muſeum Hiſtoricum* was not publiſhed till 1640, nearly ſixty years after the events recorded by him happened; to which may be added, that the information he derived from his father was probably very imperfect. Imperialis the elder was not born till 1568, and conſequently was only thirteen years old when Crichton diſplayed his talents at Padua. What real dependence, therefore, could there be on the accuracy of the account given by a youth of that age? He could only relate, and perhaps from inadequate intelligence, the things which were talked of when he was a boy. Beſides, his authority is appealed to for no more than a ſingle fact, and that a doubtful one, ſince it does not accord with Manutius's narrative: and who ever heard of the famous philoſopher Arcangelus Mercenarius?

Crichton.

“ The truth of the matter is, that, ſome ſlight circumſtances excepted, neither Dempſter nor Imperialis have produced any evidences of Crichton's extraordinary abilities beſides thoſe which are recorded by the younger Aldus Manutius. He therefore is to be regarded as the only living authority upon the ſubject.

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is taken from a Latin abridgement of that work; he refers to *Steph. Paſch.* Diſquiſ. lib. v. cap. 23. and he gives his quotation in Latin; indeed it does not appear that Dr Mackenzie had ever heard of the original work. Now Paſquier, inſtead of ſaying that he was an eye-witneſs of the wonders exhibited by Crichton, ſays, in the moſt unequivocal terms, that what he relates was taken ‘ from a manuſcript which was occaſionally uſed by him,’ *(d'un livre ecrit á la main dont je m'aide ſelon les occurrences)*. And he adds, ‘ I will repreſent the ſtory in its own ſimple garb, without any artificial colouring, ſo that my readers may be the more inclined to give credit to it.’ *(vous repreſentant cette hiſtoire en ſa ſimplicite ſans y apporter aucun fard pour ce que vous y adjouſteres plus de foy)*. He then tranſcribes the narrative from the MS. which places the appearance of this phenomenon in the year 1445, a full century before the birth of our Crichton. See *Recherches de la France*; lib. vi. c. 38, 39.

“ Dr Mackenzie, although he had not read the original of Paſquier, appears to have read an author who quotes the ſame ſtory: ‘ The learned M. du Launoy (ſays he), in his Hiſtory of the College of Navarre, finding the hiſtory of this diſpute recorded in a MS. Hiſtory of the College of Navarre, and the like account of a Spaniard in Trithemius, confounds the two together, and *robs* our author of the glory of this action, and places it in the year 1445; whereas it ſhould be in the year 1571.’ This charge of *robbery* is ſingular enough.

“ Let me only add, that Paſquier tranſcribes ſome verſes written by George Chaſtelain, a French poet in the reign of Charles VII. king of France, which allude to the ſame ſtory; and that Paſquier himſelf was born at Paris in 1528, paſſed his life in that city, and was an eminent lawyer and pleader in 1571; ſo that it is impoſſible the feats of Crichton, had they been really performed at Paris, could have been unknown to him, and moſt improbable that, knowing them, he would have omitted to mention them; for, in the ſame lib. iv. c. 39. he is at pains to produce examples of great proficiency, diſplayed by men in a much humbler rank of life than that of philoſophers and public diſputants. I am, &c.”

ject. Manutius was contemporary with Crichton; he was cloſely connected with him in friendſhip; and he relates ſeveral things on his own perſonal knowledge. He is a poſitive and undoubted witneſs with reſpect to our young Scotſman's intellectual and literary exertions at Venice and Padua; and from him it is that our account of them is given above. Nevertheleſs, even Aldus Manutius is to be read with ſome degree of caution. Dedications are apt to aſſume the ſtyle of exaggeration, and this is the caſe with Manutius's dedication of the *Paradoxa Ciceronis* to Crichton. In addition to the general language of ſuch addreſſes, he might be carried too far by his affection for his friend, which appears to have been very great: nor was the younger Aldus eminent for ſteadineſs and conſiſtency of character. It is even ſaid that by his imprudencies he fell into contempt and miſery. But independently of any conſiderations of this kind, it may be obſerved, that Manutius's narrative, previouſly to Crichton's arrival at Venice, could not be derived from perſonal knowledge. For that part of it (which is ſufficiently erroneous) he was probably indebted to Crichton himſelf. Neither does he appear to have been an eye-witneſs of the whole of the diſputations which were held at Padua; for ſpeaking of his young friend's praiſe of ignorance, he relates, that thoſe who were preſent told him afterwards how much they were ſtruck with that oration. However, at the other diſputation, which laſted three days, Manutius ſeems certainly to have attended; for he concludes his accounts of it with ſaying, that he was not only the adviſer but the ſpectator of Crichton's wonderful conteſts. It is evident, however, from the dedication, that his extraordinary abilities were not univerſally acknowledged and admired. Some there were who detracted from them, and were diſpleaſed with Manutius for ſo warmly ſupporting his reputation.

"As to the real cauſe and manner of our young Scotſman's death, both of them ſtill remain in ſome degree of obſcurity. That he was killed in a rencounter at the carnival at Mantua, is teſtified by too many authors to be reaſonably doubted. But whether there was that particular malignity on the part of Vincenzo di Gonzago, which is commonly aſcribed to him, may be conſidered as uncertain.

"One important method yet remains by which we may be enabled to form a judgment of Crichton's genius, and that is from a peruſal of the four poems of his which are ſtill preſerved. It is, however, to be feared, that theſe will not exhibit him in a very high point of view. Some fancy, perhaps, may be thought to be diſplayed in the longeſt of his poems, which was written on occaſion of his approach to the city of Venice. He there repreſents a Naiad as riſing up before him; and, by the order of the Muſes and of Minerva, directing him how to proceed. But this is a ſentiment which ſo eaſily preſents itſelf to a claſſical reader, that it can ſcarcely be conſidered as deſerving the name of a poetical invention. The three other poems of Crichton have ſtill leſs to recommend them. Indeed his verſes will not ſtand the teſt of a rigid examination even with regard to quantity.

"What then is the opinion which on the whole we are to form of the admirable Crichton? It is evident that he was a youth of ſuch lively parts as excited great preſent admiration, and high expectations with regard to his future attainments. He appears to have had a fine perſon, to have been adroit in his bodily exerciſes, to have poſſeſſed a peculiar facility in learning languages, to have enjoyed a remarkably quick and retentive memory, and to have excelled in a power of declamation, a fluency of ſpeech, and a readineſs of reply. His knowledge, likewiſe, was probably very uncommon for his years; and this, in conjunction with his other qualities, enabled him to ſhine in public diſputation. But whether his knowledge and learning were accurate or profound, may juſtly be queſtioned; and it may equally be doubted whether he would have ariſen to any extraordinary degree of eminence in the literary world. It will always be reflected upon with regret, that his early and untimely death prevented this matter from being brought to the teſt of experiment."

From the portraits which remain of Crichton, it appears that in his face and form he was beautiful and elegant, and that his body and limbs, though not muſcular or athletic, were well proportioned, and fitted for feats of agility. The following catalogue of Crichton's works is given by Dempſter: 1. *Odæ ad Laurentium Maſſam plures.* 2. *Laudes Patavinæ, Carmen extempore effuſum, cum in Jacobi Moyſii Cornelii domo experimentum ingenii coram tota Academiæ frequentia, non ſine multorum ſtupore, ſaceret.* 3. *Ignorationis Laudatio, extemporale Thema ibidem redditum, poſt ſex horarum diſputationes, ut præſentes ſomnia potius fovere quam rem ſe veram videre affirmarint, ait Manutius.* 4. *De appulſu ſuo Venetias.* 5. *Odæ ad Aldum Manutium.* 6. *Epiſtolæ ad Diverſos.* 7. *Præfationes ſolemnes in omnes Scientias ſacras et prophanas* 8. *Judicium de Philoſophis.* 9. *Errores Ariſtotelis.* 10. *Arma an Literæ præſtant, Controverſia oratoria.* 11. *Refutatio Mathematicorum.* 12. A Comedy in the Italian language.

CRICK, among farriers, is when a horſe cannot turn his neck any manner of way, but holds it fore right, inſomuch that he cannot take his meat from the ground without great pain.

CRICKET, in zoology. See GRYLLUS.

CRICKET is alſo the name of an exerciſe or game, with bats and a ball.

Mole CRICKET. See GRYLLOTALPA.

CRICKLADE, a borough-town of Wiltſhire, ſituated on the river Iſis, about 26 miles ſouth-weſt of Oxford. It ſends two members to parliament. W. Long. 1. 55. N. Lat. 51. 35.

CRICOARYTANOIDÆUS, in anatomy, a name given to two muſcles of the larynx. See ANATOMY, n° 116.

CRICOIDES, in anatomy, a cartilage of the larynx, called alſo the *annular cartilage*. It occupies the loweſt part by way of baſe to the reſt of the cartilages, and to the lower part of it the aſpera arteria adheres. See ANATOMY, *Table of the muſcles.*

CRICOTHYROIDÆUS, in anatomy, one of the five proper muſcles of the larynx. *Ibid.*

CRIM-TARTARS, a people of Aſia, ſo called becauſe they originally came from Crimea. They rove from place to place in ſearch of paſtures, their houſes being drawn on carts. There are a great number of them about Aſtrachan, to which place they flock in the winter-time; but they are not permitted to enter the city: for this reaſon, they erect huts up and down in the open fields; which are made either of bull-ruſhes or reeds, being about 12 feet in diameter, of a round form, and with a hole at the top to let out the ſmoke. Their fuel is turf or cow-dung; and, when the weather is very cold, they cover the hut with a coarſe cloth, and ſometimes paſs ſeveral days without ſtirring out. They are generally of ſmall ſtature, with large faces, little eyes, and of an olive complection. The men are generally ſo wrinkled in their faces, that they look like old women. Their common food is fiſh dried in the ſun, which ſerves them inſtead of bread; and they eat the fleſh of horſes as well as camels. Their drink is water and milk, eſpecially mares milk, which they carry about in naſty leathern-bags. Their garments are of coarſe grey cloth, with a looſe mantle made of a black ſheep's ſkin, and a cap of the ſame. The women are clothed in white linen, with which likewiſe they dreſs their heads, hanging a great many Muſcovian pence about them; and there is likewiſe a hole left to ſtick feathers in. As for their religion, they are a ſort of Mahometans; but do not coop up their women like the Turks.

CRIM-TARTARY, or *Crimea.* See CRIMEA.

CRIME *and* PUNISHMENT. The diſcuſſion and admeaſurement of crimes and puniſhments forms in every country the code of criminal law; or, as it is more uſually denominated in England, the doctrine of the *pleas of the crown:* ſo called, becauſe the king, in whom centres the majeſty of the whole community, is ſuppoſed by the law to be the perſon injured by every infraction of the public rights belonging to that community; and is therefore in all caſes the proper proſecutor for every public offence.

The knowledge of this branch of juriſprudence, which teaches the nature, extent, and degrees of every crime, and adjuſts to it its adequate and neceſſary penalty, is of the utmoſt importance to every individual in the ſtate. For no rank or elevation in life, no uprightneſs of heart, no prudence or circumſpection of conduct, ſhould tempt a man to conclude, that he may not at ſome time or other be deeply intereſted in theſe reſearches. The infirmities of the beſt among us, the vices and ungovernable paſſions of others, the inſtability of all human affairs, and the numberleſs unforeſeen events which the compaſs of a day may bring forth, will teach us (upon a moment's reflection), that to know with preciſion what the laws of our country have forbidden, and the deplorable conſequences to which a wilful diſobedience may expoſe us, is a matter of univerſal concern.

In proportion to the importance of the criminal law, ought alſo to be the care and attention of the legiſlature in properly forming and enforcing it. It ſhould be founded upon principles that are permanent, uniform, and univerſal; and always conformable to the dictates of truth and juſtice, the feelings of humanity, and the indelible rights of mankind: though it ſometimes (provided there be no tranſgreſſion of theſe eternal bounderies) may be modified, narrowed, or enlarged, according to the local or occaſional neceſſities of the ſtate which it is meant to govern. And yet, either from a want of attention to theſe principles in the firſt concoction of the laws, and adopting in their ſtead the impetuous dictates of avarice, ambition, and revenge; from retaining the diſcordant political regulations, which ſucceſſive conquerors or factions have eſtabliſhed, in the various revolutions of goverment; from giving a laſting efficacy to ſanctions that were intended to be temporary, and made (as lord Bacon expreſſes it) merely upon the ſpur of the occaſion; or from, laſtly, too haſtily employing ſuch means as are greatly diſproportionate to their end, in order to check the progreſs of ſome very prevalent offence; from ſome, or from all, of theſe cauſes it hath happened, that the criminal law is in every country of Europe more rude and imperfect than the civil. We ſhall not here enter into any minute enquiries concerning the local conſtitutions of other nations; the inhumanity and miſtaken policy of which have been ſufficiently pointed out by ingenious writers of their own*. But even in Great Britain, where the crown-law is with juſtice ſuppoſed to be more nearly advanced to perfection; where crimes are more accurately defined, and penalties leſs uncertain and arbitrary; where all accuſations are public, and trials in the face of the world; where torture is unknown, and every delinquent is judged by ſuch of his equals, againſt whom he can form no exception, nor even a perſonal diſlike;—even there we ſhall occaſionally find room to remark ſome particulars that ſeem to want reviſion and amendment. Theſe have chiefly ariſen from too ſcrupulous an adherence to ſome rules of the ancient common law, where the reaſons have ceaſed upon which thoſe rules were founded; from not repealing ſuch of the old penal laws as are either obſolete or abſurd; and from too little care and attention in framing and paſſing new ones. The enacting of penalties to which a whole nation ſhall be ſubject, ought not to be left, as a matter of indifference, to the paſſions or intereſts of a few, who upon temporary motives may prefer or ſupport ſuch a bill; but be calmly and maturely conſidered by perſons who know what proviſions the laws have already made to remedy the miſchief complained of, who can from experience foreſee the probable conſequences of thoſe which are now propoſed, and who will judge without paſſion or prejudice how adequate they are to the evil. It is never uſual in the houſe of peers even to read a private bill which may affect the property of an individual, without firſt referring it to ſome of the learned judges, and hearing their report thereon. And ſurely equal precaution is neceſſary, when laws are to be eſtabliſhed, which may affect the property, the liberty, and perhaps even the lives, of thouſands. Had ſuch a reference taken place, it is impoſſible that in the 18th century it could ever have been made a capital crime, to break down (however maliciouſly) the mound of a fiſhpond, whereby any fiſh ſhall eſcape; or to cut down a cherry-tree in an orchard. Were even a committee appointed but once in an hundred years to reviſe the criminal law, it could not have continued to this hour a felony without benefit of clergy, to be ſeen for one month in the company of perſons who call themſelves or are called *Egyptians.*

It is true, that theſe outrageous penalties, being ſeldom or never inflicted, are hardly known to be the law by the public; but that rather aggravates the miſchief, by laying a ſnare for the unwary. Yet they cannot but occur to the obſervation of any one, who hath

Blackſ. Comment.

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* As Baron Monteſquieu, Marquis of Beccaria, &c.

hath undertaking the taſk of examining the great outlines of our law, and tracing them up to their principles, and it is the duty of ſuch a one to hint them with decency to thoſe whoſe abilities and ſtations enable them to apply the remedy. Proceed we now to conſider (in the firſt place) the general nature of *crimes*.

I. A crime, or miſdemeanour, is an act committed, or omitted, in violation of a public law, either forbidding or commanding it. This general definition comprehends both crimes and miſdemeanours; which, properly ſpeaking, are mere ſynonymous terms: though in common uſage, the word "crimes" is made to denote ſuch offences as are of a deeper and more atrocious dye; while ſmaller faults, and omiſſions of leſs conſequence, are comprized under the gentler name of "miſdemeanours" only.

The diſtinction of public wrongs from private, of crimes and miſdemeanours from civil injuries, ſeems principally to conſiſt in this: that private wrongs, or civil injuries, are an infringement or privation of the civil rights which belong to individuals, conſidered merely as individuals; public wrongs, or crimes and miſdemeanours, are a breach and violation of the public rights and duties, due to the whole community, conſidered as a community, in its ſocial aggregate capacity. As if I detain a field from another man, to which the law has givin him a right, this is a civil injury, and not a crime; for here only the right of an individual is concerned, and it is immaterial to the public which of us is in poſſeſſion of the land: but treaſon, murder, and robbery, are properly ranked among crimes; ſince, beſides the injury done to individuals, they ſtrike at the very being of ſociety; which cannot poſſibly ſubſiſt, where actions of this ſort are ſuffered to eſcape with impunity.

In all caſes the crime includes an injury: every public offence is alſo a private wrong, and ſomewhat more; it affects the individual, and it likewiſe affects the community. Thus treaſon in imagining the king's death, involves in it conſpiracy againſt an individual, which is alſo a civil injury: but as this ſpecies of treaſon in its conſequences principally tends to the diſſolution of government, and the deſtruction thereby of the order and peace of ſociety, this denominates it a crime of the higheſt magnitude. Murder is an injury to the life of an individual; but the law of ſociety conſiders principally the loſs which the ſtate ſuſtains by being deprived of a member, and the pernicious example thereby ſet, for others to do the like. Robbery may be conſidered in the ſame view: it is an injury to private property; but, were that all, a civil ſatisfaction in damages might atone for it; the public miſchief is the thing, for the prevention of which our laws have made it a capital offence. In theſe groſs and atrocious injuries the private wrong is ſwallowed up in the public: we ſeldom hear any mention made of ſatisfaction to the individual; the ſatisfaction to the community being ſo very great. And indeed, as the public crime is not otherwiſe avenged than by forfeiture of life and property, it is impoſſible afterwards to make any reparation for the private wrong; which can only be had from the body or goods of the aggreſſor. But there are crimes of an inferior nature, in which the public puniſhment is not ſo ſevere, but it affords room for a private compenſation alſo: and herein the diſtinction of crimes from civil injuries is very apparent. For inſtance; in the caſe of battery, or beating another, the aggreſſor may be indicted for this at the ſuit of the king, for diſturbing the public peace, and be puniſhed criminally by fine and impriſonment: and the party beaten may alſo have his private remedy by action of treſpaſs for the injury, which he in particular ſuſtains, and recover a civil ſatisfaction in damages. So alſo, in caſe of a public nuiſance, as digging a ditch acroſs a highway, this is puniſhable by indictment, as a common offence to the whole kingdom, and all his majeſty's ſubjects: but if any individual ſuſtains any ſpecial damage thereby, as laming his horſe, breaking his carriage, or the like, the offender may be compelled to make ample ſatiſfaction, as well for the private injury as for the public wrong.

II. The nature of crimes and miſdemeanours in general being thus aſcertained and diſtinguiſhed, we proceed in the next place to conſider the general nature of puniſhments: Which are evils or inconveniences conſequent upon crimes and miſdemeanours; being deviſed, denounced, and inflicted by human laws, in conſequence of diſobedience or miſbehaviour in thoſe, to regulate whoſe conduct ſuch laws were reſpectively made. And herein we will briefly conſider the *power*, the *end*, and the *meaſure*, of human puniſhment.

Blackſt. Comment.

1. As to the *power* of human puniſhment, or the right of the temporal legiſlator to inflict diſcretionary penalties for crimes and miſdemeanours. It is clear, that the right of puniſhing crimes againſt the law of nature, as murder and the like, is in a ſtate of mere nature, veſted in every individual. For it muſt be veſted in ſomebody; otherwiſe the laws of nature would be vain and fruitleſs, if none were empowered to put them in execution: and if that power is veſted in any one, it muſt alſo be veſted in all mankind; ſince all are by nature equal. Whereof the firſt murderer Cain was ſo ſenſible, that we find him expreſſing his apprehenſions, that whoever ſhould find him would ſlay him. In a ſtate of ſociety this right is transferred from individuals to the ſovereign power; whereby men are prevented from being judges in their own cauſes, which is one of the evils that civil government was intended to remedy. Whatever power therefore individuals had of puniſhing offences againſt the law of nature, that is now veſted in the magiſtrate alone; who bears the ſword of juſtice by the conſent of the whole community. And to this precedent natural power of individuals muſt be referred that right, which ſome have argued to belong to every ſtate (though, in fact, never exerciſed by any), of puniſhing not only their own ſubjects, but alſo foreign embaſſadors, even with death itſelf; in caſe they have offended, not indeed againſt the municipal laws of the country, but againſt the divine laws of nature, and become liable thereby to forfeit their lives for their guilt.

As to offences merely againſt the laws of ſociety, which are only *mala prohibita*, and not *mala in ſe*; the temporal magiſtrate is alſo empowered to inflict coercive penalties for ſuch tranſgreſſion: and this by the conſent of individuals; who, in forming ſocieties did either tacitly or expreſsly inveſt the ſovereign power with a right of making laws, and of enforcing obedience to them when made, by exerciſing, upon their non-obſervance, ſeverities adequate to the evil. The lawfulneſs therefore of puniſhing ſuch criminals is founded upon this principle, that the law by which they ſuffer was made by their own conſent; it is a part of the original contract into which they entered, when firſt they engaged in ſociety; it was calculated for, and has long contributed to, their own ſecurity.

This right therefore, being thus conferred by univerſal conſent, gives to the ſtate exactly the ſame power, and no more, over all its members, as each individual member had naturally over himſelf or others. Which has occaſioned ſome to doubt, how far a human legiſlature ought to inflict capital puniſhments for poſitive offences: offences againſt the municipal law only, and not againſt the law of nature; ſince no individual has, naturally, a power of inflicting death upon himſelf or others for actions in themſelves indifferent. With regard to offences *mala in ſe*, capital puniſhments are in ſome inſtances inflicted by the immediate command of God himſelf to all mankind; as, in the caſe of murder, by the precept delivered to Noah their common anceſtor and repreſentative. "Whoſo "ſheddeth man's blood, by man ſhall his blood be "ſhed." In other inſtances they are inflicted after the example of the Creator, in his poſitive code of laws for the regulation of the Jewiſh republic; as in the caſe of the crime againſt nature. But they are ſometimes inflicted without ſuch expreſs warrant or example, at the will and diſcretion of the human legiſlature: as for forgery, for theft, and ſometimes for offences of a lighter kind. This practice is thus juſtified by that great and good man Sir Matthew Hale: "When offences grow enormous, frequent, and dan-"gerous to a kingdom or ſtate, deſtructive or highly "pernicious to civil ſocieties, and to the great inſecu-"rity and danger of the kingdom or its inhabitants, "ſevere puniſhment and even death itſelf is neceſſary "to be annexed to laws in many caſes by the pru-"dence of lawgivers." It is therefore the enormity, or dangerous tendency, of the crime, that alone can warrant any earthly legiſlature in putting him to death that commits it. It is not its frequency only, or the difficulty of otherwiſe preventing it, that will excuſe our attempting to prevent it by a wanton effuſion of human blood. For though the end of puniſhment is to deter men from offending, it never can follow from thence, that it is lawful to deter them at any rate and by any means; ſince there may be unlawful methods of enforcing obedience even to the juſteſt laws. Every humane legiſlator will be therefore extremely cautious of eſtabliſhing laws that inflict the penalty of death, eſpecially for ſlight offences, or ſuch as are merely poſitive. He will expect a better reaſon for his ſo doing, than that looſe one which generally is given; that it is found by former experience that no lighter penalty will be effectual. For is it found upon farther experience, that capital puniſhments are more effectual? Was the vaſt territory of all the Ruſſias worſe regulated under the late empreſs Elizabeth, than under her more ſanguinary predeceſſors? Is it now under Catherine II. leſs civilized, leſs ſocial, leſs ſecure? And yet we are aſſured, that neither of theſe illuſtrious princeſſes have, throughout their whole adminiſtration, inflicted the penalty of death: and the latter has, upon full perſuaſion of its being uſeleſs, nay even pernicious, given orders for aboliſhing it entirely throughout her extenſive dominions. But indeed, were capital puniſhments proved by experience to be a ſure and effectual remedy, that would not prove the neceſſity (upon which the juſtice and propriety depend) of inflicting them upon all occaſions when other expedients fail. It is feared this reaſoning would extend a great deal too far. For inſtance, the damage done to our public roads by loaded waggons is univerſally allowed, and many laws have been made to prevent it, none of which have hitherto proved effectual. But it does not therefore follow, that it would be juſt for the legiſlature to inflict death upon every obſtinate carrier, who defeats or eludes the proviſions of former ſtatutes. Where the evil to be prevented is not adequate to the violence of the preventive, a ſovereign that thinks ſeriouſly can never juſtify ſuch a law to the dictates of conſcience and humanity. To ſhed the blood of our fellow-creature is a matter that requires the greateſt deliberation, and the fulleſt conviction of our own authority: for life is the immediate gift of God to man; which neither he can reſign, nor can it be taken from him, unleſs by the command or permiſſion of him who gave it, either expreſsly revealed, or collected from the laws of nature or ſociety by clear and indiſputable demonſtration.

We would not be underſtood to deny the right of the legiſlature in any country to enforce its own laws by the death of the tranſgreſſor, though perſons of ſome abilities have doubted it; but only to ſuggeſt a few hints for the conſideration of ſuch as are, or may hereafter become, legiſlators. When a queſtion ariſes, whether death may be lawfully inflicted for this or that tranſgreſſion, the wiſdom of the laws muſt decide it: and to this public judgment or deciſion all private judgments muſt ſubmit; elſe there is an end of the firſt principle of all ſociety and government. The guilt of blood, if any, muſt lie at their doors, who miſinterpret the extent of their warrant; and not at the doors of the ſubject, who is bound to receive the interpretations that are given by the ſovereign power.

2. As to the end, or final cauſe, of human puniſhments. This is not by way of atonement or expiation for the crime committed; for that muſt be left to the juſt determination of the Supreme Being: but as a precaution againſt future offences of the ſame kind. This is effected three ways: either by the amendment of the offender himſelf; for which purpoſe all corporeal puniſhments, fines, and temporary exile or impriſonment, are inflicted: or, by deterring others by the dread of his example from offending in the like way, "*ut pœna* (as Tully expreſſes it) *ad paucos,* "*metus ad omnes, perveniat*; which gives riſe to all ignominious puniſhments, and to ſuch executions of juſtice as are open and public: or, laſtly, by depriving the party injuring of the power to do future miſchief; which is effected by either putting him to death, or condemning him to perpetual confinement, ſlavery, or exile. The ſame one end, of preventing future crimes, is endeavoured to be anſwered by each of theſe three ſpecies of puniſhment. The public gains

equal ſecurity, whether the offender himſelf be amended by wholeſome correction, or whether he be diſabled from doing any farther harm: and if the penalty fails of both theſe effects, as it may do, ſtill the terror of his example remains as a warning to other citizens. The method, however, of inflicting puniſhment ought always to be proportioned to the particular purpoſe it is meant to ſerve, and by no means to exceed it: therefore the pains of death, and perpetual diſability by exile, ſlavery, or impriſonment, ought never to be inflicted, but when the offender appears incorrigible: which may be collected either from a repetition of minuter offences; or from the perpetration of ſome one crime of deep malignity, which of itſelf demonſtrates a diſpoſition without hope or probability of amendment: and in ſuch caſes it would be cruelty to the public to defer the puniſhment of ſuch a criminal till he had an opportunity of repeating perhaps the worſt of villanies.

3. As to the *meaſure* of human puniſhments. From what has been obſerved in the former articles we may collect, that the quantity of puniſhment can never be abſolutely determined by any ſtanding invariable rule: but it muſt be left to the arbitration of the legiſlature to inflict ſuch penalties as are warranted by the laws of nature and ſociety, and ſuch as appear to be the beſt calculated to anſwer the end of precaution againſt future offences.

Hence it will be evident, that what ſome have ſo highly extolled for its equity, the *lex talionis* or "law of retaliation," can never be in all caſes an adequate or permanent rule of puniſhment. In ſome caſes indeed it ſeems to be dictated by natural reaſon; as in the caſe of conſpiracies to do an injury, or falſe accuſations of the innocent; to which we may add that law of the Jews and Egyptians, mentioned by Joſephus and Diodorus Siculus, that whoever without ſufficient cauſe was found with any mortal poiſon in his cuſtody, ſhould himſelf be obliged to take it. But, in general, the difference of perſons, place, time, provocation, or other circumſtances, may enhance or mitigate the offence; and in ſuch caſes retaliation can never be a proper meaſure of juſtice. If a nobleman ſtrikes a peaſant, all mankind will ſee, that if a court of juſtice awards a return of the blow, it is more than a juſt compenſation. On the other hand, retaliation may ſometimes be too eaſy a ſentence; as, if a man maliciouſly ſhould put out the remaining eye of him who had loſt one before, it is too ſlight a puniſhment for the maimer to loſe only one of his: and therefore the law of the Locrians, which demanded an eye for an eye, was in this inſtance judiciouſly altered; by decreeing, in imitation of Solon's laws, that he who ſtruck out the eye of a one-eyed man, ſhould loſe both his own in return. Beſides, there are very many crimes, that will in no ſhape admit of theſe penalties, without manifeſt abſurdity and wickedneſs. Theft cannot be puniſhed by theft, defamation by defamation, forgery by forgery, adultery by adultery, and the like. And we may add, that thoſe inſtances, wherein retaliation appears to be uſed, even by the divine authority, do not really proceed upon the rule of exact retribution, by doing to the criminal the ſame hurt he has done to his neighbour, and no more; but this correſpondence between the crime and puniſhment is barely a conſequence from ſome other principle. Death is ordered to be puniſhed with death; not becauſe one is equivalent to the other, for that would be expiation, and not puniſhment. Nor is death always an equivalent for death: the execution of a needy decrepid aſſaſſin is a poor ſatisfaction for the death of a nobleman in the bloom of his youth, and full enjoyment of his friends, his honours, and his fortune. But the reaſon upon which this ſentence is grounded ſeems to be, that this is the higheſt penalty that man can inflict, and tends moſt to the ſecurity of the world: by removing one murderer from the earth, and ſetting a dreadful example to deter others: ſo that even this grand inſtance proceeds upon other principles than thoſe of retaliation. And truly, if any meaſures of puniſhment is to be taken from the damage ſuſtained by the ſufferer, the puniſhment ought rather to exceed than equal the injury; ſince it ſeems contrary to reaſon and equity, that the guilty (if convicted) ſhould ſuffer no more than the innocent has done before him: eſpecially as the ſuffering of the innocent is paſt and irrevocable, that of the guilty is future, contingent, and liable to be eſcaped or evaded. With regard indeed to crimes that are incomplete, which conſiſt merely in the intention, and are not yet carried into act, as conſpiracies and the like; the innocent has a chance to fruſtrate or avoid the villany, as the conſpirator has alſo a chance to eſcape his puniſhment: and this may be one reaſon why the *lex talionis* is more proper to be inflicted, if at all, for crimes that conſiſt in intention than for ſuch as are carried into act. It ſeems indeed conſonant to natural reaſon, and has therefore been adopted as a maxim by ſeveral theoretical writers, that the puniſhment due to the crime of which one falſely accuſes another ſhould be inflicted on the perjured informer. Accordingly, when it was once attempted to introduce into England the law of retaliation, it was intended as a puniſhment for ſuch only as preferred malicious accuſations againſt others; it being enacted by ſtatute 37 Edw. III. c. 18. that ſuch as preferred any ſuggeſtions to the king's great council ſhould put in ſureties of taliation; that is, to incur the ſame pain that the other ſhould have had, in caſe the ſuggeſtion were found untrue. But, after one years experience, this puniſhment of taliation was rejected, and impriſonment adopted in its ſtead.

But though from what has been ſaid it appears, that there cannot be any regular determinate method of rating the quantity of puniſhments for crimes, by any one uniform rule; but they muſt be referred to the will and diſcretion of the legiſlative power: yet there are ſome general principles, drawn from the nature and circumſtances of the crime, that may be of ſome aſſiſtance in allotting it an adequate puniſhment.

As, firſt, with regard to the object of it: for the greater and more exalted the object of an injury is, the more care ſhould be taken to prevent that injury, and of courſe under this aggravation the puniſhment ſhould be more ſevere. Therefore treaſon in conſpiring the king's death is (in Britain) puniſhed with greater rigour than even actually killing any private ſubject. And yet, generally, a deſign to tranſgreſs is not ſo flagrant an enormity as the actual completion of that deſign. For evil, the nearer we approach it, is the more diſagreeable and ſhocking;

ſo that it requires more obſtinacy in wickedneſs to perpetrate an unlawful action, than barely to entertain the thought of it: and it is an encouragement to repentance and remorſe, even till the laſt ſtage of any crime, that it never is too late to retract; and that if a man ſtops even here, it is better for him than if he proceeds: for which reaſons an attempt to rob, to raviſh, or to kill, is far leſs penal than the actual robbery, rape, or murder. But in the caſe of a treaſonable conſpiracy, the object whereof is the king's majeſty, the bare intention will deſerve the higheſt degree of ſeverity; not becauſe the intention is equivalent to the act itſelf; but becauſe the greateſt rigour is no more than adequate to a treaſonable purpoſe of the heart, and there is no greater left to inflict upon the actual execution itſelf.

Again; The violence of paſſion, or temptation, may ſometimes alleviate a crime: as theft, in caſe of hunger, is far more worthy of compaſſion, than when committed through avarice, or to ſupply one in luxurious exceſſes. To kill a man upon ſudden and violent reſentment is leſs penal than upon cool deliberate malice. The age, education, and character, of the offender; the repetition (or otherwiſe) of the offence; the time, the place, the company wherein it was committed; all theſe, and a thouſand other incidents, may aggravate or extenuate the crime (A).

Farther: As puniſhments are chiefly intended for the prevention of future crimes, it is but reaſonable that among crimes of different natures thoſe ſhould be moſt ſeverely puniſhed, which are the moſt deſtructive of the public ſafety and happineſs; and, among crimes of an equal malignity, thoſe which a man has the moſt frequent and eaſy opportunities of committing, which cannot be ſo eaſily guarded againſt as others, and which therefore the offender has the ſtrongeſt inducement to commit: according to what Cicero obſerves, *Ea ſunt animadvertenda peccata maxime, quæ difficillime præcaventur.* Hence it is, that for a ſervant to rob his maſter is in more caſes capital than for a ſtranger. If a ſervant kills his maſter, it is a ſpecies of treaſon; in another it is only murder. To ſteal a handkerchief, or other trifle of above the value of twelvepence, privately from one's perſon, is made capital; but to carry off a load of corn from an open field, though of fifty times greater value, is puniſhed with tranſportation only. And in the iſland of Man this rule was formerly carried ſo far, that to take away an horſe or an ox was there no felony, but a treſpaſs, becauſe of the difficulty in that little territory to conceal them or carry them off: but to ſteal a pig or a fowl, which is eaſily done, was a capital miſdemeanour, and the offender was puniſhed with death.

Laſtly, as a concluſion to the whole, we may obſerve, that puniſhments of unreaſonable ſeverity, eſpecially when indiſcriminately inflicted, have leſs effect in preventing crimes, and amending the manners of a people, than ſuch as are more merciful in general, yet properly intermixed with due diſtinctions of ſeverity. It is the ſentiment of an ingenious writer, who ſeems to have well ſtudied the ſprings of human action, that crimes are more effectually prevented by the certainty than by the ſeverity of puniſhment; for the exceſſive ſeverity of laws (ſays Monteſquieu) hinders their execution. When the puniſhment ſurpaſſes all meaſure, the public will frequently prefer impunity to it. Thus alſo the ſtatute 1 Mar. ſt. 1. c. 1. recites in its preamble, "that the ſtate of every king conſiſts more aſſuredly in the love of the ſubject towards their prince, than in the dread of laws made with rigorous pains; and that laws made for the preſervation of the commonwealth without great penalties, are more often obeyed and kept than laws made with extreme puniſhments." Happy had it been for the nation if the ſubſequent practice of that deluded princeſs in matters of religion, had been correſpondent to theſe ſentiments of herſelf and parliament in matters of ſtate and government! We may further obſerve, that ſanguinary laws are a bad ſymptom of the diſtemper of any ſtate, or at leaſt of its weak conſtitution. The laws of the Roman kings, and the twelve tables of the *decemviri*, were full of cruel puniſhments: the Porcian law, which exempted all citizens from ſentence of death, ſilently abrogated them all. In this period the republic flouriſhed: under the emperors ſevere puniſhments were revived, and then the empire fell.

It is, moreover, abſurd and impolitic to apply the ſame puniſhment to crimes of different malignity. A multitude of ſanguinary laws (beſides the doubt that may be entertained concerning the right of making them) do likewiſe prove a manifeſt defect either in the wiſdom of the legiſlative, or the ſtrength of the executive power. It is a kind of quackery in government, and argues a want of ſolid ſkill, to apply the ſame univerſal remedy, the *ultimum ſupplicium*, to every caſe of difficulty. It is, it muſt be owned, much eaſier to extirpate than to amend mankind; yet that magiſtrate muſt be eſteemed both a weak and a cruel ſurgeon, who cuts off every limb which through ignorance or indolence he will not attempt to cure. It has been therefore ingeniouſly propoſed, that in every ſtate a ſcale of crimes ſhould be formed, with a correſponding ſcale of puniſhments, deſcending from the greateſt to the leaſt. But if that be too romantic an idea, yet at leaſt a wiſe legiſlator will mark the principal diviſions, and not aſſign penalties of the firſt degree to offences of an inferior rank. Where men ſee no diſtinction made in the nature and gradations of puniſhment, the generality will be led to conclude there is no diſtinction in the guilt. Thus in France the puniſhment of robbery, either with or without murder, is the ſame: hence it is, that though perhaps they are therefore ſubject to fewer robberies, yet they never rob but they alſo murder. In China murderers are cut to pieces, and robbers not: hence in that country they never murder on the highway, though they often rob. And in Britain, beſides the additional terrors of a ſpeedy execution, and a ſubſequent expoſure or diſſection, robbers

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(A) Thus Demoſthenes (in his oration againſt Midias) finely works up the aggravations of the inſults he had received. "I was abuſed (ſays he) by my enemy, in cold blood, out of malice, not by heat of "wine, in the morning, publicly, before ſtrangers as well as citizens; and that in the temple, whither "the duty of my office called me," robbers have a hope of tranſportation, which ſeldom is extended to murderers. This has the ſame effect here as in China, in preventing frequent aſſaſſination and ſlaughter.

Yet though in this inſtance we may glory in the wiſdom of our law, we ſhall find it more difficult to juſtify the frequency of capital puniſhment to be found therein; inflicted (perhaps inattentively) by a multitude of ſucceſſive independent ſtatutes, upon crimes very different in their natures. It is a melancholy truth, that among the variety of actions which men are daily liable to commit, no leſs than 150 have been declared by act of parliament to be felonies without benefit of clergy; or, in other words, to be worthy of inſtant death. So dreadful a liſt, inſtead of diminiſhing, increaſes the number of offenders. The injured, through compaſſion, will often forbear to proſecute; juries, through compaſſion, will ſometimes forget their oaths, and either acquit the guilty or mitigate the nature of the offence; and judges, through compaſſion, will reſpit one half of the convicts, and recommend them to the royal mercy. Among ſo many chances of eſcaping, the needy and hardened offender overlooks the multitude that ſuffer: he boldly engages in ſome deſperate attempt to relieve his wants or ſupply his vices; and if unexpectedly the hand of juſtice overtakes him, he deems himſelf peculiarly unfortunate in falling at laſt a ſacrifice to thoſe laws which long impunity has taught him to contemn.

As to the trials and mode of puniſhment, See ARRAIGNMENT; TRIAL, and the references therefrom; CONVICTION; JUDGMENT; ATTAINDER; *CORRUPTION of Blood*; FORFEITURE; EXECUTION; the ſeveral *Crimes* under their reſpective names; and LAW, Part II. cxxii. *et ſeq.* and Part III. clxxxvi.

Perſons capable or incapable of committing CRIMES; or (which is all one) of ſuffering the cenſures of the law upon the commiſſion of forbidden acts.

All the ſeveral pleas and excuſes which protect the committer of a forbidden act from the puniſhment which is otherwiſe annexed thereto, may be reduced to this ſingle conſideration, the want or defect of *will*. An involuntary act, as it has no claim to merit, ſo neither can it induce any guilt: the concurrence of the will, when it has its choice either to do or to avoid the fact in queſtion, being the only thing that renders human actions either praiſeworthy or culpable. Indeed, to make a complete crime, cognizable by human laws, there muſt be both a will and an act. For though, *in foro conſcientiæ*, a fixed deſign or will to do an unlawful act is almoſt as heinous as the commiſſion of it; yet as no temporal tribunal can ſearch the heart, or fathom the intentions of the mind, otherwiſe than as they are demonſtrated by outward actions, it therefore cannot puniſh for what it cannot know. For which reaſon, in all temporal juriſdiction, an *overt* act, or ſome open evidence of an intended crime, is neceſſary in order to demonſtrate the depravity of the will, before the man is liable to puniſhment. And as a vitious will without a vitious act is no civil crime; ſo, on the other hand, an unwarrantable act without a vitious will is no crime at all. So that to conſtitute a crime againſt human laws, there muſt be, firſt, a vitious will; and, ſecondly, an unlawful act conſequent upon ſuch vitious will.

Now there are three caſes in which the will does not join with the act: 1. When there is a defect of underſtanding. For where there is no diſcernment, there is no choice; and where there is no choice, there can be no act of the will, which is nothing elſe but a determination of one's choice to do or to abſtain from a particular action: he, therefore, that has no underſtanding, can have no will to guide his conduct. 2. Where there is underſtanding and will ſufficient reſiding in the party, but not called forth and exerted at the time of the action done; which is the caſe of all offences committed by chance or ignorance. Here the will ſits neuter, and neither concurs with the act nor diſagrees to it. 3. Where the action is conſtrained by ſome outward force and violence. Here the will counteracts the deed; and is ſo far from concurring with, that it loaths and diſagrees to what the man is obliged to perform. Infancy, idiocy, lunacy, and intoxication, fall under the firſt claſs; misfortune and ignorance may be referred to the ſecond; and compulſion or neceſſity may properly rank in the third. See INFANCY, IDIOCY, DRUNKENNESS, MISFORTUNE, IGNORANCE, NECESSITY.

CRIMEA, or CRIM TARTARY, anciently the *Cherſoneſus Taurica*, a peninſula ſituated directly to the ſouth of St Peterſburg, between the 51ſt and 55th degrees of latitude, and in 46 of longitude. Its ſouthern and weſtern coaſts lie in the Euxine, its northern and eaſtern in the Rotten Sea and the Palus Mæotis. It is joined, however, to the continent on the north by a ſmall neck of land not more than ſix miles broad. This peninſula has been known more than 3000 years ſince the firſt naval expedition of the Argonauts; a ſtory, though mixed with fable, yet well founded in its principal facts. The mountainous parts were inhabited by the Tauri, probably a colony of Scythians; and its coaſts on the weſt, the eaſt, and the ſouth, by Greeks. The Scythians were driven out by Mithridates; the Greeks by the Sarmatians; and theſe again by the Alani and Goths, a northern hord of Scythians. The Hungarians, the Coſſacks, and Tartars, ſucceeded in their turn; while the Genoeſe, in the 12th century, held a temporary and precarious poſſeſſion of the ſeaports, which they were obliged to yield to the Turks in 1475. At the peace of 1774, the Tartars of the Crimea were declared independent; and in 1783, this peninſula was united to the Ruſſian empire.

From the abovementioned iſthmus, on which is built the fortreſs of Or-kapi or Perekop, to the firſt riſing of the hill at Karaſubaſar, the country is one continued flat; elevating itſelf, by an eaſy gradation, to the ſummit of the hill, which forms the ſouth ſide of the peninſula and the ſhore of the Euxine Sea. The ſurface of the ſoil is almoſt all of one kind, a reddiſh-grey loam; on digging, you find it more or leſs mixed with a black earth, and the hills abound with marle. The whole flat, from Perekop to the river Salgir, which may be an extent of 80 miles, is full of ſalt marſhes and lakes; from whence the neighbouring Ruſſian governments, as well as the Crim itſelf, Anatolia, and Beſſarabia, are ſupplied with ſalt. The moſt remarkable of theſe lakes are five in number: Koſlof and Keffa; ſo called after the towns near which they lie, are very large; the Tuſla, about 15 verſts from Perekop, on the road from Keffa; the Red Lake, not far from the laſt mentioned; and the Black Lake. Beſides theſe, there are many other ſwamps and lakes, from whence the inhabitants get ſalt for their own conſumption.

The greateſt part of the peninſula is ſo level that a man may travel over the half of it without meeting with a river, or even the ſmalleſt brook. The inhabitants of the villages, therefore, make a pit in the yard of every houſe for receiving the rain or the water that runs from the hills. The whole tract is bare of every kind of tree. Not a buſh or bramble is to be ſeen, and the herbage is extremely ſcanty. This, however, does not proceed ſo much from the unfruitfulneſs of the place, as from the vaſt herds of cattle which rove the whole year long from place to place; by which means all the graſs in ſpring, ſummer, or autumn, no ſooner appears through the long drought which ſucceeds the rainy ſeaſon, but it is immediately devoured or trodden down. The univerſal prevalence of this cuſtom of keeping cattle to wander up and down, joined to the ſlothfulneſs of the Tartars, with their inaptitude and averſion to agriculture, is the reaſon of the total neglect of that ſcience here. Otherwiſe, were the land divided into portions and properly managed, there would be a ſufficiency for the cattle, and the reſt would be fruitful in corn and grain. By this means alone the Crim would become a fertile country, and no natural defect would be found in oppoſition to the welfare of its inhabitants. The truth of this is well known by their neighbours; where, of a hundred Tartars, one perhaps follows huſbandry, who finds it to anſwer to ſo much profit, that he has not only enough for his own uſe, but wherewith to ſell to the ninety-nine.

This peninſula, which is indeed but a little diſtrict, yet, from the many advantages conferred upon it by nature, may be eſteemed peculiarly rich, is divided into the hilly country and the flat. The latter, which extends from Perekop to Koſlof and the river Bulganak, to Karaſubaſar, Keffa, and Yenicali, is ſtrewn here and there with little Tartar villages, maintained by cattle and the produce of the ſalt lakes. The highlands, or hilly country, form the ſouthern part of the Crim, along the ſtraight coaſt of the Black Sea, and ſtretching weſtward, in a right line from Keffa, to the vicinity of Belbek. Theſe hills are compoſed of layers of chalk; which, in the headlands and promontories, is ſoft, but more inland quite hard. The ſtrata of the higheſt hills are like thoſe of the promontories, and take a direction from north to ſouth. Theſe qualities of the ſtrata prevail not throughout the whole hills, but only in the large and lofty ones; ſuch as the two that riſe near Karaſubaſar, and one very high by Achmetſched, which bears the name of Aktau. The other ſmaller hills lie ſcattered and diſperſed, but take the names of the greater ones, to which they ſeem to belong; as the great ridge of Caucaſus does, which extends beyond the Donau, through Bulgaria, and are named *Palkans*.

All accounts agree in this, that nature has favoured theſe highland countries with great advantages, and bleſſed them with abundance of all things. A number of ſprings that flow from the mountains form the two conſiderable rivers Salgir and Karaſu, which run into the Rotten Sea. The former, which takes its riſe from a cavern in a high hill near Achmetſched, falls ſtraight into the plain below, and waters a great part of the Crim; the other, commencing behind Karaſubaſar, falls likewiſe into the plain, and mingles with the Salgir. There are many other little rivers and ſtreams, which run eaſtward, and either join the two forementioned, or fall immediately into the Rotten Sea. All the ſtreams, for the whole length of the hills, which begin at Keffa, and proceed in a chain of the ſame height, flow to the north or the north-eaſt, excepting the one behind Achmetſched, where the great mountain Aktau is, which falls on the other ſide: this river, riſing on the northern ſide of this mountain, flows, as was before obſerved, towards the north-eaſt, to the Salgir and the Rotten Sea; as likewiſe thoſe which ſpring on the weſtern ſide, take their courſe weſtward to the Bulganak, and thence ſtraight to the Black Sea; which alſo receives all the other little rivers that ariſe from theſe hills, as the Amma, the Katſcha, the Belbek, the Kaſulkioi, &c.

The mountains are well covered with woods fit for the purpoſe of ſhip-building, and contain plenty of wild beaſts. The valleys conſiſt of fine arable land; on the ſides of the hills grow corn and vines in great abundance, and the earth is rich in mines. But theſe mountaineers are as careleſs and negligent as the inhabitants of the deſerts; ſlighting all theſe advantages; and, like their brethren of the lowlands, are ſufficiently happy if they are in poſſeſſion of a fat ſheep and as much bread as ſerves them to eat.

About 20 years ago this peninſula was uncommonly full of inhabitants and wealth. They reckoned at that time at leaſt 1200 villages; but, from the late troubles in the Crim, it has loſt more than a third part of its inhabitants; and now, wherever we turn, we meet with the ruins of large villages and dwellings. The people were compoſed of various nations, who lived together under the Tartars in the moſt unbounded freedom; but in the late Turkiſh war they either put themſelves under the Ruſſian government, and were transferred to that empire, or fled to Abcaſia and the Tſchirkaſſian hills.

The houſes in the towns, as well as the villages, are for the moſt part of ſquare timbers, having the interſtices filled with brick work, if the poſſeſſor can afford it, and thoſe of the poorer ſort with turf. The chinks and crannies are made tight with clay, and then plaſtered within and without. The covering is commonly either of brick or of turfs. Only the medſcheds, minarets, and baths, are of ſtone, and a few extremely handſome of marble. They have chimnies in the chambers, at which they likewiſe dreſs their victuals; but ſtoves in the Ruſſian manner none. In extreme froſts a great iron pan of charcoal is brought into the room, for making it comfortable. Their cuſtom is, to ſit upon low ſofas, with Turkiſh coverings and cuſhions, or upon a clay ſeat, ſomewhat raiſed above the earth, and ſpread with a carpet. In theſe rooms are cupboards and cheſts, often covered with cuſhions, to ſerve as ſeats; in which they keep their gold, ſilver, and valuables. Such are the inner apartments or harams, in which the women generally live; the others are not ſo fine. Theſe contain only a ſofa, or a bank of clay covered with a carpet, as in the chimney rooms.

The rich Tartars, and their nobility or murzas (excepting only ſuch as are about the perſon of the khan), commonly dwell all the year round in the country, coming only to town when they have buſineſs there. There are but few towns in the Crim, at leaſt in compariſon of its former population. The Krimſkoi Tartars have no tribunal of juſtice, controverſies and quarrels being ſeldom heard of among them; and if a diſpute ſhould ariſe, it is immediately ſettled by an appeal to the Koran. Little differences in the villages inevitably happening about property, or other matters not taken notice of in that code, are amicably adjuſted by the eldermen or abeſes; but in the towns all weighty concerns, excepting the ſingle caſe of murder or homicide, are brought before the kaimakan or commandant, who ſettles them abſolutely without appeal.

The reſidence of the khans of the Crimea was formerly Bachtſchiſarai, in which city they held their ſeat for upwards of 200 years. They went thither from Eſki-Crim, or Old Crim, the capital city of the Genoeſe, upon Bengli Ghireikhan's plundering the ſeaports, and driving all the Genoeſe from their ſtations. Before Eſki-Crim, and indeed upon the firſt coming of the Tartars into this peninſula, the ſovereign reſidence was at Koſlof; but here they remained not long. Under the late khan Shagin Ghirei it was held at Keffa, the ancient Theodoſia; which is 10 miles diſtant from Eſki-Crim, ſaid to be the Cimmerium of the ancients.

The principal cities or towns of the Crimea are: 1. *Bachtſchi-Sarai*, an extenſive and wealthy city, lying in a vale between two high mountains, and ſurrounded by a number of gardens. From this circumſtance it has its name; *bachtſchi* ſignifying in the Tartarian language "a garden," and *ſorai* "a palace." It formerly contained 3000 houſes, and many ſumptuous medſcheds. The palace of the khans, with its gardens and ponds, were much improved under the government of Khan Kerim Girei, under whoſe government the laſt Turkiſh war took its riſe. In this palace is the burial place of all the khans of Crimea, wherein all the khans that have reigned here lie interred. The fine Krimſkoi vines, with their large cluſters of grapes, grow in great plenty all about this town, and a profuſion of other delicious fruits, from whence the neighbouring parts of Ruſſia are ſupplied. 2. *Keffa*, the preſent reſidence of the khans, ſtands on the ſhore of a large harbour in the Black Sea. Its ſite is on the declivity of a long ridge of mountains; and is mantled by a ſtone wall, fortified by ſeveral towers, and encompaſſed by a deep ditch. On both ſides of the city formerly ſtood caſtles, and in the middle of them a lofty turret for the purpoſe of giving ſignals by fire. Before the wall were wide extended ſuburbs; containing, among other conſiderable buildings, medſcheds, churches for the Greek and Armenian worſhip; of all which now only the veſtiges remain. The caſtles and towers lie alſo in ruins; and not one third part of the houſes of the city itſelf are now remaining, and thoſe chiefly built of materials taken from the aforeſaid ruins. They formerly reckoned Keffa to contain 4000 houſes, including the ſuburbs, with a number of medſcheds and Chriſtian churches; but this number has been much diminiſhed by the laſt Turkiſh war. The preſent inhabitants conſiſt moſtly of Tartars; who carry on a trade by no means inconſiderable, in commodities brought from Turkey. The late khan, an intelligent and enlightened perſonage, made this city the place of his reſidence, and brought hither the mint from Bachtſchiſarai, built himſelf a palace, and erected a divan, which aſſembled three times a-week, and the fourth time was held in the palace of the khan, in which he always perſonally aſſiſted. Here is alſo a cuſtom-houſe, the management of which is farmed out. 3. *Karaſubaſar*, likewiſe a very rich city in former times, ſtands at the beginning of the mountains, about half-way between Keffa and Bachtſchiſarai. It is a large trading town; contains a conſiderable number of dwelling-houſes and medſcheds, but the greateſt part of them in decay, and many fine gardens. This place is the moſt famous in all the Crim for its trade in horſes, and has a market once a-week for that article of traffic; to which are likewiſe brought great numbers of buffaloes, oxen, cows, camels, and ſheep, for ſale. Near this city flows one of the principal rivers of the Crim, called the *Karaſu*, that is, the Black Water. Of this river they have an opinion in Ruſſia, that one part of it flows upwards for ſeveral verſts together. But this is in ſome ſort true, not only of the Karaſu, but of all the rivers of the Crim that have a ſtrong current. The Tartars, who dwell either in the valleys or on the ſides of the mountains (frequently without conſidering whether the place is ſupplied with water or not), dig canals either from the ſource of the next river, or from that part of it which lies neareſt to their particular habitation, about an arſhine in breadth, for their gardens and domeſtic uſe. From theſe they cut ſmaller ones through the villages, to ſupply them with water, and not unfrequently to drive a mill. Theſe canals appear, to the imagination of the common people, to run in a contrary direction to the current of the river; and in fact theſe canals do lie, in many places for a verſt in length, ſome fathoms higher than the level of the ſtream from whence they are ſupplied. 4. *Achmetſhed*, a pretty large city not far from Bachtſchiſarai; now made the capital of all the Crimea by the regulations of Prince Potemkin in the ſummer of 1785. 5. *Koſtof*, formerly a very conſiderable trading town, lies on the weſtern ſide of the peninſula, in a bay of the Black Sea; which, as well as the ſound at Keffa, might rather be called a road than a haven. This was the firſt town the Tartars poſſeſſed themſelves of on their firſt entrance into the Crim, and eſtabliſhed a cuſtomhouſe therein, after the example of the Genoeſe, which is now farmed out.

The other remarkable places are, *Sudak*, which is built on the hills upon the ſhore of the Black Sea, at the ſouth ſide of the peninſula, and is famous for its excellent wine, reſembling Champaigne both in colour and ſtrength; *Aluſchti*, on the ſame ſide, among the hills on the ſea-ſhore; *Baluklava*, where there is a fine harbour, and perhaps the only one on the Black Sea, containing ample room for a very good fleet; *Inkerman* may be noticed for its commodious though not very large haven, called *Achtiar*; and *Mangup*, the old Cherſoneſus: which were all formerly very flouriſhing towns; but are now either in ruins, or dwindled into ſmall villages.

All theſe places, ſo long as the Genoeſe remained maſters of the Crim, were well fortified; but the Tartars, in taking them, demoliſhed all the works. While they were under the Turks, they left the fortreſſes of Keffa, Kertſch, and Koslof, and built the fort Arabat on the neck of land between the ſea of Azof (or Palus Mæotis) and the Rotten Sea, where Perekop alſo is.

In *Arabat* are but few houſes; but here the warlike ſtores of the khans were kept.—*Perekop*, called by the Turks *Or-kapi*, is a fortreſs of moderate ſtrength; ſtanding about the middle of the neck of land that joins the peninſula with the continent. This iſthmus, which is at leaſt ſix miles broad, is cut through with a wide and deep ditch lined with ſtone, and reaches from the Black to the Rotten Sea. This was formerly kept without water, but now is filled from both ſeas. On the Crimean ſide a high wall of earth runs the whole length of it, ſtraight from one ſea to the other. The people paſs over the ditch by means of a drawbridge, and through the wall by a gateway. The walls of the fortreſs are ſome fathoms from the road-ſide; of which the ruins are only now diſcernible, namely, large brick houſes, with a number of bomb-ſhells and cannon-balls about them, which were formerly kept in the fortreſs. At leaſt two miles from this is the pretty populous but miſerable place, which was probably the town to which this fort belonged. Near the gate is a cuſtom-houſe, where all imports and exports pay duty.

This peninſula was formerly extremely populous; the number of its inhabitants, in Tartars, Turks, Greeks, Armenians, Jews, and others, amounted to above 200,000 men. Since that, however, the greateſt part of the Chriſtians have betaken themſelves to the other parts of the Ruſſian empire, particularly the government of Azof; and many other inhabitants, particularly Tartars, have gone to Taman and Abchaſia; ſo that the preſent population of the Crim cannot now be reckoned at more than 70,000 men at moſt.

The Crim was heretofore divided into 24 kaduliks or diſtricts, namely, Yenikali, Kertſch, Arabat, Eſki-krim, Keffa, Karaſubaſar, Sudak, Achmetſched, Yalof, Bachtſchiſarai, Balaklava, Mangup, Inkerman, Koſlof, Or, Manſur, Tarkan, Sivaſch, Tſchongar, Sarubulat, Barun, Argun, Sidſchugut, and Schirin. Several of theſe diſtricts are named after the town or village wherein the murza, their governor, dwells; and many of them are at preſent in a ſtate of total decay.

CRIMEN FALSI. See *FALSI Crimen*.

CRIMSON, one of the ſeven red colours of the dyers. See DYEING.

CRINGLE, a ſmall hole made in the bolt-rope of a ſail, by intertwiſting one of the diviſions of a rope, called a *ſtrand*, alternately round itſelf and through the *ſtrands* of the bolt-rope, till it becomes threefold, and aſſumes the ſhape of a wreath or ring. The uſe of the cringle is generally to contain the end of ſome rope, which is faſtened thereto for the purpoſe of drawing up the ſail to its yard, or of extending the ſkirts by the means of *bridles*, to ſtand upon a ſide wind. The word ſeems to be derived from *krinchelen* (Belg.) "to run into twiſts."

CRINUM, ASPHODEL-LILY: A genus of the monogynia order, belonging to the hexandria claſs of plants; and in the natural method ranking under the 9th order, *Spathaceæ*. The corolla is funnel-ſhaped, monopetalous, and ſexpartite, with three alternate ſegments having hooked appendages; the germen is covered in the bottom of the corolla, the ſtamina ſtanding aſunder. They are very beautiful green-houſe plants, riſing two or three feet high, each of them crowned by a large umbellate cluſter of a ſpathaceous, monopetalous, long funnel-ſhaped flowers, blue, white, or ſtriped, having a very fragrant ſmell. They are propagated by off-ſets.

CRISIS, in medicine, is uſed in different ſenſes, both by the ancient and modern phyſicians. With ſome it means frequently no more than the excretion of any noxious ſubſtance from the body. Others take the word for a ſecretion of the noxious humours made in a fever. Others uſe it for the critical motion itſelf: and Galen defines a criſis in fevers, a ſudden and inſtantaneous change, either for the better or the worſe, productive of recovery or death.

CRISPIN *and* CRISPIANUS, two legendary ſaints, whoſe feſtival, as marked in the kalendar, is on the 25th of October. According to the legend, they were brethren, born at Rome; from whence they travelled to Soiſſons in France, about the year 303, to propagate the Chriſtian religion; and becauſe they would not be chargeable to others for their maintenance, they exerciſed the trade of ſhoemakers. but the governor of the town diſcovering them to be Chriſtians, ordered them to be beheaded. From which time the ſhoemakers made choice of them for their tutelar ſaints.

CRISTÆ, in ſurgery, a term for certain excreſcences about the anus and pudenda. See MEDICINE-*Index*.

CRISTA GALLI, in anatomy, an eminence in the middle of the *os ethmoides*, advancing within the cavity of the cranium; and to which is faſtened that part of the dura mater which divides the brain, called, *falx*. It has its name from its figure, which reſembles that of a cock's comb. In adults, this proceſs appears of a piece with the *ſeptum narium*.

CRITERION, or CRITERIUM, a ſtandard by which propoſitions and opinions are compared, in order to diſcover their truth or falſehood.

CRITHE, in ſurgery, commonly called the *ſtye*, is a ſort of tubercle that grows on the eye-lids. When ſmall, it is ſeated on the edge of the eye-lid; but when large, it ſpreads further. When they do not ſuppurate, they become wens. They are apt to diſappear and return. If there is inflammation, endeavour to ſuppurate it with the white-bread poultice: if it is hard, deſtroy it with a mixture of equal parts of hog's lard and quickſilver. If the lower eye lid is affected, the tumor is more frequently on its inſide; and then it is beſt to diſſect it, or to make way for it outwardly by applying a cauſtic on the ſkin juſt upon it.

CRITHMUM, SAMPHIRE: A genus of the digynia order, belonging to the pentandria claſs of plants; and in the natural method ranking under the 45th order, *Umbellatæ*. The fruit is oval and compreſſed, the florets equal. There are two ſpecies, the principal of which is the maritimum, or common maritime ſamphire. It hath a fibrous penetrating root; thick ſucculent, branchy ſtalks riſing two feet high; winged fleſhy leaves, conſiſting of many ſmall ſpear-ſhaped lobes; with round yellow flowers growing in umbels. It is produced naturally on the ſea-coaſts among the gravel and rocks. Its leaves are an excellent pickle uſed for ſauces, and are by many eaten raw in ſalads. It is of a ſaltiſh reliſh, palatable, and comfortable to the ſtomach. It is not very eaſily preſerved in gardens. It muſt be ſown on gravelly or rocky ground, half an inch deep; in which ſituation the plants will come up, and laſt ſome years. The leaves of this plant are ſaid alſo to be aperient and diuretic.

CRITHOMANCY, a kind of divination, performed by conſidering the dough or matter of the cakes offered in ſacrifice, and the meal ſtrewed over the victims to be killed. Hence, in regard they ordinarily uſed barley-meal in theſe ceremonies, this kind of divination was called *crithomancy*, from κριθη, *barley*, and μαντεια, *divination*.

CRITIAS, one of the 30 tyrants ſet over Athens by the Spartans. He was eloquent and well-bred, but of dangerous principles. He cruelly perſecuted his enemies and put them to death. He was killed about 400 years before the Auguſtan age, in a battle againſt thoſe citizens whom his oppreſſion had baniſhed. He had been among the diſciples of Socrates, and had written elegies and other compoſitions, of which ſome fragments remain.

CRITICAL DAYS and SYMPTOMS, among phyſicians, are certain days and ſymptoms in the courſe of acute diſeaſes, which indicate the patient's ſtate, and determine him either to recover or grow worſe. See MEDICINE-*Index*.

CRITICISM, the art of judging with propriety concerning any object or combination of objects. But, in a more limited ſenſe, the ſcience of criticiſm is confined to the fine arts. The principles of the fine arts are beſt unfolded by ſtuding the ſenſitive part of our nature, and by learning what objects are naturally agreeable and what are naturally diſagreeable. The man who aſpires to be a critic in theſe arts, muſt pierce ſtill deeper: he muſt clearly perceive what objects are lofty, what low, what are proper or improper, what are manly, and what are mean or trivial. Hence a foundation for judging of taſte, and for reaſoning upon it: where it is conformable to principles, we can pronounce with certainty that it is correct; otherwiſe, that it is incorrect, and perhaps whimſical. Thus the fine arts, like morals, become a rational ſcience; and, like morals, may be cultivated to a high degree of refinement.

Manifold are the advantages of criticiſm, when thus ſtudied as a rational ſcience. In the firſt place, a thorough acquaintance with the principles of the fine arts redoubles the entertainment theſe arts afford. To the man who reſigns himſelf entirely to ſentiment or feeling, without interpoſing any ſort of judgement, poetry, muſic, painting, are mere paſtime; in the prime of life, indeed, they are delightful, being ſupported by the force of novelty and the heat of imagination: but they loſe their reliſh gradually with their novelty; and are generally neglected in the maturity of life, which diſpoſes to more ſerious and more important occupations. To thoſe who deal in criticiſm as a regular ſcience, governed by juſt principles, and giving ſcope to judgment as well as to fancy, the fine arts are a favourite entertainment; and in old age maintain that reliſh which they produce in the morning of life.

In the next place, a philoſophical inquiry into the principles of the fine arts, inures the reflecting mind to the moſt enticing ſort of logic: the practice of reaſoning upon ſubjects ſo agreeable tends to a habit; and a habit ſtrengthening the reaſoning faculties, prepares the mind for entering into ſubjects more difficult and abſtract. To have, in this reſpect, a juſt conception of the importance of criticiſm, we need but reflect upon the common method of education; which, after ſome years ſpent in acquiring languages, hurries us, without the leaſt preparatory diſcipline, into the moſt profound philoſophy: a more effectual method to alienate the tender mind from abſtract ſcience, is beyond the reach of invention: and accordingly, with reſpect to ſuch ſpeculations, the bulk of our youth contract a ſort of hobgoblin terror, which is ſeldom, if ever, ſubdued. Thoſe who apply to the arts are trained in a very different manner: they are led, ſtep by ſtep, from the eaſier parts of the operation to what are more difficult; and are not permitted to make a new motion till they be perfected in thoſe which regularly precede it. The ſcience of criticiſm appears then to be a middle link, connecting the different parts of education into a regular chain. This ſcience furniſheth an inviting opportunity to exerciſe the judgment: we delight to reaſon upon ſubjects that are equally pleaſant and familiar; we proceed gradually from the ſimpler to the more involved caſes: and in a due courſe of diſcipline, cuſtom, which improves all our faculties, beſtows acuteneſs upon thoſe of reaſon, ſufficient to unravel all the intricacies of philoſophy.

Nor ought it to be overlooked, that the reaſonings employed upon the fine arts are of the ſame kind with thoſe which regulate our conduct. Mathematical and metaphyſical reaſonings have no tendency to improve ſocial intercourſe; nor are they applicable to the common affairs of life: but a juſt taſte in the fine arts, derived from rational principles, furniſhes elegant ſubjects for converſation, and prepares us finely for acting in the ſocial ſtate with dignity and propriety.

The ſcience of rational criticiſm tends to improve the heart not leſs than the underſtanding. It tends, in the firſt place, to moderate the ſelfiſh affections: by ſweetening and harmonizing the temper, it is a ſtrong antidote to the turbulence of paſſion and violence of purſuit; it procures to a man ſo much mental enjoyment, that, in order to be occupied, he is not tempted in youth to precipitate into hunting, gaming, drinking; nor in middle-age, to deliver himſelf over to ambition; nor in old age to avarice. Pride and envy, two diſguſtful paſſions, find in the conſtitution no enemy more formidable than a delicate and diſcerning taſte: the man upon whom nature and culture have beſtowed this bleſſing, feels great delight in the virtuous diſpoſitions and actions of others: he loves to cheriſh them, and to publiſh them to the world: faults and failings, it is true, are to him not leſs obvious; but theſe he avoids, or removes out of ſight, becauſe they give him pain. On the other hand, a man void of taſte, upon whom the moſt ſtriking beauties make but a faint impreſſion, has no joy but in gratifying his pride or envy by the diſcovery of errors and blemiſhes. In a word, there may be other paſſions, which, for a ſeaſon, diſturb the peace of ſociety more than thoſe mentioned; but no other paſſion is ſo unwearied an antagoniſt to the ſweets of ſocial intercourſe: theſe paſſions, tending aſſiduouſly to their gratification, put a man perpetually in oppoſition to others; and diſpoſe him more to reliſh bad than good qualities, even in a companion. How different that diſpoſition of mind, where every virtue in a companion or neighbour, is, by refinement of taſte, ſet in its ſtrongeſt light; and defects or blemiſhes, natural to all, are ſuppreſſed, or kept out of view!

In the next place, delicacy of taſte tends not leſs to invigorate the ſocial affections than to moderate thoſe that are ſelfiſh. To be convinced of this tendency, we need only reflect, that delicacy of taſte neceſſarily heightens our ſenſibility of pain and pleaſure, and of courſe our ſympathy, which is the capital branch of every ſocial paſſion. Sympathy, in particular, invites a communication of joys and ſorrows, hopes and fears: ſuch exerciſe, ſoothing and ſatisfactory in itſelf, is neceſſarily productive of mutual good-will and affection.

One other advantage of rational criticiſm is reſerved to the laſt place, being of all the moſt important; which is, that it is a great ſupport to morality. No occupation attaches a man more to his duty than that of cultivating a taſte in the fine arts: a juſt reliſh of what is beautiful, proper, elegant, and ornamental, in writing or painting, in architecture or gardening, is a fine preparation for the ſame juſt reliſh of theſe qualities in character and behaviour. To the man who has acquired a taſte ſo acute and accompliſhed, every action wrong or improper muſt be highly diſguſtful: if, in any inſtance, the overbearing power of paſſion ſway him from his duty, he returns to it upon the firſt reflection, with redoubled reſolution never to be ſwayed a ſecond time: he has now an additional motive to virtue, a conviction derived from experience, that happineſs depends on regularity and order, and that a diſregard to juſtice or propriety never fails to be puniſhed with ſhame and remorſe.

For the rules of criticiſm applicable to the fine arts, and derived from human nature, ſee ARCHITECTURE, BEAUTY, CONGRUITY, COMPARISON, GRANDEUR, &c.

CRITO, an Athenian philoſopher, flouriſhed 400 years before Chriſt. He was one of the moſt zealous diſciples of Socrates, and ſupplied him with whatever he wanted. He had ſeveral ſcholars who proved great men, and he compoſed ſome dialogues which are loſt.

CRITOLAUS, a citizen of Tegea in Arcadia. He with two brothers fought againſt the three ſons of Demoſtratus of Pheneus, to put an end to a long war between their reſpective nations. The brothers of Critolaus were both killed, and he alone remained to withſtand his three bold antagoniſts. He conquered them; and when at his return his ſiſter deplored the death of one of his antagoniſts, to whom ſhe was betrothed, he killed her in a fit of reſentment. The offence deſerved capital puniſhment; but he was pardoned on account of the ſervices he had rendered his country. He was afterwards general of the Achæans; and it is ſaid that he poiſoned himſelf becauſe he had been conquered at Thermopylæ by the Romans, about 146 years before the Auguſtan age.

CRIZZELLING, in the glaſs trade, a kind of roughneſs ariſing on the ſurface of ſome kinds of glaſs. This was the fault of a peculiar ſort of glaſs made in Oxfordſhire and ſome other places, of black flints, a cryſtallized ſand, and a large quantity of nitre, tartar, and borax. The glaſs thus made is very beautiful, but from the too great quantities of the ſalt in the mixture, is ſubject to crizzel; that is, the ſalts in the mixture, from their too great proportion, are ſubject, either from the adventitious nitre of the air from without, or from warm liquors put in them, to be either increaſed in quantity or diſſolved, and thereby induce a ſcabrities or roughneſs, irrecoverably clouding the tranſparence of the glaſs. This is what was called *crizzelling;* but by uſing an Italian white pebble, and abating the proportions of the ſalts, the manufacture is now carried on with advantage, and the glaſs made with theſe ſalts is whiter than the fineſt Venetian, and is ſubject to no faults.

CROATIA, a part of the ancient Illyricum, is bounded on the eaſt by Sclavonia and Boſnia, on the ſouth and ſouth-weſt by Morlachia, and on the north by the Drave, which ſeparates it from a part of Sclavonia. It is about 80 miles in length and 70 in breadth, and was once divided between the Hungarians and Turks; but now the greateſt part of it is ſubject to the houſe of Auſtria. The Croats derive their origin from the Sclavi; and their language is a dialect of the Sclavonian, approaching very near to that of the Poles. The country is divided into two parts, viz. that under, and that beyond the Save. In the late wars between the empreſs queen and the king of Pruſſia, no leſs than 50,000 men were raiſed out of this ſmall territory. Both horſe and foot are good ſoldiers, eſpecially the former. The ſoil, where cultivated, is fruitful in wine and oil, &c. but being a frontier country, and much expoſed to inroads, it is not ſo well cultivated as otherwiſe it might be.

CROCODILE, in zoology. See LACERTA.

Foſſile CROCODILE, one of the greateſt curioſities in the foſſile world which the late ages have produced. It is the ſkeleton of a large crocodile, almoſt entire, found at a great depth under ground, bedded in ſtone. This was in the poſſeſſion of Linkius, who wrote many pieces of natural hiſtory, and particularly an accurate deſcription of this curious foſſile. It was found in the ſide of a large mountain in the midland part of Germany, and in a ſtratum of black foſſile ſtone, ſomewhat like the common ſlate, but of a coarſer texture, the ſame with that in which the foſſile fiſh in many parts of the world are found. This ſkeleton had the back and ribs very plain, and was of a much deeper black than the reſt of the ſtone; as is alſo the caſe in the foſſile fiſhes which are preſerved in this manner. The part of the ſtone where the head lay was not found; this being broken off juſt at the ſhoulders, but that irregularly; ſo that, in one place, a part of the back of the head was viſible in its natural form. The two ſhoulder-bones were very fair, and three of the feet were well preſerved; the legs were of their natural ſhape and ſize, and the feet preſerved even to the extremities of the five toes of each.

CROCODILE *(crocodilus)*, in rhetoric, a captious and ſophiſtical kind of argumentation, contrived to ſeduce the unwary, and draw them ſpeciouſly into a ſnare. It has its name crocodile from the following occaſion, invented by the poets. A poor woman, begging a crocodile

codile that had caught her ſon walking by the river-ſide to ſpare and reſtore him, was anſwered, that he would reſtore him, provided ſhe ſhould give a true anſwer to a queſtion he ſhould propoſe: the queſtion was, Will I reſtore thy ſon or not? To this the poor woman, ſuſpecting a deceit, ſorrowfully anſwered, Thou wilt not: and demanded to have him reſtored, becauſe ſhe had anſwered truly. Thou lyeſt, ſays the crocodile; for if I reſtore him, thou haſt not anſwered truly: I cannot therefore reſtore him without making thy anſwer falſe. Under this head may be reduced the propoſitions called *mentientes* or *inſolubiles*; which deſtroy themſelves. Such is that of the Cretan poet: *Omnes ad unum Cretenſes ſemper mentiuntur*: "All the Cretans, to a man, always lie." Either, then, the poet lies when he aſſerts that the Cretans all lie, or the Cretans do not all lie.

CROCUS, saffron: A genus of the monogynia order, belonging to the triandria claſs of plants; and in the natural method ranking under the 6th order, *Enſatæ*. The corolla is ſexpartite and equal; the ſtigmata convoluted or rolled ſpirally inwards. Modern botaniſts allow only one ſpecies of this genus, which, however, comprehends many beautiful varieties. This hath a ſmall roundiſh, brown, bulbous root, compreſſed at the bottom. Directly from the root iſſue many long narrow leaves, of a deep green colour; and amidſt them the flowers all protruded from a thin univalvular radical ſpatha; the tube of the flower is long, ſtanding on the root, and ſerving as a footſtalk to the limb or upper part, which is erect, ſix-parted, widens gradually upward, and grows from about three to five or ſix inches high. The varieties of this ſpecies may be divided into two claſſes, the autumnal and ſpring flowering.

The varieties of the firſt are the *crocus officinalis*, or ſaffron of the ſhops; for the properties of which, and its cultivation for ſale, ſee the article Saffron. This hath a long-tubed bluiſh purple flower, with three ſtigmata of a fine golden colour. Other varieties are the autumnal ſmall blue crocus; deep blue, ſky-blue, whitiſh blue, many flowered whitiſh blue, purple, large ruſh-leaved purple, autumnal white crocus, and autumnal yellow crocus. The varieties of the vernal crocus are, the ſmall and large, and golden yellow crocuſes, and the yellow black-ſtriped, the yellow purple-ſtriped and double cloth of gold ones; the white, white purple-ſtriped, white purple bottom, white black-ſtriped, whitiſh cream coloured, whitiſh aſh coloured, little narrow-leafed white, and white blue-ſtriped crocuſes. Beſides theſe there are a great many others of a blue and purple colour finely variegated.

The autumnal crocuſes flower about the beginning of October, but never ripen their ſeeds in Britain. They are very beautiful if ſown in patches in the front of borders, or in beds by themſelves, and very proper ornaments for gardens of every extent, as coming up at a time when moſt other flowers are on the decay. They grow freely in any kind of ſoil, and may be propagated by off-ſets. The vernal kinds flower in February, March, and April. They alſo are very ornamental, and are ſo hardy that they will grow almoſt any where. They are propagated by ſeeds, which the plants produce in plenty.

Crocus, in chemiſtry, denotes any metal calcined to a red or deep yellow colour.

Crocus Metallorum, an emetic preparation of antimony and nitre. See Chemistry-*Index*.

CRŒSUS, the laſt king of Lydia, remarkable for his riches, his conqueſts, his temporary proſperity, and the ſad reverſe of his fortune. He ſubdued the Phrygians, Myſians, Paphlagonians, Thracians, and Carians; amaſſed together immenſe riches; and became one of the moſt powerful and magnificent princes in the world. He drew the learned to his court, and took a pleaſure in converſing with them. Thales of Miletus, Pittacus of Mitylene, Bias of Priené, Cleobulus of Lindus, and moſt of the other "wiſe men," as they are emphatically ſtyled, who lived in that age, as well as Æſop the fabuliſt, and the elegant Greek poets of the times, were bountifully received at the court of Crœſus. There is ſtill on record a memorable converſation between that prince and Solon, which ſeemed to predict the ſubſequent events of his reign, and which had a late but important influence on the character and fortune of the Lydian king. Crœſus having entertained his Athenian gueſt, according to the ancient faſhion, for ſeveral days, before he aſked him any queſtions, oſtentatiouſly ſhowed him the magnificence of his palace, and particularly the riches of his treaſury. After all had been diſplayed to the beſt advantage, the king complimented Solon upon his curioſity and love of knowledge; and aſked him, as a man who had ſeen many countries, and reflected with much judgment upon what he had ſeen, Whom of all men he eſteemed moſt happy? By the particular occaſion, as well as the triumphant air with which the queſtion was propoſed, the king made it evident that he expected flattery rather than information. But Solon's character had not been enervated by the debilitating air of a court; and he replied with a manly freedom, "Tellus, the Athenian." Crœſus, who had ſcarcely learned to diſtinguiſh, even in imagination, between wealth and happineſs, inquired with a tone of ſurpriſe, why this preference to Tellus? "Tellus," rejoined Solon, "was not conſpicuous for his riches or his grandeur, being only a ſimple citizen of Athens; but he was deſcended from parents who deſerved the firſt honours of the republic. He was equally fortunate in his children, who obtained univerſal eſteem by their probity, patriotiſm, and every uſeful quality of the mind or body: and as to himſelf, he died fighting gallantly in the ſervice of his country, which his valour rendered victorious in a doubtful combat; on which account the Athenians buried him on the ſpot where he fell, and diſtinguiſhed him by every honour which public gratitude can confer on illuſtrious merit."

Crœſus had little encouragement, after this anſwer, to aſk Solon, in the ſecond place, Whom, next to Tellus, he deemed moſt happy? Such, however, is the illuſion of vanity, that he ſtill ventured to make this demand; and ſtill, as we are informed by the moſt circumſtantial of hiſtorians, entertained hopes of being favourably anſwered. But Solon replied with the ſame freedom as before, "The brothers Cleobis and Biton; two youths of Argos, whoſe ſtrength and addreſs were crowned with repeated victory at the Olympic games; who deſerved the affection of their parents, the gratitude of their country, the admiration of Greece; and who, having ended their lives with peculiar felicity, were commemorated by the moſt ſignal monuments of immortal fame." "And is the happineſs of a king, then," ſaid Crœſus, "ſo little regarded, O Grecian ſtranger! that you prefer to it the mean condition of an Athenian or Argive citizen?" The reply of Solon ſufficiently juſtified his reputation for wiſdom. "The life of man," ſaid he, "conſiſts of 70 years, which make 25,550 days; an immenſe number: yet in the longeſt life, the events of any one day will not be found exactly alike to thoſe of another. The affairs of men are liable to perpetual viciſſitudes: the Divinity who preſides over our fate is envious of too much proſperity; and all human life, if not condemned to calamity, is at leaſt liable to accident. Whoever has uninterruptedly enjoyed a proſperous tide of ſucceſs may juſtly be called *fortunate*: but he cannot before his death be intitled to the epithet of *happy*."

The events which ſoon followed this converſation, prove how little ſatisfaction is derived from the poſſeſſion of a throne. Victorious in war, unrivalled in wealth, ſupreme in power, Crœſus felt and acknowledged his unhappineſs. The warmeſt affections of his ſoul centered in his ſon Atys, a youth of the moſt promiſing hopes, who had often fought and conquered by his ſide. The ſtrength of his attachment was accompanied with an exceſs of paternal care, and the anxiety of his waking hours diſturbed the tranquillity of his reſt. He dreamed that his beloved ſon was ſlain by a dart; and the ſolicitude with which he watched his ſafety, preventing the youth from his uſual occupations and amuſements, and thereby rendering him too eager to enjoy them, moſt probably expoſed him to the much dreaded misfortune. Reluctantly permitted to engage in a party of hunting, the juvenile ardour of Atys, increaſed by the impatience of long reſtraint, made him neglect the precautions neceſſary in that manly amuſement. He was ſlain by a dart aimed at a wild boar of a monſtrous ſize, which had long ſpread terror over the country of the Myſians. The weapon came from the hand of Adraſtus, a Phrygian prince and fugitive, whom Crœſus had purified from the involuntary guilt of a brother's blood, and long diſtinguiſhed by peculiar marks of bounty. To the grateful protection of the Phrygian, Crœſus recommended, at parting, the ſafety of his beloved ſon. A mournful proceſſion of Lydians brought to Sardis the dead body of Atys. The ill-fated murderer followed behind. When they approached the royal preſence, Adraſtus ſtepped forward, and intreated Crœſus to put him to death; thinking life no longer to be endured after killing, firſt his own brother, and then the ſon of his benefactor. But the Lydian king, notwithſtanding the exceſs of his affliction, acknowledged the innocence of Adraſtus, and the power of fate. "Stranger your action is blameleſs, being committed without deſign. I know that my ſon was deſtined to a premature death." Adraſtus, though pardoned by Crœſus, could not pardon himſelf. When the mourners were removed, he privately returned, and periſhed by his own hand on the tomb of Atys.

Two years Crœſus remained diſconſolate for the loſs of his ſon; and might have continued to indulge his unvailing affliction during the remainder of life, had not the growing greatneſs of Perſia, which threatened the ſafety of his dominions, rouſed him from his dream of miſery. (See LYDIA.)—He marched againſt Cyrus with a great army, but was defeated; and retreating to his capital Sardis, was there beſieged. The city was taken by aſſault; and as a Perſian ſoldier was going to kill Crœſus, that prince's only ſurviving ſon, who had hitherto been dumb, terrified at his danger, cried, *Stop, ſoldier, and touch not Crœſus*. But though delivered by this extraordinary accident from the blind rage of the ſoldier, he ſeemed to be reſerved for a harder fate. Dragged into the preſence of his conqueror, he was loaded with irons; and the ſtern, unrelenting Cyrus, of whoſe humane temper of mind we have ſo beautiful, but ſo flattering, a picture in the philoſophical romance of Xenophon, ordered him, with the melancholy train of his Lydian attendants, to be committed to the flames. An immenſe pile of wood and other combuſtibles were erected in the moſt ſpacious part of the city. The miſerable victims, bound hand and foot, were placed on the top of the pyre. Cyrus, ſurrounded by his generals, witneſſed the dreadful ſpectacle, either from an abominable principle of ſuperſtition if he had bound himſelf by a vow to ſacrifice Crœſus, as the firſt fruits of his Lydian victory, or from a motive of curioſity, equally cruel and impious, to try whether Crœſus, who had ſo magnificently adorned the temples and enriched the miniſters of the gods, would be helped in time of need by the miraculous interpoſition of his much honoured protectors. Mean while the unfortunate Lydian, oppreſſed and confounded by the intolerable weight of his preſent calamity compared with the ſecurity and ſplendor of his former ſtate, recollected his memorable converſation with the Athenian ſage, and uttered with a deep groan the name of *Solon*. Cyrus aſked by an interpreter, "Whoſe name he invoked?" "*Him*," replied Crœſus, emboldened by the proſpect of certain death, "whoſe words ought ever to ſpeak to the heart of kings." This reply not being ſatisfactory, he was commanded to explain at full length the ſubject of his thoughts. Accordingly he related the important diſcourſe which had paſſed between himſelf and the Athenian, of which it was the great moral, That no man could be called happy till his death.

The words of a dying man are fitted to make a ſtrong impreſſion on the heart. Thoſe of Crœſus deeply affected the mind of Cyrus. The Perſian conſidered the ſpeech of Solon as addreſſed to himſelf. He repented of his intended cruelty towards an unfortunate prince, who had formerly enjoyed all the pomp of proſperity: and dreading the concealed vengeance that might lurk in the boſom of fate, gave orders that the pyre ſhould be extinguiſhed. But the workmen who had been employed to prepare it, had performed their taſk with ſo much care, that the order could not ſpeedily be obeyed. At that moment, Crœſus calling on Apollo, whoſe favourite ſhrine of Delphi had experienced his generous munificence, and whoſe perfidious oracle had made him ſo ungrateful a return; the god, it is ſaid, ſent a plentiful ſhower to extinguiſh the pyre. This event, which ſaved the life, and which ſufficiently atteſted the piety of Crœſus, ſtrongly recommended him to the credulity of his conqueror. It ſeemed impoſſible to pay too much reſpect to a man who was evidently the favourite of heaven. Cyrus gave orders that he ſhould be ſeated by his ſide, and thenceforth treated as a king; a revolution of fortune equally ſudden and unexpected. But the mind of Crœſus had undergone a ſtill more important revolution; for, tutored in the uſeful ſchool of adverſity, he learned to think with patience and to act with prudence, to govern his own paſſions by the dictates of reaſon, and to repay by wholeſome advice the generous behaviour of his Perſian maſter.

The firſt advantage which he derived from the change in Cyrus's diſpoſition towards him, was the permiſſion of ſending his fetters to the temple of Delphian Appollo, whoſe flattering oracles had encouraged him to wage war with the Perſians. "Behold," were his meſſengers inſtructed to ſay, "the trophies of our promiſed ſucceſs! behold the monuments of the unerring veracity of the god!" The Pythia heard their reproach with a ſmile of contemptuous indignation, and anſwered it with that ſolemn gravity which ſhe was ſo carefully taught to aſſume: "The gods themſelves cannot avoid their *own* deſtiny, much leſs avert, however they may retard, the determined fates of men. Crœſus has ſuffered, and juſtly ſuffered, for the crime of his anceſtor Gyges; who, entruſted as chief of the guards, with the perſon of Candaules, the laſt king of the race of Hercules, was ſeduced by an impious woman to murder his maſter, to defile his bed, and to uſurp his royal dignity. For this complicated guilt of Gyges the misfortunes of Crœſus have atoned; but know that through the favour of Appollo, theſe misfortunes have happened three years later than the fates ordained." The Pythia then proceeded to explain her anſwers concerning the event of the war againſt Cyrus, and proved, to the conviction of the Lydians, that her words, if properly underſtood, portended the deſtruction, not of the Perſian, but of the Lydian empire. Crœſus heard with reſignation the report of his meſſengers, and acknowledged the juſtice of the Delphian oracle, which maintained and increaſed the luſtre of its ancient fame. This fallen monarch ſurvived Cyrus. The manner of his death is not known.

CROFT, a little cloſe adjoining to a dwelling-houſe, and incloſed for paſture or arable land, or any other purpoſe.—in ſome ancient deeds, *cruſta* occurs as the Latin word for a "croft;" but *cum toftis & croftis* is more frequent. Croft is tranſlated in Abbo Floriacenſis, by *prædium* a "farm."

CROISADE, or CRUSADE, a name given to the expeditions of the Chriſtians againſt the infidels for the conqueſt of Paleſtine

Theſe expeditions commenced in the year 1096. The foundation of them was a ſuperſtitious veneration for thoſe places where our Saviour performed his miracles, and accompliſhed the work of man's redemption. Jeruſalem had been taken, and Paleſtine conquered, by Omar the ſucceſſor of Abu Becr,* who ſucceeded Mahomet himſelf. This proved a conſiderable interruption to the pilgrims, who flocked from all quarters to perform their devotions at the holy ſepulchre. They had, however, ſtill been allowed this liberty, on paying a ſmall tribute to the Saracen caliphs, who were not much inclined to moleſt them. But, in 1065, this city changed its maſters. The Turks took it from the Saracens; and being much more fierce and barbarous than the former, the pilgrims now found they could no longer perform their devotions with the ſame ſafety they did before. An opinion was about this time alſo prevalent in Europe, which made theſe pilgrimages much more frequent than formerly. It was ſomehow or other imagined, that the thouſand years mentioned in the 20th chapter of the Revelations were fulfilled; that Chriſt was ſoon to make his appearance in Paleſtine, to judge the world; and conſequently that journeys to that country were in the higheſt degree meritorious, and even abſolutely neceſſary. The multitudes of pilgrims which now flocked to Paleſtine meeting with a very rough reception from the Turks, filled all Europe with complaints againſt thoſe infidels who profaned the holy city by their preſence, and derided the ſacred myſteries of Chriſtianity even in the place where they were fulfilled. Pope Gregory VII. had formed a deſign of uniting all the princes of Chriſtendom againſt the Mahometans; but his exorbitant encroachments upon he civil power of princes had created him ſo many enemies, and rendered his ſchemes ſo ſuſpicious, that he was not able to make great progreſs in this undertaking. The work was reſerved for a meaner inſtrument.

Peter, commonly called the *hermit*, a native of Amiens in Picardy, had made the pilgrimage to Jeruſalem; and being deeply affected with the dangers to which that act of piety now expoſed the pilgrims, as well as with the oppreſſion under which the eaſtern Chriſtians now laboured, formed the bold, and, in all appearance, impracticable deſign of leading into Aſia, from the fartheſt extremities of the Weſt, armies ſufficient to ſubdue thoſe potent and warlike nations that now held the Holy Land in ſlavery. He propoſed his ſcheme to Martin II. who then filled the papal chair; but he, though ſenſible enough of the advantages which muſt accrue to himſelf from ſuch an undertaking, reſolved not to interpoſe his authority till he ſaw a greater probability of ſucceſs. He ſommoned, at Placentia, a council conſiſting of 4000 eccleſiaſtics and 30,000 ſeculars. As no hall could be found large enough to contain ſuch a multitude, the aſſembly was held in a plain. Here the Pope himſelf, as well as Peter, harangued the people, repreſenting the diſmal ſituation of their brethren in the Eaſt, and the indignity offered to the Chriſtian name in allowing the holy city to remain in the hands of the infidels. Theſe ſpeeches were ſo agreeable to thoſe who heard them, that the whole multitude ſuddenly and violently declared for the war, and ſolemnly devoted themſelves to perform this ſervice, which they believed to be ſo meritorious in the ſight of God.

But though Italy ſeemed to have embraced the deſign with ardour, Martin yet thought it neceſſary, in order to enſure perfect ſucceſs, to engage the greater and more warlike nations in the ſame enterprize. Having therefore exhorted Peter to viſit the chief cities and ſovereigns of Chriſtendom, he ſummoned another council at Clermont in Auvergne. The fame of this great and pious deſign being now univerſally diffuſed, procured the attendance of the greateſt prelates, nobles, and princes; and when the Pope and the hermit renewed their pathetic exhortations, the whole aſſembly, as if impelled by an immediate inſpiration, exclaimed with one voice, "It is the will of God! it is the will

* See *Arabia*, n° 76.

of God!" Theſe words were deemed ſo memorable, and ſo much the effect of a divine impulſe, that they were employed as the ſignal of rendezvous and battle in all future exploits of theſe adventurers. Men of all ranks now flew to arms with the utmoſt ardour, and a croſs was affixed to their right ſhoulder by all who inliſted in this holy enterprize.

At this time Europe was ſunk in the moſt profound ignorance and ſuperſtition. The eccleſiaſtics had gained the greateſt aſcendant over the human mind; and the people, who committed the moſt horrid crimes and diſorders, knew of no other expiation than the obſervances impoſed on them by their ſpiritual paſtors.

But amidſt the abject ſuperſtition which now prevailed, the military ſpirit had alſo univerſally diffuſed itſelf; and, though not ſupported by art or diſcipline, was become the general paſſion of the nations governed by the feudal law. All the great lords poſſeſſed the right of peace and war. They were engaged in continual hoſtilities with one another: the open country was become a ſcene of outrage and diſorder: the cities, ſtill mean and poor, were neither guarded by walls nor protected by privileges. Every man was obliged to depend for ſafety on his own force, or his private alliances; and valour was the only excellence which was held in eſteem, or gave one man the pre-eminence above another. When all the particular ſuperſtitions, therefore, were here united in one great object, the ardour for private hoſtilities took the ſame direction; "and all Europe (as the princeſs Anna Comnena expreſſes herſelf), torn from its foundations, ſeemed ready to precipitate itſelf in one united body upon Aſia."

All orders of men, now deeming the croiſades the only road to heaven, were impatient to open the way with their ſwords to the holy city. Nobles, artiſans, peaſants, even prieſts, inrolled their names; and to decline this ſervice was branded with the reproach of impiety or cowardice. The nobles who inliſted themſelves were moved, by the romantic ſpirit of the age, to hope for opulent eſtabliſhments in the Eaſt, the chief ſeat of arts and commerce at that time. In purſuit of theſe chimerical projects, they ſold at the loweſt price their ancient caſtles and inheritances, which had now loſt all value in their eyes. The infirm and aged contributed to the expedition by preſents and money; and many of them, not ſatisfied with this, attended it in perſon, being determined, if poſſible, to breath their laſt in ſight of that city where their Saviour had died for them. Women themſelves, concealing their ſex under the diſguiſe of armour, attended the camp; and commonly forgot their duty ſtill more, by proſtituting themſelves to the army. The greateſt criminals were forward in a ſervice which they conſidered as an expiation for all crimes; and the moſt enormous diſorders were, during the courſe of theſe expeditions, committed by men inured to wickedneſs, encouraged by example, and impelled by neceſſity. The multitude of adventurers ſoon became ſo great, that their more ſagacious leaders became apprehenſive leſt the greatneſs of the armament would be the cauſe of its own diſappointment. For this reaſon they permitted an undiſciplined multitude, computed at 300,000 men, to go before them under the command of Peter the hermit, and Gautier or Walter, ſurnamed the *moneyleſs*, from his being a ſoldier of fortune. Theſe took the road towards Conſtantinople through Hungary and Bulgaria; and, truſting that heaven, by ſupernatural aſſiſtance, would ſupply all their neceſſities, they made no proviſion for ſubſiſtence in their march. They ſoon found themſelves obliged to obtain by plunder what they vainly expected from miracles; and the enraged inhabitants of the countries through which they paſſed, attacked the diſordely multitude, and ſlaughtered them without reſiſtance. The more diſciplined armies followed after; and, paſſing the ſtraits at Conſtantinople, they were muſtered in the plains of Aſia, and amounted in the whole to 700,000 men.

This rage for conquering the Holy Land did not ceaſe with this expedition. It continued for very near two centuries, and eight different croiſades were ſet on foot, one after another. The firſt was in the year 1096, as already obſerved. The princes engaged in it were, Hugo, count of Vermandois, brother to Philip I. king of France; Robert, duke of Normandy; Robert earl of Flanders; Raimond, earl of Toulouſe and St Giles; Godfrey of Bouillon, duke of Lorrain, with his brothers Baldwin and Euſtace; Stephen, earl of Chartres and Blois; Hugo, count of St Paul; with a great number of other lords. The general rendezvous was at Conſtantinople. In this expedition, the famous Godfrey beſieged and took the city of Nice. The city of Jeruſalem was taken by the confederated army, and Godfrey choſen king. The Chriſtians gained the famous battle of Aſcalon againſt the ſoldan of Egypt; which put an end to the firſt croiſade.

The ſecond croiſade, in the year 1144, was headed by the emperor Conrad III. and Louis VII. king of France. The emperor's army was either deſtroyed by the enemy, or periſhed through the treachery of Manuel the Greek emperor; and the ſecond army, through the unfaithfulneſs of the Chriſtians of Syria, was forced to break up the ſiege of Damaſcus.

The third croiſade, in the year 1188, immediately followed the taking of Jeruſalem by Saladin the ſoldan of Egypt. The princes engaged in this expedition were, the emperor Frederic Barbaroſſa; Frederic duke of Suabia, his ſecond ſon; Leopold duke of Auſtria; Berthold duke of Moravia; Herman marquis of Baden; the counts of Naſſau, Thuringia, Miſſen, and Holland; and above 60 other princes of the empire; with the biſhops of Beſançon Cambray, Munſter. Oſnaburg, Miſſen, Paſſau, Viſburg, and ſeveral others. In this expedition, the emperor Frederic defeated the ſoldan of Iconium: his ſon Frederic, joined by Guy Luſignan king of Jeruſalem, in vain endeavoured to take Acre or Ptolemais. During which tranſactions, Philip Auguſtus king of France, and Richard II. king of England, joined the croiſade; by which means the Chriſtian army conſiſted of 200,000 fighting men: but great diſputes happening between the kings of France and England, the former quitted the Holy Land, and Richard concluded a peace with Saladin.

The fourth croiſade was undertaken, in the year 1195, by the emperor Henry VI. after Saladin's death. In this expedition the Chriſtians gained ſeveral battles againſt the infidels, took a great many towns, and were in the way of ſucceſs, when the death of the emperor obliged them to quit the Holy Land, and return into Germany.

The fifth croiſade was publiſhed, by order of pope Innocent III. in 1198. Thoſe engaged in it made fruitleſs efforts for the recovery of the Holy Land: for, though John de Neule, who commanded the fleet equipped in Flanders, arrived at Ptolemais a little after Simon of Montfort, Renard of Dampierre, and others; yet the plague deſtroying many of them, and the reſt either returning or engaging in the petty quarrels of the Chriſtian princes, there was nothing done; ſo that the ſoldan of Aleppo eaſily defeated their troops in 1204.

The ſixth croiſade began in 1228; in which the Chriſtians took the town of Damietta, but were forced to ſurrender it again. The next year the emperor Frederic made peace with the ſoldan for 10 years. About 1240, Richard earl of Cornwal, and brother to Henry III. king of England, arrived in Paleſtine at the head of the Engliſh croiſade; but finding it moſt advantageous to conclude a peace, he reembarked, and ſteered towards Italy. In 1244, the Karaſmians being driven out of Perſia by the Tartars, broke into Paleſtine, and gave the Chriſtians a general defeat near Gaza.

The ſeventh croiſade was headed by St Lewis, in the year 1249, who took the town of Damietta; but a ſickneſs happening in the Chriſtian army, the king endeavoured a retreat; in which being purſued by the infidels, moſt of his army were miſerably butchered, and himſelf and the nobility taken priſoners. Then a truce was agreed upon for 10 years, and the king and lords ſet at liberty.

The eight croiſade, in 1270, was headed by the ſame prince, who made himſelf maſter of the port and caſtle of Carthage in Africa; but dying in a ſhort time, he left his army in a very ill condition. Soon after, the king of Sicily coming up with a good fleet, and joining Philip the Bold, ſon and ſucceſſor of Lewis the king of Tunis, after ſeveral engagements with the Chriſtians, in which he was always worſted, deſired peace, which was granted upon conditions advantageous to the Chriſtians; after which both princes embarked for their own kingdoms. Prince Edward of England, who arrived at Tunis at the time of this treaty, ſailed towards Ptolemais, where he landed with a ſmall body of 300 Engliſh and French, and hindered Bendocdar from laying ſiege to Ptolemais: but being obliged to quit the Holy Land to take poſſeſſion of the crown of England, this croiſade ended without contributing any thing to the recovery of the Holy land. In 1291, the town of Acre, or Ptolemais, was taken and plundered by the ſoldan of Egypt, and the Chriſtians quite driven out of Syria. There has been no croiſade ſince that time, though ſeveral popes have attempted to ſtir up the Chriſtians to ſuch an undertaking; particularly Nicholas IV. in 1292. and Clement V. in 1311.

Though theſe croiſades were effects of the moſt abſurd ſuperſtition, they tended greatly to promote the good of Europe. Multitudes indeed were deſtroyed. M. Voltaire computes the people who periſhed in the different expeditions at upwards of two millions. Many there were, however, who returned; and theſe, having converſed ſo long with people who lived in a much more magnificent way than themſelves, began to entertain ſome taſte for a refined and poliſhed way of life. Thus the barbariſm in which Europe had been ſo long immerſed, began to wear off ſoon after this time. The princes alſo who remained at home, found means to avail themſelves of the frenzy of the people. By the abſence of ſuch numbers of reſtleſs and martial adventurers, peace was eſtabliſhed in their dominions. They alſo took the opportunity of annexing to their crown many conſiderable fiefs, either by purchaſe, or by the extinction of the heirs: and thus the miſchiefs which muſt always attend feudal governments were conſiderably leſſened.

With regard to the bad ſucceſs of the croiſaders, it was ſcarce poſſible that any other thing could happen them. The emperors of Conſtantinople, inſtead of aſſiſting, did all in their power to diſconcert their ſchemes. They were jealous, and not without reaſon, of ſuch an inundation of barbarians. Yet, had they conſidered their true intereſt, they would rather have aſſiſted them, or at leaſt ſtood neuter, than entered into alliances with the Turks. They followed the latter method, however, and were often of very great diſſervice to the weſtern adventurers, which at laſt occaſioned the loſs of their city.* But the worſt enemies the croiſaders had, were their own internal feuds and diſſentions. They neither could agree while marching together in armies with a view to conqueſt, nor could they unite their conqueſts under one government after they had made them. They ſet up three ſmall ſtates, one at Jeruſalem, another at Antioch, and another at Edeſſa. Theſe ſtates, inſtead of aſſiſting, made war upon each other, and on the Greek emperors; and thus became an eaſy prey to the common enemy. The horrid cruelties they committed alſo were ſuch as muſt have inſpired the Turks with the moſt invincible hatred againſt them, and made them reſiſt with the greateſt obſtinacy. They were ſuch as could have been committed only by barbarians inflamed with religious enthuſiaſm. When Jeruſalam was taken, not only the numerous garriſon were put to the ſword, but the inhabitants were maſſacred without mercy and without diſtinction. No age nor ſex was ſpared, not even ſucking children. According to Voltaire, ſome Chriſtians, who had been ſuffered by the Turks to live in that city, led the conquerors into the moſt private caves where women had concealed themſelves with their children, and not one of them was ſuffered to eſcape. What eminently ſhows the enthuſiaſm by which theſe conquerors were animated, is their behaviour after this terrible ſlaughter. They marched over heaps of dead bodies towards the holy ſepulchre; and while their hands were yet polluted with the blood of ſo many innocent perſons, ſung anthems to the common Saviour of mankind. Nay, ſo far did their religious enthuſiaſm overcome their fury, that theſe ferocious conquerors now burſt into tears. If the abſurdity and wickedneſs of this conduct can be exceeded by any thing, it muſt be by what follows. In the year 1204, the frenzy of croiſading ſeized the children, who are ever ready to imitate what they ſee their parents engage themſelves in. Their childiſh folly was encouraged by the monks and ſchoolmaſters; and thouſands of thoſe innocents were conducted from

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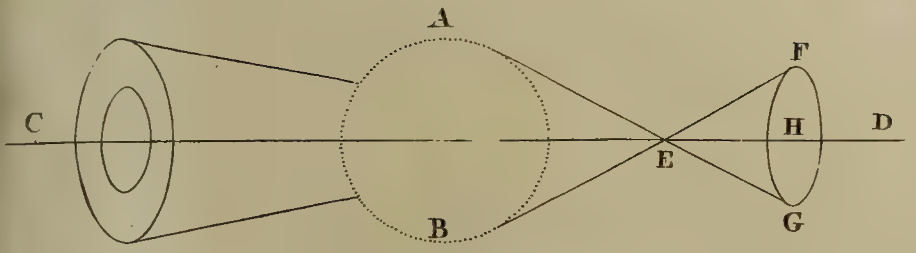
* See *Conſtantinople*, n° 144.

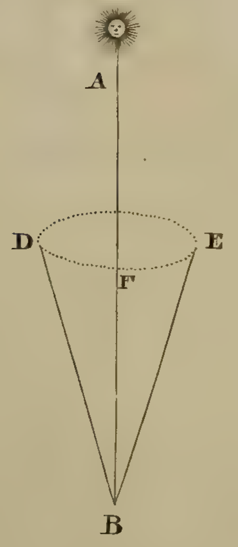
CORONA, or HALO

Plate CL

N°1



N°2



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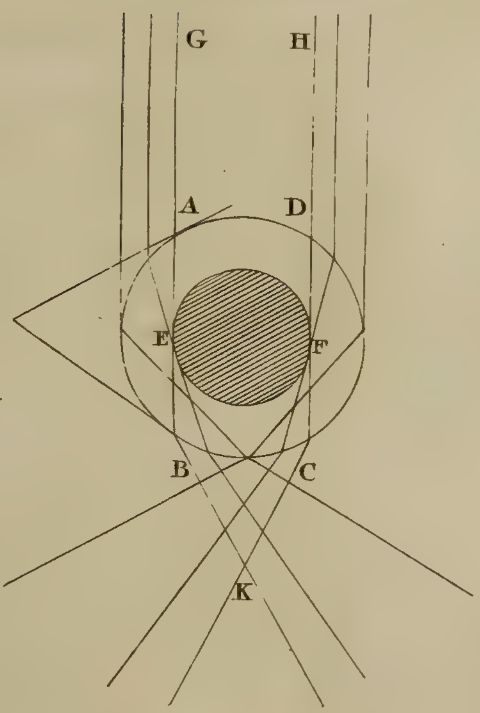

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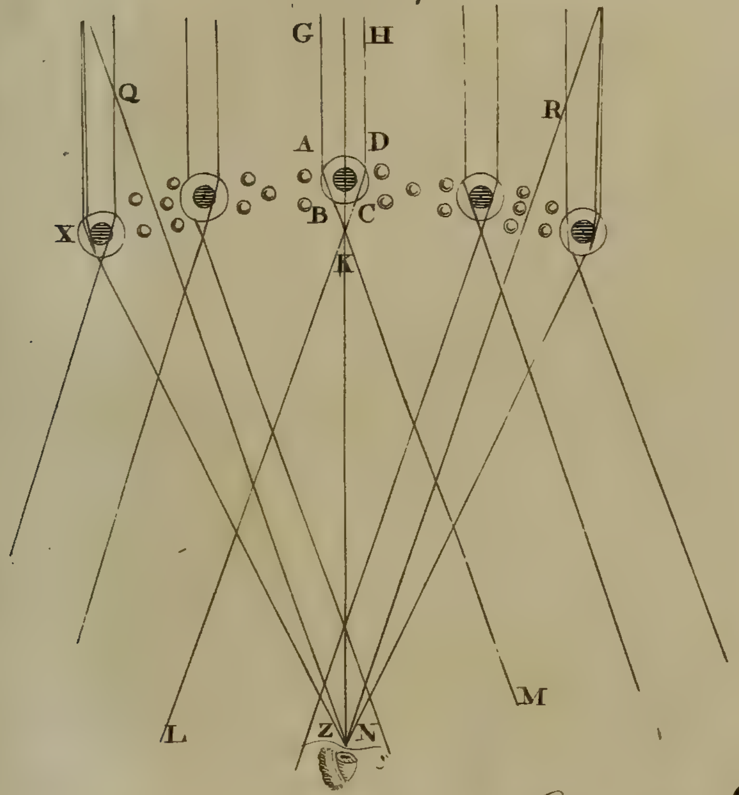
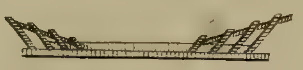
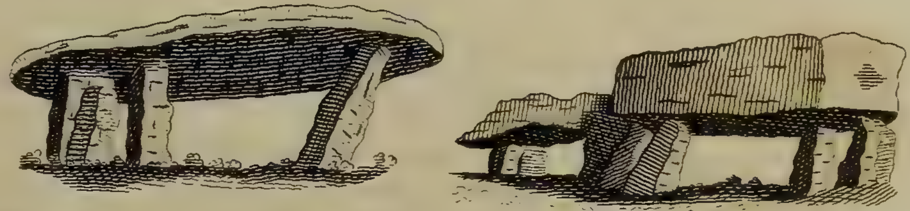


Cradle

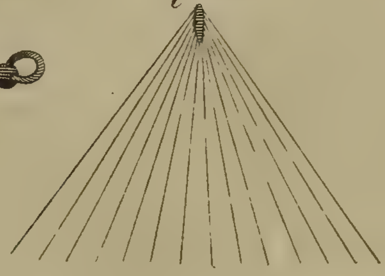


Cromlech



Creeper

Crowfoot



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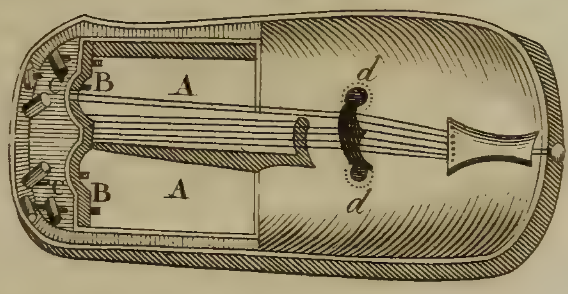

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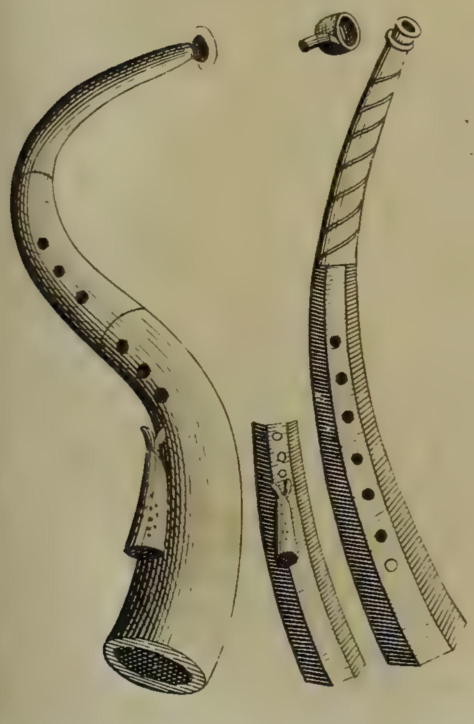
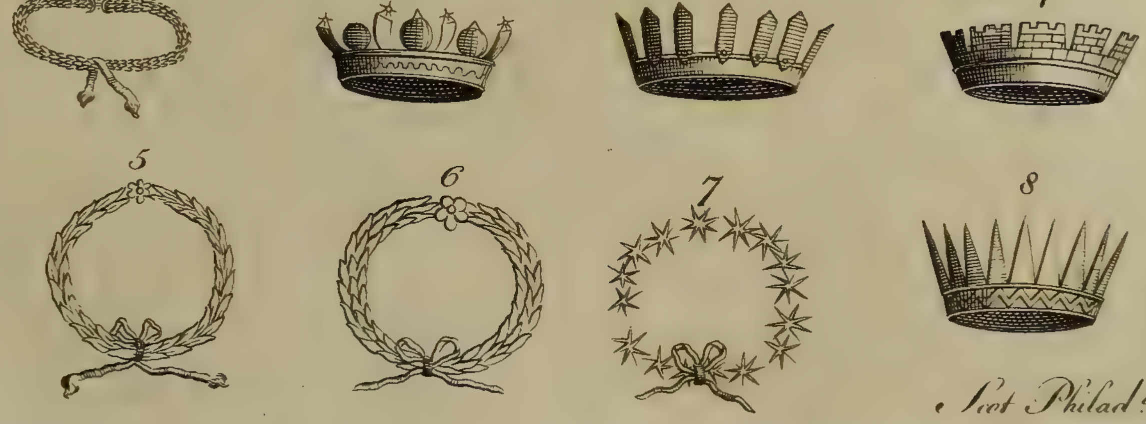


Crown



Scot Philad^{a}

the houſes of their parents on the faith of theſe words, "Out of the mouth of babes and ſucklings haſt thou perfected praiſe." Their baſe conductors ſold a part of them to the Turks, and the reſt periſhed miſerably.

CROISES, or CROIZES, in Engliſh antiquity, pilgrims bound for the Holy Land, or ſuch as have been there; ſo called from a badge they wore in imitation of a croſs. The knights of St John of Jeruſalem, created for the defence and protection of pilgrims, were particularly called *croiſes*.

CROISIERS, a religious order founded in honour of the invention or diſcovery of the croſs by the empreſs Helena. They are diſperſed in ſeveral parts of Europe, particularly in the Low Countries, France, and Bohemia, thoſe in Italy being at preſent ſuppreſſed. Theſe religious follow the rule of St Auguſtine. They had in England the name of *crouched friars*.

CROIX (FRANCIS PETIS DE LA), ſecretary and interpreter to the king of France in the Turkiſh and Arabic languages, died November 4th 1695, in his 73d year; after having executed this employment for the ſpace of 44 years. And it appears, that he executed it with as much integrity as abilities: for, when the Algerines ſought for peace of Louis XIV. conditions were offered, by which they were required to reimburſe to this monarch 600,000 franks. The terms being thought exorbitant, they had recourſe to ſtratagem: and they offered a large ſum to La Croix, who was the interpreter of all that paſſed, if he would put into the treaty "crowns of Tripoli," inſtead of "French crowns:" which would have made to the Algerines a difference of more than 100,000 livres. But the intregrity of the interpreter triumphed over the temptation; which however was the greater, as it was next to impoſſible he ſhould be diſcovered. Beſides the Turkiſh and the Arabic, the Perſian and the Tartarian, he alſo underſtood the Ethiopian and Armenian languages. He is well known to the learned world by many works. He tranſlated the "Hiſtory of France" into the Turkiſh language. He digeſted the three volumes of "Voyages into the Eaſt Indies" of M. Thevenot. He made an accurate catalogue of all the Turkiſh and Perſian books which are in the king's library. He compoſed two complete Dictionaries for the French and Turkiſh languages; and, when he was dying, he was about to preſent the world with the hiſtory of Genghiſcan. He undertook this hiſtory by the order of M. Colbert: for this miniſter, altogether intent upon aggrandizing his maſter, was accuſtomed every week to call together, either in the king's library or his own, certain of the learned, whom, according as they excelled in their ſeveral departments in literature, he conſtantly ſet to work. This hiſtory, which coſt La Croix more than ten years labour, is uſeful, not only to the learned who are curious to know paſt events, or to geographers who had hitherto been greatly ignorant of Grand Tartary, but likewiſe to all who trade to China, Perſia, or other eaſtern parts of the world. There is a good map of northern Aſia drawn by M. de l'Iſle, accompanying the work; which M. Petis de la Croix, the author's ſon, not only reviſed, but, to render it more curious, added to it an abridgement of the lives of all thoſe authors from whom it was extracted. It was tranſlated into Engliſh, and publiſhed at London, 1722, 8vo.

CROMARTY, the capital of the ſhire of Cromarty, in Scotland, with an excellent and ſafe harbour capable of containing the greateſt fleets. W. Long. 3. 40. N. Lat. 57. 54.

CROMLECH, in Britiſh antiquities, are huge, broad, flat ſtones, raiſed upon other ſtones ſet up on end for that purpoſe. They are common in ANGLESY; under which article a very large one is deſcribed. See Plate CL.

Theſe monuments are ſpoken of largely by Mr Rowland, by Dr Borlaſe, and by Wormius, under the name of *Ara* or altar. Mr Rowland, however, is divided in his opinion: for he partly inclines to the notion of their having been altars, partly to their having been ſepulchres; he ſuppoſes them to have been originally tombs, but that in after times ſacrifices were performed upon them to the heroes depoſited within. Mr Keiller preſerves an account of King Harold having been interred beneath a tomb of this kind in Denmark, and Mr Wright diſcovered in Ireland a ſkeleton depoſited under one of them. The great ſimilarity of the monuments throughout the north, Mr Pennant obſerves, evinces the ſame religion to have been ſpread in every part, perhaps with ſome ſlight deviations. Many of theſe monuments are both Britiſh and Daniſh; for we find them where the Danes never penetrated.

The cromlech, or cromleh, chiefly differs from the KIST-*vaen*, in not being cloſed up at the end and ſides, that is, in not ſo much partaking of the cheſt-like figure; it is alſo generally of larger dimenſions, and ſometimes conſiſts of a greater number of ſtones: the terms *cromleh* and *kiſt-vaen* are however indiſcriminately uſed for the ſame monument. The term *cromlech* is by ſome derived from the Armoric word *crum*, "crooked or bowing," and *leh* "ſtone," alluding to the reverence which perſons paid to them by bowing. Rowland derives it from the Hebrew words *carem-luach*, ſignifying a devoted or conſecrated ſtone." They are called by the vulgar *coetne Arthor*, or *Arthur's quoits*, it being a cuſtom in Wales as well as Cornwal to aſcribe all great or wonderful objects to prince Arthur, the hero of thoſe countries.

CROMWELL (Thomas), earl of Eſſex, was the ſon of a blackſmith at Putney, and born in 1498. Without a liberal education, but endowed with a ſtrong natural genius, he conſidered travelling as a proper means of improving his underſtanding; and to this early token of his ſound judgment he ſtood indebted for the high rank and diſtinguiſhed honours he afterwards enjoyed. He became by degrees the confidential favourite and prime miniſter of Henry VIII.; and from the moment he acquired any authority in the cabinet, he employed it in promoting the reformation, to his zeal for which he became a victim; for, the more firmly to ſecure the Proteſtant cauſe, he contrived to marry the king to Ann of Cleves, whoſe friends were all Lutherans. Unfortunately Henry took a diſguſt to this lady, which brought on Cromwell's ruin: the king, with his uſual cruelty and caprice, taking this opportunity to ſacrifice this miniſter to the Roman Catholic party, to whom he ſeemed deſirous of reconciling himſelf as ſoon as he had Catharine Howard in view. Cromwell was a great politician, and a good man; but like moſt ſtateſmen, was guilty of great errors. In his zeal for the new religion,

gion, he had introduced the unjuſtifiable mode of attainder in caſes of treaſon and hereſy; and his enemies, who were numerous (conſiſting of two claſſes, the ancient nobility and gentry, who were enraged to ſee the higheſt honours beſtowed on a man of his mean extraction, and the Roman Catholics, who deteſted him) having preferred many complaints againſt him, availed themſelves of his own law. He was attainted of treaſon and hereſy, convicted unheard, and beheaded in 1540. He was the chief inſtrument of the ſuppreſſion of the abbeys and monaſteries, and of the deſtruction of images and relics; to him alſo we are indebted for the inſtitution of pariſh regiſters of births, marriages, and burials.

CROMWELL (Oliver), ſtyled *Lord Protector* of the commonwealth of England, one of the moſt extraordinary perſonages mentioned in hiſtory, was the ſon of Mr Robert Cromwell of Hinchinbrooke in the county of Huntingdon. His anceſtors were of very honourable extraction: but no ways related to Thomas Cromwell earl of Eſſex, the prime miniſter and favourite of Henry VIII. He was born in the pariſh of St John, Huntingdon, where his father moſtly lived, on the 24th or 25th of April 1599, and educated at the free-ſchool of that town. Little is known concerning him in his younger years, or indeed concerning his behaviour in private life. It is, however, related by authors of unſuſpected veracity, that when at ſchool he gave many ſigns of a very turbulent and reſtleſs diſpoſition. He is alſo ſaid from his early years to have been ſubject to the hypochondriac diſorder, and to many deceptions of the imagination. He had a very remarkable one while at ſchool. It happened in the day time, when he was lying melancholy upon his back in bed. A ſpectre, as he thought, approached him, and told him that he ſhould be the greateſt man in the kingdom. His father, being informed of this, was very angry, and deſired his maſter to correct him ſeverely. This, however, produced no effect. Oliver perſiſted in the truth of his ſtory and would ſometimes mention it, though his uncle told him that it was too traiterous to be repeated."—From this ſchool Oliver was removed to Sidney-college in Cambridge, where he was admitted in 1616. His progreſs in his ſtudies is uncertain; but he ſpent much time in playing at foot-ball, cricket, and other robuſt exerciſes, at which he was very expert. His father dying after he had been about two years at college, Cromwell returned home; but the irregularity of his life, gave ſuch offence to his mother, that, by the advice of ſome friends, ſhe ſent him to London, and placed him in Lincoln's-inn. This expedient by no means anſwered the purpoſe; her ſon gave himſelf up to gaming, wine, and women, ſo that he quickly diſſipated all that was left him by his father. This diſſipation, however, could be but of very ſhort continuance; for he was married before he was 21 years of age, to Elizabeth daughter of Sir James Bouchier of Eſſex. Soon after his marriage he returned to the country, where he led a very grave and ſober life. This ſudden reformation has been aſcribed to his falling in with the Puritans; but it is certain, that Mr Cromwell continued then, and for ſome time after, a zealous member of the church of England, and formed a cloſe friendſhip with ſeveral eminent divines. He continued at Huntingdon where he ſettled after his marriage, till an eſtate of between L. 400 and L. 500 *per annum* devolved to him by the death of his uncle Sir Thomas Stuart. This induced him to remove to the iſle of Ely where the eſtate lay, and here he embraced the puritanical doctrines. He was elected a member of the third parliament of Charles I. which met on the 20th of January 1628; and was a member of the committee for religion, where he diſtinguiſhed himſelf by his zeal againſt popery. After the diſſolution of that parliament, he returned again into the country, where he continued to expreſs much concern for religion, to keep company with ſilenced miniſters, and to invite them often to lectures and ſermons at his houſe. Thus he brought his affairs again into a very indifferent ſituation; ſo that, by way of repairing the breaches he made in his fortune, he took a farm at St Ives, which he kept five years. But this ſcheme ſucceeded ſo ill, that he was obliged to give it up; and at laſt, chagrined with his diſappointments, and made uneaſy by the treatment his party at that time received, he formed a deſign of going over to New-England. In this, however, he was diſappointed; the king iſſued out a proclamation againſt all ſuch emigrations, and Cromwell was obliged to remain in England againſt his will.

In 1638, Cromwell had firſt an opportunity of getting himſelf publicly taken notice of. The earl of Bedford, and ſome other perſons of high rank, who had eſtates in the fen country, were very deſirous of having it better drained; and though one project of this ſort had failed, they ſet on foot another, got it countenanced by royal authority, and ſettled a part of the profits upon the crown. This, though really intended for a public benefit, was oppoſed as injurious to private property: and at the head of the oppoſers was Mr Oliver Cromwell, who had conſiderable influence in theſe parts. The vigour he ſhowed on this occaſion recommended him to his friend and relation Mr Hampden; who afterwards characterized him in parliament, as a perſon capable of contriving and conducting great deſigns. But for all this he was not very ſucceſsful in his oppoſition; and as his private affairs were ſtill declining, he was in very neceſſitous circumſtances at the approach of the long parliament. In this critical ſituation he got himſelf elected member of parliament, in the following manner. In the puritanical meetings which he conſtantly frequented, Oliver had moſt eminently diſtinguiſhed himſelf by his *gifts* of praying, preaching, and expounding. At one of theſe meetings, he met with one Richard Tims, a tradeſman of Cambridge. This man was ſo much taken with Oliver, that he took it into his head to attempt getting him choſen burgeſs for the approaching parliament. Being himſelf one of the common-council, Tims imagined this deſign might be brought about; and with this view went to Mr Wildbore a relation of Cromwell's, to whom he communicated his intention. Wildbore agreed as to the fitneſs of the perſon; but told him the deſign was impracticable, becauſe Oliver was not a freeman. Tims next addreſſed one Evett on the ſame ſubject, who alſo made the ſame objection. He recollected, however, that the mayor had a freedom to beſtow, and a ſcheme was immediately laid for ſecuring this freedom to Cromwell. On application to the mayor, however, he told them that the freedom was already diſpoſed of to another; but this objection being obviated by promiſing that perſon a freedom from the town, the mayor being informed that Cromwell was a man of great fortune, ſignified his intention of beſtowing the freedom upon him. Our hero, being informed of the good offices of his friends, made his appearance in the court dreſſed in ſcarlet richly laced with gold, and having provided plenty of claret and ſweatmeats, they were ſo freely circulated among the corporation, that Mr Mayor's freeman was unanimouſly declared to be a very civil worthy gentleman. When the election came on, the mayor diſcovered his miſtake, but it was now too late; the party among the burgeſſes was ſtrong enough to chooſe him, and accordingly did ſo at the election next year.

When Cromwell firſt came into parliament, he affected great plainneſs, and even careleſſneſs, in his dreſs. His attention to farming had entirely ruſticated him, ſo that he made a very uncouth appearance. "Who (ſays Dr South) that had beheld ſuch a bankrupt, beggarly fellow, as Cromwell, firſt entering the parliament houſe, with a thread-bare torn coat and greaſy hat, and perhaps neither of them paid for, could have ſuſpected, that, in the ſpace of ſo few years, he ſhould, by the murder of one king, and the baniſhment of another, aſcend the throne, be inveſted with the royal robes, and want nothing of the ſtate of a king but the changing his hat into a crown?" Cromwell was very active in promoting the famous *Remonſtrance**; which in reality laid the foundation of the civil war. He declared afterwards to Lord Falkland, that if the remonſtrance had not been carried, he deſigned to have converted the ſmall remains of his eſtate into ready money the next day, and to have left the kingdom by the firſt opportunity. His firmneſs on this occaſion ſo effectually recommended him to Hampden, Pym, and the other leaders of the popular party, that they took him into all their councils; and here he acquired that clear inſight into things, and that knowledge of men, of which he afterwards made ſuch prodigious uſe. His exploits during the civil war, his murder of the king, and uſurpation of the kingdom, are related under the article BRITAIN, n° 139—188.

* See *Britain*, n°107.

With regard to the character of Cromwell, Mr Hume expreſſes himſelf as follows: "The writers attached to this wonderful perſon make his character, with regard to abilities, bear the air of the moſt extravagant panegyric: his enemies form ſuch a repreſentation of his moral qualities as reſembles the moſt virulent invective. Both of them, it muſt be confeſſed, are ſupported by ſuch ſtriking circumſtances in his fortune and conduct, as beſtow on their repreſentation a great air of probability. 'What can be more extraordinary (it is ſaid), than that a perſon of private birth and education, no fortune, no eminent qualities of body, which have ſometimes, nor ſhining qualities of mind, which have often, raiſed men to the higheſt dignities, ſhould have the courage to attempt, and the abilities to execute, ſo great a deſign as the ſubverting one of the moſt ancient as well as beſt eſtabliſhed monarchies in the world? That he ſhould have the power and boldneſs to put his prince and maſter to an open and infamous death? ſhould baniſh that numerous and ſtrongly allied family? Cover all theſe temerities under a ſeeming obedience to a parliament, in whoſe ſervice he pretended to be retained? Trample too upon that parliament in their turn, and ſcornfully expel them as ſoon as they gave him ground of diſſatisfaction? Erect in their place the dominion of the ſaints, and give reality to the moſt viſionary idea which the heated imagination of any fanatic was ever able to entertain? Suppreſs again that monſter in its infancy, and openly ſet himſelf up above all things that ever were called *ſovereign* in England? Overcome firſt all his enemies by arms, and all his friends afterwards by artifice? Serve all parties patiently for a while, and afterwards command them victoriouſly at laſt? Over-run each corner of the three nations, and ſubdue with equal facility both the riches of the ſouth, and the poverty of the north? Be feared and courted by all princes, and adopted a brother to the gods of the earth? Call together parliaments with a word of his pen, and ſcatter them again by the breath of his mouth? Reduce to ſubjection a warlike and diſcontented nation by means of a mutinous army? Command a mutinous army by means of ſeditious and factious officers? Be humbly and daily petitioned, that he would be pleaſed, at the rate of millions a-year, to be hired as maſter of thoſe who had formerly hired him for their ſervant? Have the eſtates and lives of three nations as much at his diſpoſal as was once the little inheritance of his father, and be as noble and liberal in the ſpending of them? And, laſtly, (for there is no end of enumerating every particular of his glory), with one word bequeath all this power and ſplendor to his poſterity? Die poſſeſſed of peace at home, and triumph abroad? Be buried among kings, and with more than regal ſolemnity? And leave a name behind him not to be extinguiſhed but with the whole world; which, as it was too little for his praiſe, ſo it might have been for his conqueſts, if the ſhort line of his mortal life could have ſtretched out to the extent of his immortal deſigns?'

"My intention is not to disfigure this picture drawn by ſo maſterly a hand: I ſhall only endeavour to remove from it ſomewhat of the marvellous: a circumſtance which, on all occaſions, gives much ground for doubt and ſuſpicion. It ſeems to me that the circumſtance of Cromwell's life in which his abilities are principally diſcovered, is his riſing, from a private ſtation, in oppoſition to ſo many rivals, ſo much advanced before him, to a high command and authority in the army. His great courage, his ſignal military talents, his eminent dexterity and addreſs, were all requiſite for this important acquiſition. Yet will not this promotion appear the effect of ſupernatural abilities, when we conſider that Fairfax himſelf, a private gentleman, who had not the advantage of a ſeat in parliament, had, through the ſame ſteps, attained even to a ſuperior rank; and, if endued with common capacity and penetration, had been able to retain it. To incite ſuch an army to rebellion againſt the parliament, required no uncommon art or induſtry: to have kept them in obedience had been the more difficult enterprize. When the breach was once formed between the military and civil powers, a ſupreme and abſolute authority, from that moment, is devolved on the general; and if he is afterwards pleaſed to employ artifice or policy, it may be regarded on moſt occaſions as great condeſcenſion, if not as ſuperfluous caution. That Cromwell was ever able really to blind or over-reach either the king or the republicans, does not appear: as they poſſeſſed no means of reſiſting the force under his command, they were glad to temporize with him; and, by ſeeming to be deceived, to wait for an opportunity of freeing themſelves from his dominion. If he ſeduced the military fanatics, it is to be conſidered, that their intereſt and his evidently concurred; that their ignorance and low education expoſed them to the groſſeſt impoſition; and that he himſelf was at bottom as frantic an enthuſiaſt as the worſt of them; and, in order to obtain their confidence, needed but to diſplay thoſe vulgar and ridiculous habits which he had early acquired, and on which he ſet ſo high a value. An army is ſo forcible, and at the ſame time ſo coarſe a weapon, that any hand which wields it, may, without much dexterity, perform any operation, and attain any aſcendant in human ſociety.

“ The domeſtic adminiſtration of Cromwell, though it diſcovers great ability, was conducted without any plan either of liberty or arbitrary power: perhaps his difficult ſituation admitted of neither. His foreign enterpriſes, though full of intrepidity, were pernicious to the national intereſt; and ſeem more the reſult of impetuous fury or narrow prejudices, than of cool foreſight and deliberation. An eminent perſonage, however, he was in many reſpects, and even a ſuperior genius; but unequal and irregular in his operations: and, though not defective in any talent except that of elocution, the abilities which in him were moſt admirable, and which contributed moſt to his marvellous ſucceſs, were the magnanimous reſolution of his enterprizes, and his peculiar dexterity in diſcovering the characters and practiſing on the weakneſſes of mankind.

“ If we ſurvey the moral character of Cromwell, with that indulgence which is due to the blindneſs and infirmities of the human ſpecies, we ſhall not be inclined to load his memory with ſuch violent reproaches as thoſe which his enemies uſually throw upon it. Amidſt the paſſions and prejudices of that time, that he ſhould prefer the parliamentary to the royal cauſe, will not appear extraordinary; ſince even at preſent many men of ſenſe and knowledge are diſpoſed to think, that the queſtion, with regard to the juſtice of the quarrel, may be regarded as doubtful and ambiguous. The murder of the king, the moſt atrocious of all his actions, was to him covered under a mighty cloud of republican and fanatical illuſions; and it is not impoſſible but he might believe it, as many others did, the moſt meritorious action which he could perform. His ſubſequent uſurpation was the effect of neceſſity, as well as of ambition; nor is it eaſy to ſee how the various factions could at that time have been reſtrained without a mixture of military and arbitrary authority. The private deportment of Cromwell as a ſon, a huſband, a father, a friend, is expoſed to no conſiderable cenſure, if it does not rather merit praiſe. And, upon the whole, his character does not appear more extraordinary and unuſual by the mixture of ſo much abſurdity with ſo much penetration, than by his tempering ſuch violent ambition and ſuch enraged fanaticiſm with ſo much regard to juſtice and humanity.”

That Cromwell continued a moſt complete and bigotted enthuſiaſt to the very laſt, appears from his behaviour in his laſt ſickneſs. His diſeaſe, which at firſt was a kind of ſlow fever, brought on by the cares and anxiety of his mind, ſoon degenerated into a tertian ague. For about a week the diſorder continued without any dangerous ſymptoms, inſomuch that every other day he walked abroad; but one day after dinner his five phyſicians coming to wait upon him, one of them having felt his pulſe, ſaid that it intermitted. At this Cromwell was ſurpriſed, turned pale, fell into a cold ſweat, and, when he was almoſt fainting, ordered himſelf to be carried to bed; where, by the aſſiſtance of cordials, being brought a little to himſelf, he made his will with reſpect to his private affairs. The next morning when one of his phyſicians came to viſit him, Cromwell aſked him, why he looked ſo ſad? and when anſwer was made, that ſo it became every one who had the weighty charge of his life and health upon him, “ Ye phyſicians (ſays Cromwell), think I ſhall die: I tell you I ſhall not die this bout, I am ſure of it. Do not you think (ſaid he to the phyſician, looking more attentively at him), do not think that I am mad: I ſpeak the words of truth upon ſurer grounds than your Hippocrates or Galen can furniſh you with. God Almighty himſelf hath given that anſwer, not to my prayers alone, but alſo to the prayers of thoſe who entertain a ſtricter commerce and greater intereſt with him. Go on chearfully, baniſhing all ſadneſs from your looks; and deal with me as you would do with a ſerving man. Ye may have a ſkill in the nature of things; yet nature can do more than all phyſicians put together, and God is far more above nature.” As this phyſician was coming out of the chamber, he accidentally met with another, to whom he expreſſed his fear that the protector was turning light-headed. But the other informed him that the chaplains, being diſperſed the preceding night into different parts of the houſe, had prayed for the protector's recovery, and unanimouſly received for anſwer that he ſhould recover. Nay, to ſuch a degree of madneſs did they at laſt arrive, that, a public faſt being kept at Hampton-court, they did not ſo much pray to God for the protector's health, as return thanks for the undoubted pledges they had of his recovery. On this account, though the phyſicians perceived his diſtemper increaſing every hour, they took no notice of his danger, till it became neceſſary for him to appoint a ſucceſſor while he had any breath remaining. But being then in a lethargic fit, he anſwered from the purpoſe; upon which he was again aſked whether he did not name his eldeſt ſon Richard? and to this queſtion he anſwered, Yes. Being then aſked where his will was which he had formerly made concerning the heirs of the kingdom; he ſent to look for it in his cloſet and other places, but in vain; for ſomebody had either ſtole it, or he himſelf had burnt it. Soon after, he expired, on the 3d of September 1658, aged ſomewhat more than 59 years and four months. This day of September he had always reckoned to be the moſt fortunate for him in the whole year. A violent tempeſt, which immediately ſucceeded his death, ſerved as a ſubject of diſcourſe to the vulgar. His partizans, as well as his opponents, were fond of remarking this event: and each of them endeavoured, by forced inferences, to interpret it as beſt ſuited their particular prejudices.

It has been imagined by ſome, that Oliver Cromwell was poiſoned; but for this there ſeems to be no reaſonable foundation. His body was opened by Dr Bates. He found the brain ſomewhat overcharged with blood, and the lungs a little inflamed; but what he reckoned to have been the principal cauſe of his diſorder was a total degeneracy of the ſubſtance of the ſpleen into a matter reſembling the lees of oil. This, he thought, alſo accounted for the hypochondriac diſpoſitions to which Cromwell had from his infancy been ſubject. Though the bowels were taken out, and the body filled with ſpices wrapped in a fourfold cere-cloth, put firſt into a coffin of lead, and then into one of wood, yet the corruption was ſo great that the humour wrought itſelf through the whole, and there was a neceſſity of interring the body before the ſolemnity of the funeral. A very pompous funeral was ordered at the public expence, and performed from Somerſet-houſe, with a ſplendor not only equal but ſuperior to that beſtowed upon crowned heads. Some have related that his body was depoſited in Naſeby-field: others, that it was wrapped in lead, and ſunk in the deepeſt part of the Thames, to prevent any inſult that might afterwards be offered to it. But it ſeems beyond doubt that his body was interred at Weſtminſter; as we are informed, that on the order to diſinter him after the reſtoration, his corpſe was found in a vault in the middle aiſle of Henry VII.'s chapel. In the inſide of the coffin, and on the breaſt of the corpſe, was laid a copper plate finely gilt, incloſed in a thin caſe of lead. On one ſide of this plate were engraven the arms of England impaled with thoſe of Oliver, and on the reverſe the following legend: *Oliverius Protector Reipublicæ Angliæ, Scotiæ, et Hiberniæ, natus* 25 *Aprilis* 1599, *inauguratus* 16 *Decembris* 1653, *mortuus* 3 *Septembris ann.* 1658, *hic ſitus eſt.*

Cromwell was of a robuſt frame of body, and of a manly, though not agreeable aſpect. His noſe being remarkably red and ſhining, was often made the ſubject of ridicule. He left only two ſons, Richard and Henry; and three daughters; one married to General Fleetwood, another to Lord Fauconberg, and a third to Lord Rich. His mother lived till after he was protector; and contrary to her orders he buried her with great pomp in Weſtminſter Abbey. She could not be perſuaded that ever his power or his perſon was in ſafety. At every noiſe ſhe heard ſhe would exclaim that her ſon was murdered; and was never ſatisfied that he was alive if ſhe did not receive frequent viſits from him. She was a decent woman; and by her frugality and induſtry had raiſed and educated a numerous family upon a ſmall fortune. She had even been obliged to ſet up a brewery at Huntingdon, which ſhe managed to good advantage. Hence Cromwell, in the invectives of that age, is often ſtigmatized with the name of brewer. Ludlow, by way of inſult, mentions the great acceſſion which he would receive to his royal revenues upon his mother's death, who poſſeſſed a jointure of 60 pounds a-year upon his eſtate. She was of a good family, of the name of Stuart; and is by ſome ſuppoſed to have been remotely allied to the royal family.

CROMWELL (Richard), eldeſt ſon of Oliver Cromwell, was by his father appointed ſucceſſor to the protectorſhip, but very ſoon depoſed by the army*. They diſcharged his debts, took all the houſehold ſtuff, plate, &c. gave him a protection for ſix months, and ſo he retired. He was by no means qualified to ſupport the ſtation gained by the aſpiring talents of his father. He was of a moderate temper, and untainted with that fanatical ſpirit which his father had ſo ſucceſsfully cultivated. On the reſtoration he went abroad; but returned in 1680 under the aſſumed name of Clark, and ſettled at Cheſhunt in Hertfordſhire, where he lived privately, and died in 1712, aged 86.

* See *Britain*, n° 189, 190.

CRONENBURG, a town of Germany, in the circle of the upper Rhine, and in the landgravate of Heſſe Caſſel, with a ſtrong caſtle. It is ſeated at the foot of a high mountain, on a fertile ſoil, and is ſurrounded with a double wall. E. Long. 8. 15. N. Lat. 50. 15.

CRONENBURG, a ſtrong fortreſs of Denmark, in the iſle of Zealand, at the entrance of the Sound, where the Danes take toll of ſuch ſhips as are bound for the Baltic. It was very richly furniſhed, but pillaged by the Swedes in 1658, who took away the furniture, among which were ſome ſtatues of maſſy ſilver. It is built upon piles. E. Long. 12. 50. N. Lat. 56. 0.

CRONIUS, in chronology, the ancient name of the Athenian month Hecatombæon; which was the firſt of their year, and anſwered to the latter part of our June and beginning of July.—There were feaſts called *Cronienes* celebrated at Athens in this month, in honour of Saturn, anſwering to the Saturnalia of the Romans.

CRONSLOT. See CRONSTADT.

CRONSTADT, a ſea-port town of Ruſſia, where the greateſt part of the navy is ſituated. It ſtands upon the iſland of Retuſari, in the Gulf of Finland; and was founded by Peter I. as being provided with the ſafeſt harbour in theſe parts, and as forming a ſtrong bulwark by ſea for the defence of the new metropolis. The only paſſage by which ſhips of burden can approach Peterſburg lies on the ſouth ſide of Retuſari, through a narrow channel; one ſide whereof is commanded by Cronſtadt, and the oppoſite by Cronſlot and the citadel. Cronſlot, which ſtands upon a ſmall iſland of ſand, is a circular wooden building, and ſurrounded with fortifications of wood that jut into the water. It contains a garriſon of 100 men. The citadel is another ſmall wooden fortreſs, conſtructed alſo upon an adjacent ſand-bank, and capable of holding about 30 ſoldiers. All large veſſels muſt ſail between Cronſtadt and theſe two fortreſſes expoſed to the fire of the oppoſite batteries; for the other parts of the gulf are only from one to eleven feet in depth. All theſe fortifications were, at the time of their conſtruction, eſteemed places of conſiderable ſtrength; but now they derive their conſequence more from their paſt importance than from any reſiſtance they could make againſt the attack of a powerful fleet.

Cronſtadt is built upon the ſouth-eaſtern extremity of the iſland, and is defended towards the ſea by wooden piers projecting into the water, and towards the land by ramparts and baſtions. It is a very ſtraggling place; and occupies, like all the Ruſſian towns, a larger ſpace of ground than the number of habitations,

tions ſeem to require; the houſes are moſtly of wood, excepting a few fronting the harbour, which are of brick ſtuccoed white. Among the latter are the imperial hoſpital for ſailors, the barracks, and the academy for marines and officers of the navy. That ſeminary uſually contains between three and four hundred cadets, who are clothed, maintained, and taught at the expence of the crown. They are admitted at the age of five, and are ſuffered to remain until they reach their ſeventeenth year. They learn accounts, mathematics, drawing, fortification, and navigation; and have maſters in the French, German, Engliſh, and Swediſh languages. They are trained to naval affairs, and make an annual cruiſe in the Baltic as far as Revel.—Cronſtadt has a ſeparate haven appropriated to the men of war, and another to merchant ſhips. Cloſe to the haven for merchant ſhips is a canal and ſeveral dry docks, begun in 1719 by Peter I. for the purpoſe of refitting the men of war. This uſeful work was neglected under his ſucceſſors, and was not completed until the reign of his daughter Elizabeth. It has been ſtill further beautified and improved by the preſent empreſs; and is now applied for building as well as careening ſhips of the line. At the extremity of theſe docks is a great reſervoir, 568 feet in length, which contains water ſufficient, and half the quantity over, to ſupply all the docks; which is pumped into it by means of a fire engine, the diameter of whoſe cylinder is ſix feet. The length of this work, from the beginning of the canal to the end of the laſt dock, is 4221 feet. The ſides of the docks are faced with ſtone, and the bottom is paved with granite. They are 40 feet deep and 150 broad; and are capable of containing nine men of war upon the ſtocks.

CRONSTAT, a town of Tranſylvania, near the frontiers of Moldavia, ſubject to the houſe of Auſtria. E. Long. 25. 0. N. Lat. 47. 0.

CROP, the higheſt part or end of any thing cut off. It is particularly uſed for the corn gathered off a field in harveſt. See Agriculture, Part II.

CROSIER, or Crozier, a ſhepherd's crook; a ſymbol of paſtoral authority, conſiſting of a gold or ſilver ſtaff, crooked at the top, carried occaſionally before biſhops and abbots, and held in the hand when they give the ſolemn benedictions. The cuſtom of bearing a paſtoral ſtaff before biſhops is very ancient, as appears from the life of St Cæſarea of Arles, who lived about the year 500. Among the Greeks none but the patriarchs had a right to the croſier. The corſiers were at firſt no more than ſimple wooden ſtaves in form of a T, uſed to reſt and lean upon. By degrees they were made longer; and at length arrived to the form we now ſee them of. Regular abbots are allowed to officiate with a mitre and croſier.

Crosier, in aſtronomy, four ſtars in the ſouthern hemiſphere, in the form of a croſs, ſerving thoſe who ſail in ſouth latitudes to find the antarctic pole.

CROSLET, in heraldry, is when a croſs is croſſed again at a ſmall diſtance from each of the ends. Upton ſays it is not ſo often borne by itſelf in arms as other croſſes are, but often in diminutives, that is, in ſmall croſlets ſcattered about the field. See Heraldry.

CROSS, a gibbet made with two pieces of wood placed croſswiſe, whether they croſs with right angles at the top like a T, or in the middle of their length like an X. The croſs to which our Saviour was faſtened, and on which he died, was of the former kind; being thus repreſented by old monuments, coins, and croſſes; and St Jerom compares it to a bird flying, a man ſwimming, or praying with his arms extended. The puniſhment of the croſs was common among the Syrians, Egyptians, Perſians, Africans, Greeks, Romans, and Jews.

The death of the croſs was the moſt dreadful of all others, both for the ſhame and pain of it; and ſo ſcandalous, that it was inflicted as the laſt mark of deteſtation upon the vileſt of people. It was the puniſhment of robbers and murderers, provided that they were ſlaves too; but otherwiſe, if they were free, and had the privileges of the city of Rome, this was then thought a proſtitution of that honour, and too infamous a puniſhment for ſuch a one, let his crimes be what they would.

The Moſaic law ordained, that the perſons executed ſhould not be left upon the tree after ſun-ſet, becauſe he that is hanged in this manner is accurſed of God. Deut. xxi. 22. The Jews believe, that the ſouls of thoſe who remain upon the gibbet, and without burial, enjoy no peace, and receive no benefit from the prayers of other people; but wander up and down till their bodies are buried: which agrees with the notions that the Greeks and Romans had of this matter, as may be ſeen in *Hom. Il.* 4. and *Virg. Æneid.* 6.

The form of a croſs being ſuch as has been already deſcribed, the body of the criminal was faſtened to the upright piece by nailing the feet to it, and on the other tranſverſe piece generally by nailing the hands on each ſide. Now, becauſe theſe parts of the body, being the inſtruments of action and motion, are provided by nature with a much greater quantity of nerves than others have occaſion for; and becauſe all ſenſation is performed by the ſpirit contained in theſe nerves; it will follow, as Stanhope obſerves, that wherever they abound, the ſenſe of pain muſt needs in proportion be more quick and tender.

The Jews confeſs, that indeed they crucified people in their nation, but deny that they inflicted this puniſhment upon any one alive. They firſt put them to death, and then faſtened them to the croſs either by the hands or neck. But there are indiſputable proofs of their crucifying men frequently alive. The worſhippers of Baal-peor and the king of Ai were hung up alive; as were alſo the deſcendants of Saul, who were put into the hands of the Gibeonites, 2 Sam. xxi. 9.

Before crucifixion the criminal was generally ſcourged with cords: ſometimes little bones, or pieces of bones, were tied to theſe ſcourges, ſo that the condemned perſon might ſuffer more ſeverely. It was alſo a cuſtom, that he who was to be crucified ſhould bear his own croſs to the place of execution. After this manner we find Chriſt was compelled to bear his own croſs; and as he ſunk under the burden, Simon the Cyrenian was conſtrained to bear it after him and with him. But whereas it is generally ſuppoſed that our Lord bore the whole croſs, *i. e.* the long and tranſverſe part both, this ſeems to be a thing impoſſible; and therefore Lipſius (in his treatiſe *De Supplicio Crucis*) has ſet the matter in a true light, when he tells us that

Jeſus only carried the tranſverſe beam; becauſe the long beam, or the body of the croſs, was either fixed in the ground before, or made ready to be ſet up as ſoon as the priſoner came: and from hence he obſerves, that painters are very much miſtaken in their deſcription of our Saviour carrying the whole croſs.

There were ſeveral ways of crucifying; ſometimes the criminal was faſtened with cords to a tree, ſometimes he was crucified with his head downwards. This way St Peter choſe out of reſpect to his maſter Jeſus Chriſt, not thinking himſelf worthy to be crucified like him; though the common way of crucifying was by faſtening the criminal with nails, one through each hand, and one through both feet, or one through each of them: for this was not always performed in the ſame manner; the ancients ſometimes repreſenting Jeſus Chriſt crucified with four nails, and ſometimes with three. The criminal was fixed to the croſs quite naked; and in all probability the Saviour of the world was not uſed with any greater tenderneſs than others upon whom this puniſhment was inflicted. The ſoldiers divided his cloths among them, and caſt lots for his tunic, which is an under garment worn over the fleſh like a ſhirt.

The text of the Goſpel ſhows clearly, that Jeſus Chriſt was faſtened to the croſs with nails; and the Pſalmiſt (xxxii. 17.) had foretold long before, that they ſhould pierce his hands and his feet: but there are great diſputes concerning the number of theſe nails. The Greeks repreſent our Saviour as faſtened to the croſs with four nails; in which particular Gregory of Tours agrees with them, one at each hand and foot. But ſeveral are of opinion, that our Saviour's hands and feet were pierced with three nails only, *viz.* one at each hand, and one through both his feet: and the cuſtom of the Latins is rather for this laſt opinion; for the generality of the old crucifixes made in the Latin church have only three nails. Nonnus thinks that our Saviour's arms were beſides bound faſt to the croſs with chains; and St Hilary ſpeaks of the cords wherewith he was tied to it.

Sometimes they who were faſtened upon the croſs lived a good while in that condition. St Andrew is believed to have continued three days alive upon it. Euſebius ſpeaks of certain martyrs in Egypt who were kept upon the croſs till they were ſtarved to death. Pilate was amazed at Jeſus Chriſt's dying ſo ſoon; becauſe naturally he muſt have lived longer, if it had not been in his power to have laid down his life and to take it up again. The thighs of the two thieves who were crucified together with our Saviour were broken in order to haſten their death, that their bodies might not remain upon the croſs on the Sabbath day (John xix. 31, 32, 33.), and to comply with the law of Moſes, which forbids the bodies to be left there after ſun-ſet. But among other nations they were ſuffered to remain upon the croſs a long time. Sometimes they were devoured alive by birds and beaſts of prey. Guards were appointed to obſerve that none of their friends or relations ſhould take them down and bury them. The ſtory of the Epheſian matron and the ſoldier who was ſet to guard the croſs, is very well known. The Roman ſoldiers who had crucified Jeſus Chriſt and the two thieves continued near the croſſes till the bodies were taken down and buried.

Croſſes were uſually, in former times, erected on the tops of houſes, by which tenants pretended to claim the privileges of the Templars Hoſpitallers, to defend themſelves againſt their rightful lords. This was condemned by the ſtatute Wil. II. c. 37. It was uſual alſo, in thoſe days, to ſet up croſſes in places where the corpſe of any of the nobility reſted as it was carried to be buried, that *a tranſeuntibus pro ejus animo deprecetur*. Croſſes, &c. are forbidden, to be brought into England by 13 Eliz. c. 2. on pain of a *præmunire*, &c.

Invention of the Cross, an ancient feaſt, ſolemnized on the 3d of May, in memory of St Helena's (the mother of Conſtantine) finding the true croſs of Chriſt deep in the ground on mount Calvary; where ſhe erected a church for the preſervation of part of it: the reſt being brought to Rome and repoſited in the church of the Holy Croſs of Jeruſalem.

Theodoret mentions the finding of three croſſes; that of Jeſus Chriſt and thoſe of the two thieves; and that they diſtinguiſhed between them by means of a ſick woman, who was immediately healed by touching the true croſs. The place is ſaid to have been pointed out to her by St Quiriacus, then a Jew, afterwards converted and canonized.

Exaltation of the Cross, an ancient feaſt, held on the 14th of September, in memory of this, that Heraclitus reſtored to mount Calvary the true croſs in 642, which had been carried off 14 years before by Coſroes king of Perſia, upon his taking Jeruſalem from the emperor Phocas.

The adoration of the croſs appears to have been practiſed in the ancient church; inaſmuch as the Heathens, particularly Julian, reproach the primitive Chriſtians with it. And we do not find that their apologiſts diſclaimed the charge. Mornay, indeed, aſſerted, that this had been done by St Cyril, but could not ſupport his allegation at the conference of Fontainbleau. St Helena is ſaid to have reduced the adoration of the croſs to its juſt principle, ſince ſhe adored in the wood, not the wood itſelf, which had been direct idolatry and Heatheniſm, but him who had been nailed to this wood. With ſuch modifications ſome Proteſtants have been induced to admit the adoration of the croſs. John Huſs allowed of the phraſe, provided it were expreſsly added, that the adoration was relative to the perſon of Chriſt. But however Roman Catholics may ſeem to triumph by virtue of ſuch diſtinction and mitigations, it is well known they have no great place in their own practice. Imbert, the good prior of Gaſcony, was ſeverely proſecuted in 1683 for telling the people, that in the ceremony of adoring the croſs, practiſed in that church on Good Friday, they were not to adore the wood, but Chriſt, who was crucified on it. The curate of the pariſh told them the contrary; it was the wood! the wood! they were to adore. Imbert replied, it was Chriſt, not the wood: for which he was cited before the archbiſhop of Bourdeaux, ſuſpended from his functions, and even threatened with chains and perpetual impriſonment. It little availed him to cite the biſhop of Meaux's diſtinction; it was anſwered, that the church allowed it not.

Cross-*Bearer (port-croix, cruciger)*, in the Romiſh church, the chaplain of an archbiſhop or a primate, who bears a croſs before him on ſolemn occaſions.

The pope has the croſs borne before him every where; a patriarch any where out of Rome; and primates,

mates, metroplitans, and thoſe who have a right to the pallium, throughout their reſpective juriſdictions.

Gregory XI. forbad all patriarchs and prelates to have it borne in preſence of cardinals. A prelate bears a ſingle croſs, a patriarch a double croſs, and the pope a triple one on their arms.

Cross-Bearers alſo denote certain officers in the inquiſition, who make a vow before the inquiſitors or their vicars to defend the Catholic faith, though with the loſs of fortune and life. Their buſineſs is to provide the inquiſitors with neceſſaries. They were formerly of great uſe: but in proceſs of time ſome of their conſtitutions were changed, and they were called of the penance of St Dominic.

Pectoral Cross, is a croſs of gold or ſilver, or other precious materials, often enriched with diamonds, which the biſhops, archbiſhops, &c. and regular abbeſſes, wear hanging from the neck.

Order of the Cross, or *Croiſade,* an order of ladies inſtituted in 1668 by the empreſs Eleonora de Gonzagua, wife of the emperor Leopold; on occaſion of the miraculous recovery of a little golden croſs, wherein were incloſed two pieces of the true croſs, out of the aſhes of part of the palace. It ſeems the fire had burnt the caſe wherein it was incloſed, and melted the cryſtal, yet the wood remained untouched.

Maids of the Cross, a community of young women inſtituted in 1265 at Roye in Picardy, and ſince diſperſed to Paris and other towns. They inſtruct young perſons of their own ſex. Some take the three vows of poverty, chaſtity, and obedience, others retain their liberty. They are under the direction of a ſuperior.

Cross, in heraldry, is defined by Guillim, an ordinary compoſed of fourfold lines: whereof two are perpendicular, and the other two tranſverſe; for ſo we muſt conceive of them, though they be not drawn throughout, but meet by couples, in four right angles, near the feſſpoint of the eſcutcheon. See Heraldry.

This bearing was firſt beſtowed on ſuch as had performed, or at leaſt undertaken, ſome ſervice for Chriſt, and the Chriſtian profeſſion; and is held by divers the moſt honourable charge in all heraldry. What brought it into ſuch frequent uſe, was the ancient expeditions into the Holy Land; and the holy war pilgrims, after their pilgrimage, taking the croſs for their cognizance; and the enſign of that war being the croſs. In thoſe wars, ſays Mackenzy, the Scots carried St Andrew's croſs; the French a croſs argent; the Engliſh a croſs or; the Germans, ſable; the Italians, azure; the Spaniards, gules.

St George's Cross, or the red croſs, in a field argent, is now the ſtandard of England; that ſaint being the reputed patron of that nation.

Nor is it only in croſſes that the variety is ſo great; the like is found in many other bearings, and particularly in lions, and the parts of them; whereof Colombier gives us no leſs than 96 varieties. Leigh mentions but 46 ſeveral croſſes; Sylvanus Morgan, 26; Upton, 30; Johannes de Bado Aureo, 12; and ſo others, whom it is needleſs to mention. Upton owns he dares not preſume to aſcertain all the various croſſes uſed in arms, for that they are at preſent almoſt innumerable; and therefore he only takes notice of ſuch as he had ſeen uſed in his own time.

Cross, in mining, two nicks cut in the ſuperficies of the earth, thus +, which the miners make when they take the ground to dig for ore. This croſs gives the miners three days liberty to make and to ſet on ſtones. As many of theſe croſſes as the miner makes, ſo many mears of ground he may have in the vein, provided he ſet on ſtones within three days after making his croſs or croſſes. But if he make but one croſs, and a ſtander-by makes the ſecond, and a ſtranger makes the third, every one is ſerved with the next mear, according as they have firſt or laſt, ſooner or later, made their croſs or croſſes upon the ground.

Cross, in coins, a name given to the right ſide or face, the other being called the *pile* or *reverſe.* It has been a common error, that the reverſe was meant by the croſs; becauſe at this time in Britain, it is marked with figures diſpoſed in that form; but the ſtamping the head of the prince in Britain on the right ſide of the coin, was preceded by a general cuſtom of ſtriking on that part the figure of a croſs; while the other, called the *pile,* contained the arms, or ſome other device.

Cross, inſtead of a ſignature to a deed, &c. is derived from the Saxon practice of affixing the ſign of the croſs, whether they could write or not.

Cross-Bar Shot, a bullet with an iron bar paſſing through it, and ſtanding ſix or eight inches out at both ſides. It is uſed at ſea for deſtroying the enemy's rigging.

Cross-Bill, in ornithology. See Loxia.

Cross-Bill, in chancery, is an original bill, by which the defendant prays relief againſt the plaintiff.

Cross-Bows. See Bows and Archery.

Cross-grained Stuff, in joinery. Wood is ſaid to be croſs-grained, when a bough or branch has ſhot out of it; for the grain of the branch ſhooting forward, runs athwart that of the trunk.

In wood well grown this defect is ſcarce perceivable, except in working; but in deal-boards theſe boughs make knots. If the bough grew up with the young trunk, inſtead of a knot is found a curling in the ſtuff, very ſenſible under the plane.

Cross-Jack, pronounced *cro-jeck,* a ſail extended on the lower yard of the mizen-maſt, which is hence called the *croſs-jack yard.* This ſail, however, has generally been found of little ſervice, and is therefore very ſeldom uſed.

Cross-Piece, a rail of timber extended over the windlaſs of a merchant-ſhip from the knight-heads to the belfry. It is ſtuck full of wooden pins, which are uſed to faſten the running rigging as occaſion requires. See Windlass.

Cross-Tining, in huſbandry, a method of harrowing land, conſiſting in drawing the harrow up the interval it went down before, and down that which it was drawn up.

Cross-Trees, certain pieces of timber, ſupported by the cheeks and treſtle-trees, at the upper ends of the lower maſts, athwart which they are laid to ſuſtain the frame of the top.

Cross-Tree Yard, is a yard ſtanding ſquare, juſt under the mizen-top, and to it the mizen-top is faſtened below. See *Cross-Jack.*

Cross-Wort, in botany. See Valentia.

Ordeal of the Cross, a ſpecies of trial frequently practiſed in the days of ſuperſtition. See Ordeal.

CROSS, an Engliſh artiſt, famous only for copying, in the reigns of Charles I. and Charles II. Of this talent there is a ſtory current, more to the credit of his ſkill than of his probity. He is ſaid to have been employed by Charles I. to copy the celebrated Madona of Raphael in St Mark's church at Venice; and that, having obtained leave of the ſtate for that purpoſe, he executed his piece ſo well as to bring away the original and leave his copy in the place of it. The deception was not detected until it was too late to recover the loſs; and this piece was bought in Oliver's time by the Spaniſh ambaſſador for his maſter, who placed it in the Eſcurial.

CROSSEN, a handſome town of Sileſia in Germany, and capital of a principality of the ſame name. It is ſituated at the conſluence of the rivers Bobar and Oder, in a fertile country abounding in wine and fruits. There is a bridge over the Oder which is fortified. E. Long. 15. 20. N. Lat. 52. 5.

CROSSOSTYLUS, in botany: A genus of the polyandria order belonging to the monadelphia claſs of plants. The calyx is a quadrangular, quadrifid, turbinated perianthium: the corolla conſiſts of four elliptical petals; the ſtamina are 20 filiform filaments, almoſt the length of the calyx; the antheræ ſmall and roundiſh; the pericarpium an hemiſpherical, unilocular berry, with many ſtriæ on its upper part; the ſeeds numerous and roundiſh.

CROTALARIA, Rattle-wort: A genus of the decandria order, belonging to the diadelphia claſs of plants; and in the natural method ranking under the 32d order, *Papilionaceæ*. The legumen is turgid, inflated, and pedicellated; the filaments are coalited with a fiſſure on the back. There are 11 ſpecies, all of them natives of warm climates. They riſe from 18 inches to 5 feet in height, and are adorned with flowers of a blue or yellow colour. The moſt remarkable ſpecies is the retuſa, with ſimple oblong wedged leaves. It is a native of the iſland of Ceylon and ſome other parts of the Eaſt Indies. The flowers are yellow, the pods ſmooth, cylindrical, inflated, and placed horizontally: they are filled with ſeeds, which, when dried, and ſhaken by the ſlighteſt wind, emit a rattling noiſe: and this, by the rude inhabitants of the countries where the plant is native, is attributed to the devil, who is thought to deliver his oracles in this whimſical manner.

CROTALO, an inſtrument of military muſic, like that deſcribed in the next article. The Turks are the firſt, among the moderns, who introduced the uſe of it for their troops. It is now common in Flanders and Florence, and other territories on the continent. It has only one tone; but its effect in marking time may be diſtinctly heard through the noiſe of forty drums. This is the ſame inſtrument with the ancient cymbalum.

CROTALUM, an ancient kind of caſtagnetta, or muſical inſtrument, found on medals, in the hands of the prieſts of Cybele. The crotalum differed from the ſiſtrum; though authors frequently confound the two. It conſiſted of two little braſs plates or rods, which were ſhaken in the hand, and in ſtriking againſt each other made a noiſe.

It was ſometimes alſo made of a reed ſplit lengthwiſe; one part whereof they ſtruck againſt the other; and as this made a noiſe ſomewhat like that of a crane's bill, they called that bird *crotaliſtria*, a player on the crotala; and Ariſtophanes calls a great talker a *crotalum*.

Clemens Alexandrinus attributes the invention to the Sicilians; and forbids the uſe thereof to the Chriſtains, becauſe of the indecent motions and geſtures that accompany it.

Plate CXLIX.

CROTALUS, or Rattle-snake, in zoology, a genus belonging to the order of amphibia ſerpentes; the characters of which are theſe: the belly is furniſhed with ſcuta, and the tail has both ſcuta and ſcales; but the principal characteriſtic of this genus is the rattle at the end of the tail. The rattles conſiſt of ſeveral articulated cruſtaceous, or rather horny, bags, which make a conſiderable rattling noiſe when the creature moves, and ſerves to warn people of their approach. There are five ſpecies; and the bite of every one of them is ſo highly poiſonous, that it generally kills in a ſhort time. Of theſe we have no account that can be depended upon, except that given by Mr Cateſby of the horridus, or American rattle-ſnake. This grows ſometimes to the length of 8 feet, and weighs between 8 and 9 pounds. The colour of the head is brown; the eye red; the upper part of the body of a yellowiſh-brown colour, tranſverſely marked with irregular broad black liſts. The rattle is of a brown colour, compoſed of ſeveral horny, membranous, cells, of an undulated pyramidal figure. Theſe are articulated within one another in ſuch a manner that the point of the firſt cell reaches as far as the baſis of the protuberant ring of the third, and ſo on; which articulation, being very looſe, gives liberty to the parts of the cells that are incloſed within the outward rings to ſtrike againſt the ſides of them, and ſo to cauſe the rattling noiſe which is heard when the ſnake ſhakes its tail. This is the moſt inactive and ſlow moving of all the ſnakes, and is never the aggreſſor except in what it preys upon. The above gentleman is of opinion that no remedy is yet diſcovered for the bite of this animal. He had frequently acceſs to ſee Indians bit by it; and always thought that thoſe who recovered were cured more through the force of nature, or by reaſon of the ſlightneſs of the bite, than by the remedies uſed. He tells us that the Indians know their deſtiny the moment they are bit; and if the bite happens to be on any of the large veins, they apply no remedies, as knowing them to be entirely uſeleſs. He believes the reports of the faſcinating power of this ſerpent, though he never had an opportunity of ſeeing it. See the article Poison and Serpent.

CROTALYSTRIÆ, in antiquity, a kind of morice dancers, admitted to entertainments, in order to divert the company with their dancing and playing on an inſtrument called *crotalum*, whence they had their name.

CROTCHET, in muſic, one of the notes or characters of time, equal to half a minim, and double of a quaver.

Crotchets are alſo marks or characters, ſerving to incloſe a word or ſentence which is diſtinguiſhed from the reſt, being generally in this form [ ].

CROTO, or Croton, (anc. geog.), a noble city of the Brutii, built by the Acheans; an hundred and fifty ſtadia to the north of Lacinium, and in the neighbourhood of Metapontum. It was twelve miles in compaſs before the arrival of Pyrrhus into Italy; but after the deſolation produced by that war, ſcarce half of it was inhabited. The citadel on one ſide hung over the ſea, on the other towards the land. It was naturally ſtrong from its ſituation, but afterwards walled round; on which ſide it was taken by Dionyſius by ſtratagem, by means of the rocks behind it.

Pythagoras, after his long peregrinations in ſearch of knowledge, fixed his reſidence in this place, which ſome authors think his native one, at leaſt that of his parents, ſuppoſing him to have been born in the iſle of Samos, and not at ſome town of that name in Italy. This incomparable ſage ſpent the latter part of his life in training up diſciples to the rigid exerciſe of ſublime and moral virtue, and inſtructing the Crotonites in the true arts of government, ſuch as alone can inſure happineſs, glory, and independence.

Under the influence of this philoſophy, the Crotonites inured their bodies to frugality and hardſhips, and their minds to ſelf-denial and patriotic diſintereſtedneſs. Their virtues were the admiration of Greece, where it was a current proverb, that the laſt of the Crotonites was the firſt of the Greeks. In one Olympiad, ſeven of the victors in the games were citizens of Croton; and the name of Milo is almoſt as famous as that of Hercules. The vigour of the men and beauty of the women were aſcribed to the climate, which was believed to be endowed with qualities peculiarly favourable to the human ſyſtem. Their phyſicians were in high repute; and among theſe, Alcmeon and Democides rendered themſelves moſt conſpicuous. Alcmeon was the firſt who dared to amputate a limb, in order to ſave the life of a patient; and alſo the firſt writer who thought of inculcating moral precepts under the amuſing cloak of apologues. This invention is more commonly attributed to Æſop, as he was remarkably ingenious in this ſpecies of compoſition. Democides was famous for his attachment to his native ſoil. Though careſſed and inriched by the king of Perſia, whoſe queen he had ſnatched from the jaws of death, he abandoned wealth and honours, and by a ſtratagem eſcaped to the humble comforts of a private life at Croton.—The Pythagoreans are ſaid to have diſcovered that diſpoſition of the ſolar ſyſtem, which, with ſome modifications, has been revived by Copernicus, and is now univerſally received, as being moſt agreeable to nature and experiment. Theano, the wife of Pythagoras, and many other women, emulated the virtues of their huſbands.

In thoſe fortunate days the ſtate of Croton was moſt flouriſhing. Its walls incloſed a circumference of 12 miles. Of all the colonies ſent out from Greece, this alone furniſhed ſuccour to the mother-country when invaded by the Perſians. By its avenging arms the Sybarites were puniſhed for their ſhameful degeneracy; but victory proved fatal to the conquerors, for riches, and all their pernicious attendants, inſinuated themſelves into Croton, and ſoon contaminated the purity of its principles. Indeed, the very conſtitution of human nature militates againſt any long continuance in ſuch rigid practices of virtue; and therefore it is no wonder if the Crotonites fell by degrees into the irregularities they once abhorred. Not long after, the Locrians, who were leſs corrupted, defeated them on the banks of the Sagra, and reduced the republic to diſtreſs and penury. This reſtored the remaining Crotonites to their priſtine vigour of mind, and enabled them to make a brave, though unſucceſsful, reſiſtance, when attacked by Dionyſius of Syracuſe. They ſuffered much in the war with Pyrrhus, and, by repeated misfortunes, decreaſed in ſtrength and numbers, from age to age, down to that of Hannibal, when they could not muſter 20,000 inhabitants. This ſmall population being incapable of manning the extenſive works erected in the days of proſperity, Croton was taken by the Carthaginians, and its citizens tranſported to Locri. The Romans ſent a colony hither 200 years before Chriſt. In the Gothic war, this city rendered itſelf conſpicuous by its fidelity to Juſtinian, and Totila beſieged it long in vain.

CROTON, WILD RICINUS: A genus of the adelphia order, belonging to the monœcia claſs of plants; and in the natural method ranking under the 38th order, *Tricoccæ*. The male calyx is cylindrical and quinquedentated, the corolla is pentapetalous; the ſtamina from 10 to 15. The female calyx is polyphyllous; no corolla; three bifid ſtyles; the capſule trilocular; one ſeed. There are 21 ſpecies; of which the moſt remarkable are, 1. The tinctorium, or plant from which the French turnſole is made. This grows naturally in the ſouth of France: it is an annual plant, riſing about 9 inches high, with an herbaceous branching ſtalk, garniſhed with irregular or rhomboidal figured leaves, which are near two inches long and an inch and a quarter wide in their wideſt part. Theſe ſtand upon ſlender footſtalks near four inches long. The flowers are produced in ſhort ſpikes from the ſides of the ſtalks, at the end of the branches; the upper part of the ſpike is compoſed of male flowers, having many ſtamina which coaleſce at the bottom; the lower part hath female flowers, which have each a roundiſh, three-cornered, germen; theſe afterwards become a roundiſh capſule with three lobes, having three cells, each including one roundiſh ſeed. This flowers in July; but unleſs the plants are brought forward on a hot-bed, they do not ripen ſeeds in Britain. From this plant is made the turnſole uſed for colouring wines and jellies. It is made of the juice which is lodged between the empalement and the ſeeds; which, if rubbed on cloths, at firſt appears of a lively green, but afterwards changes to a bluiſh purple colour. If theſe cloths are put into water, and afterwards wrung, they will dye the water to a claret colour. The rags thus dyed are exported to Britain, and ſold in the druggiſts ſhops under the name of *turnſole*. 2. The ſebifera, or tallow-tree, with rhomboidal egg-ſhaped leaves, pointed, ſmooth and very entire. It is about the height of a cherry-tree; its leaves in form of a heart, of a deep, ſhining, red colour, and its bark very ſmooth. Its fruit is encloſed in a kind of pod, or cover, like a cheſnut, and conſiſts of three round white grains, of the ſize and form of a ſmall nut, each having its peculiar capſula, and within that a little ſtone. This ſtone is encompaſſed with a white pulp, which has all the properties of true tallow, as to conſiſtence, colour, and even ſmell: and accordingly the

Chineſe make their candles of it; which would doubtleſs be as good as thoſe in Europe, if they knew how to purify their vegetable tallow as well as we do our animal kind, and to make their wicks as well. 4. The aromaticum, with heart-ſhaped ſerrated leaves, and an arboreſcent ſtem. The bark of this tree is the ſame as the caſcarilla and eleutheria; though theſe have been conſidered by ſome as diſtinct barks, and ſold in the ſhops as different productions. It is a hot, acrid, aromatic bitter, reſembling in appearance the Peruvian bark, but it is more bitter and pungent, though not ſo rough and aſtringent. It was firſt introduced into Europe about the end of the laſt century, and ſeems firſt to have been uſed in Germany, where it is ſtill in very high eſteem. There it is frequently employed againſt common intermittent fevers, in preference to the Peruvian bark, as being leſs ſubject to ſome inconveniences, which the latter on account of its great aſtringency is apt to occaſion. It is alſo ſaid to have been employed with great ſucceſs in ſome very dangerous epidemic fevers attended with petechiæ, and it is frequently employed with advantage in flatulent colics, internal hemorrhagies, dyſenteries, diarrhœas, and ſimilar diſorders. In Britain it has been uſed by ſome practitioners, particularly by the late Dr Keir of London, who was of opinion that it was by no means employed ſo generally as it deſerved to be. Its virtues are partially extracted by water, and totally by rectified ſpirit, but it is moſt effectual when given in ſubſtance. 4. The caſcarilla, deſcribed by Linnæus as producing the officinal bark of that name, is, according to Dr Wright †, the wild roſemary ſhrub of Jamaica, the bark of which has none of the ſenſible qualities of the true caſcarilla or eleutheria above deſcribed.

CROTONA, a town of Italy, in the kingdom of Naples, ſeated on the gulph of Taranto, with a biſhop's ſee and a citadel. E. Long. 17. 27. N. Lat. 39. 10.

CROTOPHAGA, in ornithology, a genus of birds belonging to the order of picæ; the characters of which are: The bill is thin, compreſſed, greatly arched, half oval, and cultrated at top; the noſtrils are round; the tongue flat, and pointed at the end; the tail conſiſts of ten feathers; and the toes are placed two and two. The moſt remarkable ſpecies is the ani, which is about the ſize of a blackbird: the colour of the whole bird is black, in ſome parts gloſſed with purple, and about the neck faintly tinged with green on the margins: the baſe of the bill is furniſhed with black briſtles, which turn forwards: the eye-lids have long hairs like eye-laſhes: the tail is ſix inches long, and much cuneated; and the legs are black. This ſpecies is found in Jamaica, St Domingo, and other iſlands in the Weſt Indies; alſo at Cayenne and other parts of South America. Contrary to all other birds, they have the ſingularity of many laying in the ſame neſt; to make which, they all unite in concert, and after laying their eggs, ſit on them cloſe to each other in order to hatch them, each unanimouſly ſtriving to do the beſt for the general good; and when the young are hatched, the parents, without reſerve, do the beſt to feed the whole flock. Still a greater ſingularity occurs, which is, that as ſoon as each female lays her eggs ſhe covers them with leaves, doing the ſame thing whenever ſhe is obliged to leave the neſt for food: this might be neceſſary in a cold climate; but why it ſhould be wanted in a hot one ſeems not clear, eſpecially as it has not been obſerved in other birds. It generally has two broods in a year, except accidents happen; in which caſe it has been known to make three neſts. The eggs are about the ſize of thoſe of a pigeon, of a ſea-green colour, ſpotted at the ends. Their food is various; worms, inſects, fruits, and grain, according to the ſeaſon. There is a variety called the greater ani, which is about the ſize of a jay, differing no otherwiſe from the former but in ſize. They ought, however, to be conſidered as two diſtinct ſpecies: for they never mix together; though each have the ſame manners, with this difference only, that the ſmaller frequent the open ſavannas, the larger only the ſalt-marſhes near the ſea-coaſts. It is ſaid that they are eaſily made tame, and will learn to talk like parrots. The male and female are both alike. Both ſpecies are eaſy to be ſhot, not being ſo wild as many other birds; but are known to chatter much on the ſight of a man, though they do not fly to a great diſtance; hence are not well reliſhed by ſportſmen, as, like the jays in England, they are the occaſion of hindering his ſport in reſpect to other game, without making him amends in their own fleſh, which is never ſought after for food, being rank and unſavoury.

Plate CLI.

CROTOY, a town of France, in Picardy, and in Ponthieu. The fortifications are demoliſhed. It is ſeated at the mouth of the river Somme. E. Long. 1. 45. N. Lat. 50. 15.

CROUCHED FRIARS. See CROISIERS.

CROUP, in medicine. See MEDICINE-*Index*.

CROUP of a Horſe, in the manege, the extremity of the reins above the hips.

CROUPADE, in the manege, a leap, in which the horſe pulls up his hind legs, as if he drew them up to his belly.

CROUTE, SOUR CROUTE, or KROUTE. As this preparation of cabbage has been found of ſovereign efficacy as a preſervative in long voyages from the ſea-ſcurvy, it may not be unacceptable to give a conciſe account of the proceſs for making it, according to the information communicated by an ingenious German gentleman.

The ſoundeſt and moſt ſolid cabbages are ſelected for this uſe, and cut very ſmall, commonly with an inſtrument made for this purpoſe, not unlike the plain which is uſed in this country for ſlicing cucumbers. A knife is uſed when the preparation is made with greater nicety. The cabbage thus minced is put into a barrel in layers, hand high, and over each is ſtrewed a handful of ſalt and carraway ſeeds; in this manner it is rammed down with a rammer *ſtratum ſuper ſtratum*, till the barrel be full; when a cover is put over it and preſſed down with a heavy weight. After ſtanding ſome time in this ſtate it begins to ferment; and it is not till the fermentation has entirely ſubſided that the head is fitted to it, and the barrel is finally ſhut up and preſerved for uſe. There is not a drop of vinegar employed in this preparation. The Germans write this preparation in the following manner; *Sauer kraut*, or *ſauer kohl*; that is, in their language, "ſour herb, or ſour cabbage."

CROUSAZ (John Peter de), a learned philoſopher and

† *Medical Journal*, vol. viii.

and mathematician, was born in 1663; having made great progreſs in the mathematics and the philoſophy of Des Cartes, he travelled to Geneva, Holland, and France; was ſucceſſively profeſſor in ſeveral univerſities; and at length was choſen governor to Prince Frederic of Heſſe-Caſſel, nephew to the king of Sweden. He wrote many works; the moſt eſteemed of which are, 1. His Logic, the beſt edition of which is that of 1741, in 6 vols 8vo. 2. A Treatiſe on Beauty. 3. A Treatiſe on the Education of Children, 2 vols 12mo. 4. Several Treatiſes on Philoſophical and Mathematical Subjects, &c. He died at Lauſanne in 1748.

CROW, in ornithology. See Corvus.

Crow, in mechanics, a kind of iron lever, with a claw at one end and a ſharp point at the other; uſed for heaving or purchaſing great weights.

Crow's Bill, among ſurgeons, a kind of forceps for drawing bullets and other foreign bodies out of wounds.

Crow's Feet, in the military art, machines of iron, having four points, each about three or four inches long, ſo made, that whatever way they fall there is ſtill a point up: they are thrown upon breaches, or in paſſes where the enemy's cavalry are to march, proving very troubleſome, by running into the horſe's feet and laming them.

Crow-Foot, on ſhip-board, a complication of ſmall cords ſpreading out from a long block, like the ſmaller parts which extend from the back bone of a herring (Plate CL.). It is uſed to ſuſpend the *awnings*; or to keep the top-ſails from ſtriking violently, and fretting againſt the tops.

Crow-Net, is an invention for catching wild-fowl in the winter ſeaſon, and may be uſed in the day-time. This net is made of double thread, or fine pack thread; the meſhes ſhould be two inches wide, the length about ten yards, and the depth three; it muſt be verged on the ſide with good ſtrong cord, and ſtretched out very ſtiff on long poles prepared for that purpoſe. When you are come to the place where you would ſpread your net, open it, and lay it out at its full length and breadth; then faſten the lower end of the net all along the ground, ſo as only to move it up and down; the upper end of the net muſt ſtand extended on the long cord; the further end thereof being ſtaked firſt to the earth by a ſtrong cord about five yards diſtant from the net. Place this cord in an even line with the lower edge of the net. The other end muſt be at leaſt 25 yards diſtant to reach into ſome natural or artificial ſhelter, by the means of which you may lie concealed from the fowl, otherwiſe no good ſucceſs can be expected. The net muſt be placed in ſuch exact order that it may give way to play on the fowl on the leaſt pull of the cord, which muſt be done ſmartly, leſt the fowl ſhould prove too quick for you. This net may be uſed for pigeons, crows, or other birds, on corn-fields newly ſown; as alſo in ſtubble-fields, provided the ſtubble conceals the net from the birds.

CROWD, in a general ſenſe, ſignifies a number of people aſſembled in a place ſcarce big enough to hold them all.

To Crowd, in the ſea-language, is to carry an extraordinary force of ſail upon a ſhip, in order to accelerate her courſe on ſome important occaſion; as in purſuit of, or flight from, an enemy; to eſcape any immediate danger, &c.

CROWLAND, a town in Lincolnſhire, ſeated in the fens, in a dirty ſoil, and had formerly an abbey of very great note. There is no coming at it but by narrow cauſeways, which will not admit a cart. It has three ſtreets. ſeparated from each other by water courſes, whoſe banks are ſupported by piles, and ſet with willow trees. Their chief trade is in fiſh and fowl, which are in great plenty in the adjacent pools and marſhes. W. Long. 0. 10. N. Lat. 52. 40.

CROWN, an ornament worn on the head by kings, ſovereign princes, and noblemen, as a mark of their dignity.

In ſcripture there is frequent mention of crowns, and the uſe of them ſeems to have been very common among the Hebrews. The high prieſt, wore a crown, which was a fillet of gold placed upon the forehead, and tied with a ribbon of hyacinth colour, or azure blue. It ſeems alſo as if private prieſts, and even common Iſraelites, wore alſo a ſort of crown, ſince God commands Ezekiel not to take off his crown, nor aſſume the marks of one in mourning. This crown was no more than a ribbon or fillet, with which the Jews and ſeveral people in the eaſt girt their heads. And indeed the firſt crowns were no more than a bandelet drawn round the head, and tied behind, as we ſtill ſee it repreſented on medals round the heads of Jupiter, the Ptolemies, and kings of Syria. Afterwards they conſiſted of two bandelets; by degrees they took branches of trees of divers kinds; at length they added flowers, inſomuch that Claudius Saturninus ſays, there was not any plant whereof crowns had not been made. The woods and groves were ſearched to find different crowns for the ſeveral deities; and they were uſed not only on the ſtatues and images of the gods, by the prieſts in ſacrificing, and by kings and emperors, but alſo on altars, temples, doors of houſes, ſacred veſſels, victims, ſhips, &c.

The Roman emperors had four kinds of crowns, ſtill ſeen on medals, viz. a crown of laurel, a radial or radiating crown, a crown adorned with pearls and precious ſtones, and the fourth a kind of bonnet or cap, ſomething like the mortier.

The Romans had alſo various kinds of crowns, which they diſtributed as rewards of military atchievements; as, 1. The oval crown, made of myrtle, and beſtowed upon generals, who were intitled to the honours of the leſſer triumph, called *ovation*. 2. The naval or roſtral crown, compoſed of a circle of gold, with ornaments repreſenting beaks of ſhips, and given to the captain who firſt grappled, or the ſoldier who firſt boarded, an enemy's ſhip. 3. The crown called in Latin *vallaris*, or *caſtrenſis*, a circle of gold raiſed with jewels or paliſades: the reward of him who firſt forced the enemy's entrenchments. 4. The mural crown, a circle of gold indented and embattled: given to him who firſt mounted the wall of a beſieged place, and there lodged a ſtandard. 5. The civic crown, made of the branch of a green oak, and given him who had ſaved the life of a citizen. 6. The triumphal crown, conſiſting at firſt of wreaths of laurel, but afterwards made of gold; proper to ſuch generals as

Crown.

as had the honour of a triumph. 7. The crown called *obſidionalis*, or *graminea*, made of graſs growing on the place; the reward of a general who had delivered a Roman army from a ſiege. 8. The radial crown, given to princes at their tranſlation among the gods. We meet alſo with the corona aurea, often beſtowed on ſoldiers, without any other additional term; athletic crowns, and crowns of laurel, deſtined to crown victims at the public games, poets, orators, &c. All theſe crowns were marks of nobility to the wearers; and upon competitions with rivals for rank and dignities, often determined the preference in their favour. See Plate CL. For an account of modern crowns, ſee Heraldry.

Crown is alſo uſed to ſignify the poſſeſſions and dignity of a king. The crown of England, according to Sir William Blackſtone, is, by common law and conſtitutional cuſtom, hereditary; and this in a manner peculiar to itſelf: but the right of inheritance may from time to time be changed or limited by act of parliament, under which limitations the crown ſtill continues hereditary. See Succession.

Pleas of the Crown. See Pleas.

Crown, in commerce, is a general name for coins, both foreign and domeſtic, of or near the value of five ſhillings Sterling. In its limited ſenſe, crown is only applicable to that popular Engliſh coin which bears the name, and which is equivalent to ſixty Engliſh pence or five ſhillings, or to ſix livres French money. But, in its extenſive ſenſe, it takes in ſeveral others, as the French ecu, which we call the French crown, ſtruck in 1641 for ſixty ſols, or three livres; alſo the patagon, dollar, ducatoon, rixdollar, and piaſtre or piece of eight.

Crown, in an eccleſiaſtical ſenſe, is uſed for the clerical tonſure; which is the mark or character of the Romiſh eccleſiaſtics. This is a little circle of hair ſhaved off from the crown of the head; more or leſs broad, according to the quality of the orders received: That of a mere clerk is the ſmalleſt; that of prieſts and monks the largeſt. The clerical crown was anciently a round liſt of hair, ſhaved off around the head, repreſenting a real crown: this is eaſily obſervable in ſeveral ancient ſtatues, &c. The religious of St Dominic and St Francis ſtill retain it.

Crown, among jewellers, the upper work of the roſe diamond, which all centres in the point at the top, and is bounded by the horizontal ribs.

Crown-Office, in England, an office belonging to the king's bench court, of which the king's coroner or attorney is commonly maſter. In this office, the attorney-general and clerk of the crown ſeverally exhibit informations for crimes and miſdemeanours at common law, as in the caſe of batteries, conſpiracies, libelling, &c. on which the offender is liable to pay a fine to the king.

Crown-Glaſs, denotes the fineſt ſort of window-glaſs. See Glass.

Crown-Scabs, in farriery. See there, § xxxvi. 2.

Crown-Wheel of a Watch, the upper wheel next the balance, which by its motion drives the balance, and in royal pendulums is called the *ſwing-wheel*.

Crown Imperial, in botany. See Fritillaria.

Crown-Work, in fortification, is an out-work running into the field; deſigned to keep off the enemy, gain ſome hill or advantageous poſt, and cover the other works of the place. The crown-work conſiſts of two demi-baſtions at the extremes, and an entire baſtion in the middle, with curtains.

Crowne
||
Croydon.

CROWNE (John), a celebrated dramatic writer, born in Nova Scotia, where his father was a miniſter. Being impatient of the gloomy reſtraint of that country, he went to England, where he was reduced to enter into the ſervice of an old lady; of which he was ſoon as weary as he had been of America. He then had recourſe to his pen, which quickly procured him favour at court; but this kind of ſubſiſtence proving precarious, he ventured to ſolicit Charles II. for ſome eſtabliſhment. Charles promiſed to provide for him, but inſiſted firſt on having another comedy; and ſuggeſted to him the plan of a Spaniſh play, from which Crowne produced the comedy of *Sir Courtly Nice*: but the ſudden death of the king on the laſt day of the rehearſal, plunged him at once from his pleaſing expectations into diſappointment and diſtreſs, and left him no reſource but his wits. He died ſome time about the year 1703; and left behind him 17 tragedies and comedies, ſome of which are acted with great ſucceſs. His chief excellency lay in comedy; yet his tragedies are far from being contemptible. His plots are for the moſt part his own invention; his characters are in general ſtrongly coloured and highly finiſhed; and his dialogue lively and ſpirited, attentively diverſified, and well adapted to the ſeveral ſpeakers. So that on the whole he may aſſuredly be allowed to ſtand at leaſt in the third rank of our dramatic writers.

CROWNING, in architecture, is underſtood, in the general, of any thing that terminates or finiſhes a member or decoration. Thus, a corniche, a pediment, &c. are called *crownings*. Thus alſo the abacus is ſaid to crown the capital; and thus any member or moulding is ſaid to be crowned when it has a fillet over it; and a niche is crowned when it is covered with a capital.

Crowning, in ſea language, denotes the finiſhing part of a knot made at the end of a rope. It is performed by interweaving the ends of the different ſtrands artfully amongſt each other, ſo as that they may not become looſened or untwiſted. They are uſeful in all kinds of ſtoppers.

CROWTH, or Cruth. See Cruth.

CROXAL (Samuel), an ingenious Engliſh divine, who in his youth wrote the celebrated poem intitled *The Fair Circaſſian*. He had the livings of Hampton in Middleſex; and the united pariſhes of St Mary Somerſet, and St Mary Mounthaw, in London; both which he held till his death in 1751. He publiſhed many other poems and tranſlations, with an entire Engliſh edition of Eſop's Fables. In conſequence of his attachment to Whig principles, he enjoyed ſome other preferments, and was chaplain in ordinary to George II.

CROYDON, a town in Surry in England. Its ſituation is low, near the ſpring-head of the river Wandel, and it is in a manner ſurrounded with hills. It is pretty large, and is chiefly noted for being the ſeat of the archbiſhop of Canterbury. It has a large handſome church, an hoſpital, and a free ſchool. W. Long. 0. 5. N. Lat. 51. 22.

CRUCIAL incision, in ſurgery, an inciſion made in the form of a croſs.

CRUCIANELLA, petty madder: A genus of the monogynia order, belonging to the tetrandria claſs of plants; and in the natural method ranking under the 47th order, *Stellatæ*. The corolla is monopetalous and funnel-ſhaped, with the tube filiform and the limb unguiculated, or having an inflexed ſegment on the top of each ſegment; the calyx is diphyllous, and there are two linear ſeeds. There are five ſpecies, natives of the ſouthern parts of Europe; but none of them poſſeſſed of any remarkable quality.

CRUCIBLE, a chemical veſſel made of earth, and ſo tempered and backed as to endure the greateſt fire. They are uſed to melt metals, and to flux minerals, ores, &c. See Chemistry-*Index*.

CRUCIFIX, a croſs upon which the body of Chriſt is faſtened in effigy, uſed by the Roman Catholics to excite in their minds a ſtrong idea of our Saviour's paſſion.

They eſteem it an eſſential circumſtance of the religious worſhip performed at the altar; and on Good Friday they perform the ceremony of adoring it, which is done in theſe words, *O crux ave, ſpes unica;* "Hail, thou croſs, our only hope." The officiating prieſt uncovers the crucifix, elevates it with both his hands, and ſays, *Ecce lignum crucis*; "Behold the wood of the croſs." The people anſwer, *in quo ſalus mundi pependit*; "on which the Saviour of the world ſuffered death." Then the whole congregation bow with great reverence, and devoutly kiſs the holy wood.

CRUCIFIXION, a capital puniſhment by nailing the criminal to a croſs. See Cross.

CRUCIFORM, in general, ſomething diſpoſed croſs-ways; but more eſpecially uſed by botaniſts, for flowers conſiſting of four petals diſpoſed in the form of a croſs.

CRUCITA, in botany, a genus of the digynia order, belonging to the tetrandria claſs of plants, and in the natural method ranking with thoſe the order of which is doubtful. The interior calyx is tetraphyllous, the exterior calyx triphyllous; there is no corolla, and only one ſeed.

CRUDE, an epithet given to ſomething that has not paſſed the fire or had a proper degree of coction.

CRUDITY, among phyſicians, is applied to undigeſted ſubſtances in the ſtomach; to humours in the body which are unconcocted, and not prepared for expulſion; and to the excrements.

CRUISE, from the Germen *kruiſs*, "acroſs," ſignifies to croſs to and fro, to ſail up and down within a certain ſpace of the ſea, called the *cruiſing* latitude, in queſt of veſſels, or fleets of an enemy, &c.

CRUISERS, in the Britiſh navy, are ſmall men of war made uſe of to and fro in the channel, and elſewhere, to ſecure the merchant ſhips and veſſels from the enemy's ſmall frigates and privateers. They are generally ſuch as ſail well, and are commonly well manned: and indeed the ſafety of the trade in the channel, and up and down the ſoundings, and other places, abſolutely requires the conſtant keeping out ſuch ſhips at ſea.

CRUMENTATA, among zoologiſts, animals furniſhed with a pouch or bag, wherein to receive their young in time of danger; as the opoſſum. See Didelphis.

CRUOR, ſometimes ſignifies the blood in general; ſometimes only the venous blood; and ſometimes extravaſated or coagulated blood; but is moſt frequently uſed for the red globules of the blood, in contradiſtinction to the limpid or ſerous part.

CRUPPER, in the manege, the buttocks of a horſe, the rump; alſo a thong of leather put under a horſe's tail, and drawn up by thongs to the buckle behind the ſaddle, ſo as to keep him from caſting the ſaddle forwards on his neck.

CRURÆUS, or Crureus, *Muſculus*, in anatomy, a fleſhy maſs, covering almoſt all the foreſide of the os femoris, between the two vaſti, which likewiſe cover the edges of this muſcle on each ſide. See Anatomy, *Table of the Muſcles*.

CRURAL, in anatomy, an epithet given to the artery which conveys the blood to the crura or legs, and to the vein by which this blood returns towards the heart. See Anatomy, p. 751.

CRUS, in anatomy, all that part of the body contained between the buttocks and the toes.

CRUSADO, in commerce, a Portugueſe coin, ſtruck under Alphonſus V. about the year 1457, at the time when pope Calixtus ſent thither the bull for a croiſade againſt the infidels. This coin has a croſs on one ſide, and the arms of Portugal on the other.

CRUSCA, an Italian term ſignifying *bran*, is in uſe amongſt us to denote that celebrated academy called *della Cruſca*, eſtabliſhed at Florence for purifying and perfecting the Tuſcan language. See Academy, nº 11. The academy took its name from its office, and the end propoſed by it; which is, to refine the language, and as it were to ſeparate the bran from it. Accordingly, its device is a ſieve; and its motto, *Il piu bel fior ne coglie;* that is, "It gathers the fineſt flour thereof." In the hall or apartment where the academy meets, M. Moneonis informs us, that every thing bears an alluſion to the name and device: the ſeats are in form of a baker's baſket; their backs like a ſhovel for moving of corn; the cuſhions of grey ſattin, in form of ſacks or wallets; and the branches where the lights are placed reſembling ſacks. The vocabulary *Della Cruſca* is an excellent Italian dictionary, compoſed by this academy.

CRUSTA lactea, in medicine, the ſame with Achor.

CRUSTACEOUS fish, in natural hiſtory, are thoſe covered with ſhells, conſiſting of ſeveral pieces or ſcales; as thoſe of crabs, lobſters, &c.

Theſe are uſually ſofter than the ſhells of the teſtaceous kind, which conſiſt of a ſingle piece, and generally much thicker and ſtronger than the former; ſuch as thoſe of the oyſter, ſcallop, cockle, &c.

Dr Woodward obſerves, in his Natural Hiſtory, that of all the ſhells found in beds of all the different matters dug out of the earth, there are ſcarce any of the cruſtaceous kind: the reaſon he gives for it is, that theſe being much lighter than the reſt, muſt have floated on the ſurface at the time of the deluge, when all the ſtrata were formed; and there have corrupted and periſhed.

CRUTH, or Crowth, a kind of muſical inſtrument formerly in uſe among the common people in Wales. It is of the fidicinal kind, ſomewhat reſembling a violin, 22 inches in length, and an inch and an half in thickneſs. It has ſix ſtrings ſupported by a bridge, and is played on with a bow: the bridge differs from that of a violin, in that it is flat and not convex on the top; a circumſtance from which it is to be inferred, that the ſtrings are to be ſtruck at the ſame time, ſo as to afford a ſucceſſion of concords. The bridge is not placed at right angles with the ſides of the inſtrument, but in an oblique direction; and, which is further to be remarked, one of the feet of the bridge goes through one of the ſound-holes, which are circular, and reſts on the inſide of the back; the other foot, which is proportionably ſhorter, reſting on the belly before the other ſound-hole. Of the ſtrings, the four firſt are conducted from the bridge down the finger-board, as in a common violin; but the fifth and ſixth, which are about an inch longer than the others, leave the ſmall end of the neck about an inch to the right. The whole ſix are wound up either by wooden pegs in the form of the letter T, or by iron pins, which are turned with a wreſt like thoſe of a harp or ſpinnet. Of the tuning, it is to be remarked, that the fifth and ſixth ſtrings are the uniſon and octave of G; the fourth and fifth, the ſame of C; and the ſecond and firſt, the ſame of D; ſo that the ſecond pair of ſtrings are a fourth, and the third a fifth, to the firſt. See Plate CL.

Concerning the antiquity of this inſtrument, there is but little written evidence to carry it further back than the time of Leland; neverthelеſs the opinion of its high antiquity is ſo ſtrong among the inhabitants of the country where it was uſed, as to afford a probable ground of conjecture, that the cruth might be the prototype of the whole fidicinal ſpecies of muſical inſtruments. Another evidence of its antiquity, but which tends alſo to prove that it was not peculiar to Wales, ariſes from a diſcovery lately made and communicated to the ſociety of antiquarians, reſpecting the abbey-church of Melroſe in Scotland, ſuppoſed to have been built about the time of Edward II. It ſeems that among the outſide ornaments of that church there is the repreſentation of a cruth, very little different from the deſcription above given. The inſtrument is now diſuſed, inſomuch that Sir John Hawkins, from whom we extract, tells us, that there is but one perſon in the whole principality of North Wales that can play upon it; and as he was at that time near 60 years of age, the ſucceſſion of performers is probably near an end.

CRUX, or St Croix, one of the Caribbee iſlands, ſituated about 60 miles ſouth-eaſt of Porto-Rico, and ſubject to Denmark. From being a perfect deſart, it has begun to flouriſh exceedingly, being made a free port, and receiving great encouragement from government. W. Long. 64. 0. N. Lat. 17. 30.

CRYMODES, among phyſicians, a kind of fever attended with a ſhivering cold, and inflammation of the internal parts of the body.

CRYPTA, a ſubterraneous cell or vault, eſpecially under a church, for the interment of particular families or perſons. S. Ciampini, deſcribing the outſide of the Vatican, ſpeaks of the *cryptæ* of St Andrew, St Paul, &c. The word is formed of κρυπτω, *abſcondo*, "I hide;" whence κρυπτη, *crypta*.

Vitruvius uſes the word *crypta* for a part of a building, anſwering nearly to our cellar; Juvenal for a *cloaca*. Hence *crypto-porticus*, a ſubterraneous place arched or vaulted; uſed as an under-work or paſſage in old walls. The ſame is alſo uſed for the decoration at the entry of a grotto.

Crypta is alſo uſed by ſome of our ancient writers for a chapel or oratory under-ground.

Cryptæ, in anatomy, a name given by Ruyſch to glands ſituated on the back of the tongue, and to glands of the inteſtines.

CRYPTOGAMIA, (from κρυπτος, *occultus*, "concealed," and γαμος, *nuptia*, "nuptials"), the 24th claſs in the Linnæan ſyſtem, comprehending thoſe plants whoſe fructification is concealed, either through minuteneſs, or within the fruit. See Botany, the *Scheme* and Explanation, Vol. III. p. 430.

CRYPTOGRAPHY, the art of writing in cipher, or with ſympathetic ink. See Cipher and Ink.

CRYSTAL, a ſpecies of ſtones of the quartz kind, belonging to the ſiliceous claſs. It always appears, when there has been no interruption to its cryſtallization, in hexagonal priſms pointed at both ends. It is found of different kinds and colours. 1. Opaque or ſemitranſparent, and white or of a milk colour. 2. Opaque and red, or of a cornelian colour, from Oran in Barbary. 3. Opaque and black, from the ſame place. 4. Clear. The ſpecific gravity of theſe kinds of cryſtals is from 2650 to 2700. Profeſſor Bergman extracted from them about ſix parts of argilla and one of calcareous earth per hundred weight; but Mr Gerrard found ſome ſo pure as to contain neither. 5. Clear and blackiſh brown, the ſmoky topaz, or *rauch topaz* of the Germans. It is found at Egan in Norway, and at Loviſa in Finland. Theſe cryſtals are ſaid to become clear by boiling them in tallow. 6. Clear and yellow; found in Bohemia, and ſold inſtead of topazes. 7. Clear and violet-coloured; the amethyſt, from Saxony, Bohemia, and Dannemore in Upland. The moſt tranſparent of theſe are called falſe diamonds, Briſtol, Kerry ſtones, Alençon diamonds, &c. 8. Colourleſs rock-cryſtal, properly ſo called, found in Bohemia, the province of Jemtland, and many other places. 9. Pyramidal cryſtal with one or two points. Theſe have no priſmatic ſhape, but either ſtand upon a baſe in cavities of quartz-veins, have only a ſingle pyramid, and are of various colours; or they lie in a clayey earth, and have both pyramids, but no priſm. They are found at Blackenburgh upon the Hartz, and at Morſeroſh in the Silverland in Tranſylvania.

The coloured tranſparent cryſtals derive their tinge from an exceedingly ſmall portion of metallic calces, but loſe them entirely when ſtrongly heated. They are called *falſe gems*; *viz.* the red from Oran in Barbary, falſe rubies; the yellow from Saxony, falſe topazes; the green from Dauphiny, very rare, falſe emeralds or praſes; the violet from Vil in Catalonia, falſe amethyſts; the blue from Puy in Valay in France, falſe ſapphires. There are likewiſe opal or rainbow cryſtals, the various colours of which are thrown out in zones acroſs the ſurface. They make a very fine appearance, though they never ſhine like the oriental opal.

M. Fourcroy makes a remarkable difference between the cryſtals and quartz, by affirming that the former are unalterable in the fire, in which they neither loſe their hardneſs, tranſparency, nor colour, while the quartz loſes the ſame qualities, and is reduced by it to a white and opaque earth. He claſſes the rock-cryſtals,

I. According to their form, *viz.* 1. Inſulated hexagonal cryſtals ending in pyramids of ſix faces, which have a double refraction, or ſhow two images of the ſame object when looked through. 2. Hexagonal cryſtals united, having one or two points. 3. Tetraedral, dodecaedral, flatted cryſtals; and which, though hexagonal, have nevertheleſs their planes irregular. 4. Cryſtals in large maſſes, from the iſland of Madagaſcar, which have a ſimple refraction.

II. With regard to their colour, as being either diaphanous, reddiſh, ſmoky, or blackiſh.

III. With regard to accidental changes, ſome are hollow; ſome contain water within one or more cavities; ſome are caſed one within the other; ſome are of a round form, as the pebbles of the Rhine; ſome have a cruſt of metallic calces or of a pyrites; ſome are found cryſtallized in the inſide of a cavity; while ſome ſeem to contain amianthus or aſbeſtus; and others contain ſhirls. The ſame author reckons among cryſtals the oriental topaz, the hyacinth, the oriental ſapphire, and the amethyſt. Mr Daubenton has always looked upon this laſt as a quartz of a cryſtal.

When the rock-cryſtals are ſemitranſparent or intermixed with opaque veins, they are called by the Swediſh lapidaries *milk-cryſtals.* When they are found in the form of round pebbles, which is occaſioned by their being toſſed about and rubbed againſt one another by floods or by the ſea, they are called by the Engliſh lapidaries *pebble cryſtals.* They come from the Indies, Siberia, and other places.

According to Bomare, the rock-cryſtals are generally formed upon or among quartz, which ſhows their great affinity, and are to be found in all parts of the world. The greateſt quantity of them is brought from Mount Saint Gothard in Switzerland. Large pieces of theſe, weighing from 5 to 800 pounds, were found there at Grimſelberg; another of about 1200 pounds weight was found ſome years ago at Fiſbach in the Wallais; and a piece ſix feet long, four wide, and equally thick, was found in the iſland of Madagaſcar, where theſe natural productions are of the moſt extraordinary ſize and perfection.

In the imperial collection at Vienna, there is a pyramidal cryſtal vaſe two ells in height, cut wholly out of one piece. It is uſual with the largeſt cryſtals of the German mountains to be full of cracks and flaws, and to be ſo conſtructed internally as to ſhow all the priſmatic colours; but the abovementioned ones were quite free from theſe blemiſhes, and reſembled columns of the pureſt glaſs, only much clearer than any glaſs can be made. Cryſtal is alſo found in many parts of Britain and Ireland. About Briſtol it is found of an amethyſtine tinge. In Sileſia and Bohemia in Germany it is found ſtained with the colours of the ruby, ſapphire, emerald, and topaz; in which caſe jewellers take great advantage of it, ſelling it under the name of *accidental ſapphire.*

The orders of pure cryſtal are three: The firſt is perfect columnar cryſtals, with double pyramids, compoſed of 18 planes, in an hexangular column, terminated by an hexangular pyramid at each end: the ſecond order is that of perfect cryſtals, with double pyramids, without a column, compoſed either of 12 or of 16 planes, in two hexangular pyramids, joined cloſely baſe to baſe, without the intervention of any column: the third order is that of imperfect cryſtals, with ſingle pyramids, compoſed either of 12 or 10 planes, in an hexangular or pentangular column, affixed irregularly at one end to ſome ſolid body, and terminated at the other by an hexangular or pentangular pyramid.

Theſe are all the general forms into which cryſtal, when pure, is found concreted: but under theſe there are almoſt infinite varieties in the number of angles, and the length, thickneſs, and other accidents of the columns and pyramids.

When cryſtal is blended with metalline particles at the time of its formation, it aſſumes a variety of figures wholly different from theſe, conſtituting a fourth order under the name of *metalline cryſtals:* when that metal is lead, the cryſtal aſſumes the form of a cube; when it is tin, of a quadrilateral pyramid, with a broad baſe; when iron, the cryſtal is found concreted in rhomboidal figures: theſe cryſtals are very common about mines; but the common ſpars, which are liable to be influenced in the ſame manner by the metals, and to appear in the very ſame form, are to be carefully diſtinguiſhed from them. There is one very eaſy teſt for this purpoſe, which is, that all ſpars are ſubject to be diſſolved by aquafortis, and effervesce violently only on its touching them: but it has no ſuch effects on cryſtal.

The pebble-cryſtal is common enough in all parts of the world; but that which is formed of hexangular columns, affixed to a ſolid baſe at one end, and terminated by a hexangular column at the other, is infinitely more ſo: this is what we call *ſprig* or *rock cryſtal,* and is the ſpecies deſcribed by moſt authors under the name of *cryſtal of the ſhops,* or that kept for medicinal uſes.

With regard to the formation of cryſtals, it is certain that they muſt have been once in a ſoft ſtate, ſince ſome are found to have water in their cavities. Profeſſor Bergman obtained 13 regular formed cryſtals, by ſuffering the powder of quartz to remain in a veſſel with fluor acid for two years. Theſe were about the ſize of ſmall peas, and were leſs hard than quartz. Mr Magellan informs us, that he received from Mr Achard two cryſtals, one of the ſparry kind, and the other as hard and tranſparent as rock-cryſtal. The firſt he procured by means of calcareous earth, and the latter from the earth of alum, both diſſolved in water impregnated with fixed air, the water filtrating very ſlowly through a porous bottom of baked clay. The apparatus is deſcribed by the author in the *Journal de Phyſique* for January 1778: but though the proceſs was attempted by Mr Magellan, and afterwards a ſecond time by Mr Achard himſelf, neither of them were able to ſucceed. Mr Morveau, however, in the firſt volume of the Dijon Memoirs for 1785, aſſerts that he has produced a very ſmall artificial cryſtal; and gives the proper method for ſucceeding in the proceſs.

2

In the natural way many of the more compound foſſile bodies are formed chiefly either of cryſtal, or of ſpar, a body in many things reſembling it. The original formation and coaleſcence of thoſe bodies of which ſpar is the baſis, we know, may have been but of yeſterday, ſince we have evident proofs that ſpar is concreting to this day, and that ſparry bodies are forming every moment. This is evident from the ſparry ſtalactiæ in the arches of modern buildings, particularly in one ſo lately built as the new bridge at Weſtminſter; the roofs of the arches of which were filled with theſe ſpars within a year after they were built. It is alſo demonſtrable that the ſpars are not formed of matter exſuding from the ſtone, ſince brick arches abound equally with them; and the brick vault which ſupports part of the grand terrace at London, was ſome time ago ſo full of them that there was not room to walk. Theſe obſervations ſufficiently demonſtrate the growth of ſpar; but the vegetation of cryſtal remained dubious till Dr Hill ſhowed by ſome experiments that *cryſtal*, as well as ſpar, is diſſolved in every kind of water, even ſuch as appears to be moſt pure and clear. This is alſo probable from an obſervation of Neumann's, who tells us, that he has ſeen leaves, ſtalks of plants, hay, ſtraw, hogs briſtles, &c. incloſed in ſprigs of cryſtal. From the regular forms in which theſe natural cryſtals are found, the regular arrangement of ſalts into different figures takes the name of *cryſtallization*, and both are probably owing to the ſame cauſe*. Henckel gives us a remarkable account of the formation of cryſtal out of human urine. He once filled a large round glaſs-veſſel half way up with the recent urine of a young lad, and tying a bladder over the mouth of the veſſel, ſet it in a ſtove for four years together, never ſtirring it during that whole time. At the end of this time he found a number of ſmall white ſtones growing to the inſide of the glaſs; they were of the ſize of an oat-ſeed, of a priſmatic figure, and tolerably pellucid: they ſtuck ſo faſt to the ſides of the glaſs that they could not be waſhed off by the ſhaking about of the urine; and when taken out had no ſaline taſte, and were not ſoluble even in hot water.

Cryſtal is frequently cut; and luſtres, vaſes, and toys, are made of it as of other beautiful ſtones. For this purpoſe it is to be choſen perfectly clear and tranſparent. It is to be tried by aquafortis, or by drawing it along a pane of glaſs. The genuine cryſtal will not be affected by the acid, and will cut glaſs almoſt like a diamond. When any piece of workmanſhip of natural cryſtal is become foul and dark, the following method is to be uſed for recovering its brightneſs without hurting the poliſh. Mix together ſix parts of common water and one part of brandy; boil theſe over a briſk fire, and let the cryſtal be kept in it in a boiling ſtate, a quarter of an hour; then take it out and rub it carefully over with a bruſh dipped in the ſame liquor; after this it is to be wiped with a napkin, and by that means its ſurface will be perfectly cleaned, and rendered as bright as at firſt, without any injury to the points of the cutting or the poliſh of the planes or faces, which would probably have happened had the cleaning been attempted by mere rubbing with a cloth.

Natural cryſtal may be reduced by calcination into a ſtate proper for making glaſs with alkaline ſalts, and thus becomes a very valuable fritt. The method of doing it is as follows; calcine natural cryſtal in a crucible; when it is red-hot, throw it into cold water. Repeat this eight times, covering the crucible that no duſt or aſhes may get in among the cryſtal. Dry this calcined maſs, and reduce it to an impalpable powder.

Colouring CRYSTAL, for the imitation of gems. See DOUBLET.

CRYSTAL, is alſo uſed for a factitious body, caſt in glaſs-houſes, called *cryſtal-glaſs*; being in fact no more than glaſs carried, in the compoſition and manufacture, to a greater perfection than the common glaſs.

The beſt kind of glaſs-cryſtal is that called *Venice-cryſtal*, made at Moran near Venice. See GLASS.

Iſland or *Iceland* CRYSTAL, a tranſparent fiſſile ſtone, brought from Iceland, ſoft as talc, clear as rock-cryſtal, and without colour: remarkable for its unuſual refractions.

It is there found in great abundance all over the country, but is particularly plentiful in a mountain, not far from the bay of Roezfiord, where the fineſt and moſt pellucid pieces are found on digging. The mountain lies in 65 degrees latitude, and has its whole outſide made up of it; but though this makes a very bright and glittering appearance, it is not ſo fine as that which lies at a little depth, and is met with on opening the ſurface. This is generally taken up out of the earth in maſſes a foot long, and its corners very frequently are terminated in theſe large maſſes, by a ſort of cryſtals, very different in figure and qualities from the reſt of the maſs. The ſtone itſelf is of a parallelopiped figure; but theſe excreſcences are either ſingle pyramids, affixed to columns like common cryſtal, or double pyramids with or without columns between. The ſtone itſelf is ſoft; theſe are hard, and cut glaſs: the ſtone calcines to lime in the fire; theſe run into glaſs: in ſhort, the ſtone itſelf is true ſpar, and theſe are true cryſtal. Beſide theſe, there ſometimes grows out of the ends of the larger maſſes a pure fine aſbeſtos. This likewiſe is the caſe ſometimes in the ſpar found about Barege in France, and ſhows how nearly together the formation of bodies, wholly different from one another, may happen. The general figure of the ſtone is parallelopiped; or, as ſome expreſs it, rhomboide; and it retains this not only while whole, but alſo when broken to pieces. Every fragment it naturally falls into, though ever ſo ſmall, being truly of the ſhape. But it is remarkable, that in ſome places of this mountain, the ſame ſort of matter is found in form of triangular pyramids, all which have the ſame property of the double refraction with the parallelopipeds of the ſame ſubſtance; ſo that the original error of ſuppoſing its qualities owing to its ſhape, is refuted by this, as well as by the trials made with other pellucid bodies of the ſame figure, which do not ſhow this remarkable property.

The Iceland cryſtal is electrical, and when rubbed will draw up ſtraws, feathers, and other light ſubſtances, in the ſame manner that amber does.

The vaſt maſſes of white ſpar which are found in the lead mines of Derbyſhire, though they are not externally of the parallelopiped figure of the Iceland cryſtal, nor have any thing of its brightneſs or tranſparence

* See *Cryſtallization.*

in the general lump; yet when they are broken they ſeparate into rhomboidal fragments, and ſome of theſe are found to be tolerably pellucid: all thoſe which are ſo have the property of the Iceland cryſtal; and being laid upon paper, where a black line is drawn, they all ſhow that line double in the ſame manner as the real Iceland cryſtal does.

Iceland cryſtal bears a red heat without loſing its tranſparency; and in a very intenſe heat calcines without fuſion: ſteeped a day or two in water, it loſes its natural poliſh. It is very ſoft and eaſily ſcratched with the point of a pin; it will not give fire on being ſtruck againſt ſteel; and ferments and is perfectly diſſolved in aquafortis. It is found in Iceland, from whence it has its name; and in France, Germany, and many other places. In England fragments of other ſpars are very often miſtaken for it, many of them having in ſome degree the ſame property. It has none of the diſtinguiſhing characters of cryſtal; and is plainly a genus of ſpars, called from their figure *parallelopipedia*, which, as well as ſome other bodies of a different genus, have the ſame properties. Bartholine, Huygens, and Sir Iſaac Newton, have deſcribed the body at large, but have accounted it either a cryſtal or a talc; errors which could not have happened, had the criterions of foſſils been at that time fixed; ſince Sir Iſaac Newton has recorded its property of making an ebullition with aquafortis, which alone muſt prove that it is neither talc nor cryſtal, both thoſe bodies being wholly unaffected by that menſtruum. It is always found in form of an oblique parallelopiped, with ſix ſides, and is found of various ſizes, from a quarter of an inch to three inches or more in diameter. It is pellucid, and not much leſs bright than the pureſt cryſtal, and its planes are all tolerably ſmooth, though when nicely viewed they are found to be waved with crooked lines made by the edges of imperfect plates. What appears very ſingular in the ſtructure of this body is, that all the ſurfaces are placed in the ſame manner, and conſequently it will ſplit off into thin plates, either horizontally or perpendicularly; but this is found, on a microſcopic examination, to be owing to the regularity of figure, ſmoothneſs of ſurface, and nice joining of the ſeveral ſmall parallelopiped concretions of which the whole is compoſed, and to the ſame cauſe is probably owing its remarkable property in refraction.

The phenomena of this ſtone are very remarkable, were firſt ſuggeſted by Bartholine, and have been examined with great accuracy by M. Huygens and Sir Iſaac Newton.

1. Whereas in other pellucid bodies there is only one refraction, in this there are two; ſo that objects viewed through it appear double.

2. Whereas in other tranſparent bodies, a ray falling perpendicularly on the ſurface, paſſes ſtraight through, without ſuffering any refraction; and an oblique ray is always divided; in Iceland cryſtal, every ray, whether perpendicular or oblique, becomes divided into two, by means of the double refraction. One of theſe refractions is, according to the ordinary rule, the ſine of incidence out of air into cryſtal, being to the ſine of refraction as five to three; but the other is perfectly new. The like double refraction is alſo obſerved in cryſtal of the rock, though much leſs ſenſibly. When an incident ray is thus divided, and each moiety arrives at the farther ſurface, that refracted in the firſt ſurface after the uſual manner, is refracted entirely after the uſual manner at the ſecond; and that refracted in the unuſual manner in the firſt is entirely refracted after the like manner in the ſecond; ſo that each emerges out of the ſecond ſurface parallel to the firſt incident ray. Again, if two pieces of this cryſtal be placed over each other, ſo that the ſurfaces of the one be parallel to the correſponding ones of the other; the rays refracted in the uſual manner in the firſt ſurface of the firſt, are refracted after the uſual manner in all the other ſurfaces; and the ſame uniformity appears in the rays refracted after the unuſual manner; and this in any inclination of the ſurfaces, provided their planes of perpendicular refraction be parallel.

From theſe phenomena Sir Iſaac Newton infers, that there is an original difference in the rays of light; by means whereof ſome are here conſtantly refracted after the uſual manner; and others in the unuſual manner. Were not the difference original, and did it ariſe from any new modifications impreſſed on the rays at their firſt refraction, it would be altered by new modifications in the three following ones: whereas, in fact, it ſuffers no alteration at all. Again, he hence takes occaſion to ſuſpect, that the rays of light have ſeveral ſides, endued with ſeveral original properties: for it appears from the circumſtances, that theſe are not two ſorts of rays differing in their nature from each other, one conſtantly, and in all poſitions, refracted in the uſual, and the other in the unuſual manner; the difference in the experiment mentioned being only in the poſition of the ſides of the rays to the plane of perpendicular refraction. For one and the ſame ray is refracted ſometimes after the uſual, and ſometimes after the unuſual manner, according to the poſition of its ſides to the cryſtal: the refraction being alike in both, when the ſides of the rays are poſited the ſame way to both, but different when different. Every ray therefore may be conſidered as having four ſides or quarters; two of which, oppoſite to each other, diſpoſe the ray to be refracted after the unuſual manner; and the other two in the uſual. Theſe diſpoſitions, being in the rays before their incidence on the ſecond, third, and fourth ſurfaces, and ſuffering no alterations; for what appears in their paſſage through them muſt be original and connate.

Father Beccaria corrects the obſervations of Huygens and Newton concerning the refraction of rock or mountain cryſtal. The double refraction of the latter happens when a ray paſſes through two ſides that are inclined to each other, and conſequently iſſues coloured; whereas that of the Iceland cryſtal is made by the paſſage of a ray through two parallel ſides, and therefore it iſſues colourleſs. He ſuggeſts, that there may be other ſubſtances in which there is a manifold refraction. Graveſande had a priſm of Braſil pebble, which had a double refraction at each angle, but of a different kind from one another. Mr B. Martin prepared ſeveral priſms of Iceland cryſtal, which exhibited not only a double but a multiple refraction. A ſingle priſm produced a ſix-fold refraction; and by combining ſeveral priſms, a number of refractions was obtained equal to the product of thoſe of the ſingle priſms; *i. e.* a priſm which afforded two images applied to one of ſix, produced a priſm of twelve images, &c. He farther

ther obſerves, with reſpect to Iceland cryſtal, that tho' the ſides of its plane or perpendicular refraction be parallel to one another, a beam of light tranſmitted thro' them will not be colourleſs; in which property it differs from all other known ſubſtances.

CRYSTALLINE, in general, ſomething compoſed of, or reſembling, cryſtal. See Crystal.

Crystalline Heavens, in ancient aſtronomy, two ſpheres, imagined between the primum mobile and the firmament, in the Ptolemaic ſyſtem, which ſuppoſes the heavens ſolid, and only ſuſceptible of a ſingle motion. See Astronomy, nº 247.

Crystalline Humour. See Anatomy, p. 767.

CRYSTALLINÆ, or Crystallines, in medicine, are puſtules filled with water, and ſo called on account of their tranſparency. They are one of the worſt ſymptoms attendant on a gonorrhœa. They are lodged on the prepuce, without pain; and though cauſed by coition, have nothing of infection attending them. The cauſe is ſuppoſed to be a contuſion of the lymphatic veſſels in the part affected. Dr Cockburn, who hath deſcribed this caſe, recommends for the cure a mixture of three parts of lime-water and two of rectified ſpirit of wine, to be uſed warm, as a lotion, three times a-day.

CRYSTALLIZATION, in general ſignifies the natural formation of any ſubſtance into a regular figure, reſembling that of a cryſtal. Hence the phraſes of cryſtallized ores, cryſtallized ſalts, &c. and even the baſaltic rocks are now generally reckoned to be effects of this operation: (See Basaltes and Volcano). The term, however, is moſt commonly applied to bodies of the ſaline kind, and their ſeparation in regular figures from the water, or fluid in which they are diſſolved, is called their *cryſtallization* *. The word *cryſtallization* is never applied to the freezing of water, or to the conſolidation of metals after they have been melted; though it might certainly be applied with as much juſtice to theſe ſubſtances as to any others; for all of them concrete into a certain regular form, from which they never deviate, unleſs disturbed.

* See *Chemiſtry*-Index.

1 Similarity between congelation and cryſtallization.

When water freezes ſlowly, it always forms regular cryſtals of ice, which are conſtantly of the ſame form. They are long, needle-like maſſes, flattened on one ſide, and joined together in ſuch a manner that the ſmaller are inſerted into the ſides of the greater: and thus theſe compound cryſtals have the appearance of feathers, or branches of trees with leaves. The moſt remarkable circumſtance attending this cryſtallization is, that the angle formed by the inſertion of the ſmaller pieces into the larger, is either 60 or 120 degrees. The figures aſſumed by metals of different kinds have not been ſo exactly inveſtigated, except in the regulus of antimony, which is obſerved always to take a ſtellated form. Experience alſo ſhows, that all kinds of earths, or other mineral matters, are capable of aſſuming a cryſtalline form, and may eaſily be made to do ſo by taking away part of the water which diſſolves them.

Different ſalts aſſume different figures in cryſtallization, and are thus moſt eaſily diſtinguiſhed from one another. The methods of reducing them into this form, for ſale, are mentioned under the article Chemistry, nº 573. But beſides the large cryſtals produced in this way, each ſalt is capable of aſſuming a very different appearance of the cryſtalline kind, when only a ſingle drop of the ſaline ſolution is made uſe of, and the cryſtallization viewed through a microſcope.

2 Microſcopical cryſtals diſcovered by Mr Baker.

For our knowledge of this ſpecies of cryſtallization we are indebted to Mr Henry Baker, who was preſented with a gold medal for the diſcovery, in the year 1744. Theſe microſcopical cryſtals he diſtinguiſhes from the large ones by the name of *configurations*; but this term ſeems inaccurate, and the diſtinction may well enough be preſerved by calling the large ones the *common*, and the ſmall ones the *microſcopical*, cryſtals of the ſalt. His method of making theſe obſervations he gives in the following words:

3 His method of procuring them.

"I diſſolve the ſubject, to be examined, in no larger a quantity of rain or river water than I am certain it is ſufficient to ſaturate. If it is a body eaſily diſſolvable I make uſe of cold water; otherwiſe I make the water warm, hot, or even boiling, according as I find it neceſſary. After it is perfectly diſſolved, I let it reſt for ſome hours, till, if overcharged, the redundant ſaline particles may be precipitated and ſettle to the bottom, or ſhoot into cryſtals; by which means I am moſt likely to have a ſolution of the ſame ſtrength at one time as at another; that is, a ſolution fully charged with as much as it can hold up, and no more; and by theſe precautions the configurations appear alike, how often ſoever tried: whereas, if the water be leſs ſaturated, the proportions at different times will be ſubject to more uncertainty; and if it be examined before ſuch ſeparation and precipitation of the redundant ſalts, little more will be ſeen than a confuſed maſs of cryſtals.

"The ſolution being thus prepared, I take up a drop of it with a gooſe quill cut in faſhion of a ſcoop, and place it on a flat ſlip of glaſs of about three quarters of an inch in width, and between three and four inches long, ſpreading it on the glaſs with the quill, in either a round or an oval figure, till it appears a quarter of an inch, or more, in diameter, and ſo ſhallow as to riſe very little above the ſurface of the glaſs. When it is ſo diſpoſed, I hold it as level as I can over the clear part of a fire that is not too fierce, or over the flame of a candle, at a diſtance proportionable to the heat it requires (which experience only can direct), and watch it very carefully till I diſcover the ſaline particles beginning to gather and look white, or of ſome other colour, at the extremities of the edges. Then (having adjuſted the microſcope before-hand for its reception, armed with the fourth glaſs, which is the fitteſt for moſt of thoſe experiments), I place it under my eye, and bring it exactly to the focus of the magnifier; and, after running over the whole drop, I fix my attention on that ſide where I obſerve any increaſe or puſhing forwards of cryſtalline matter from the circumference towards the centre.

"This motion is extremely ſlow at the beginning, unleſs the drop has been overheated, but quickens as the water evaporates; and, in many kinds, towards the concluſion, produces configurations with a ſwiftneſs inconceivable, compoſed of an infinity of parts, which are adjuſted to each other with an elegance, regularity, and order, beyond what the exacteſt pencil in the world, guided by the ruler and compaſſes, can ever equal, or the moſt luxuriant imagination fancy.

“ When this action once begins, the eye cannot be taken off, even for a moment, without loſing ſomething worth obſervation : for the figures alter every inſtant till the whole proceſs is over ; and, in many ſorts, after all ſeems at an end, new forms ariſe different entirely from any that appeared before, and which probably are owing to ſome ſmall quantity of ſalt of another kind, which the other ſeparates from, and leaves to act after itſelf has done : and in ſome ſubjects, three or four different ſorts are obſervable, few or none of them being ſimple and homogeneous.

“ When the configurations are fully formed, and all the water evaporated, moſt kinds of them are ſoon deſtroyed again by the moiſture or action of the air upon them ; their points and angles loſe their ſharpneſs, become uneven and defaced, and moulder, as it were, away. But ſome few are permanent, and being incloſed between glaſſes, may be preſerved months, or even years, entertaining objects for the microſcope.

“ It happens oftentimes that a drop of ſaline ſolution can hardly be ſpread on the ſlip of glaſs, by reaſon of the glaſs's ſmoothneſs, but breaks into little globules, as it would do if the ſurface were greaſy : this was very troubleſome, till I found a way of preventing it, by rubbing the broken drop with my finger over the glaſs, ſo as to leave the ſurface ſmeared with it ; on which ſmeared place, when dry, another drop of the ſolution may be ſpread very eaſily in what form one pleaſes.

“ It likewiſe ſometimes happens, that when a heated drop is placed properly enough for examination, the obſerver finds he can diſtinguiſh nothing : which is owing to ſaline ſteams that, riſing from the drop, cover and obſcure the object-glaſs, and therefore muſt immediately be wiped away with a ſoft cloth or leather.

“ In all examinations by the microſcope of ſaline ſolutions, even though made in the day-time, I always employ the light of a candle, and adviſe every obſerver to do ſo likewiſe : for the configurations being exceedingly tranſparent, are rendered much more diſtinguiſhable by the brown light a candle affords, than by the more white and tranſparent day-light ; and beſides, either by moving the candle or turning the microſcope, ſuch light may be varied or directed juſt as the object requires.”

4
Deſcription of the microſcopical cryſtals of various ſalts.

In this manner were produced the beautiful cryſtallizations repreſented Plate CLII. They are vaſtly different from ſuch cryſtals of the ſame ſalts as are obtained by the common proceſſes ; but Mr Baker aſſures us they are no leſs conſtant and invariable than they, and that he has repeated the experiments a great number of times with the ſame ſucceſs.

Fig. 1. ſhows the microſcopical cryſtals of *nitre* or *ſalt-petre*. Theſe ſhoot from the edges, with very little heat, into flattiſh figures of various lengths, exceedingly tranſparent, and with ſtraight and parallel ſides. They are ſhown in their different degrees of progreſſion at the letters *a*, *b*, *c*, *d*, *e* ; where *a* repreſents how they firſt begin. After numbers of theſe are formed, they will often diſſolve under the eye, and diſappear entirely ; but if one waits a little, new ſhoots will puſh out, and the proceſs go on afreſh. Theſe firſt figures ſometimes enlarge only without altering their ſhapes, and ſometimes form in ſuch ſort as the drop repreſents ; but if the heat has been too great, they ſhoot haſtily into ramifications very numerous and beautiful, but very difficult to be drawn ; and which Mr Baker therefore did not attempt. There ſeems all the while a violent agitation in the fluid, and moſt commonly, towards the concluſion, a few octaedra (compoſed of eight triangular planes, or two quadrangular pyramids, joined baſe to baſe) make their appearance.

2. *Blue vitriol*, produces cryſtals round the edges, very ſhort at the beginning, but increaſing gradually, as repreſented at the figures 1, 2, 3, which denote their difference of form, and the progreſs of their growth. Theſe cryſtalline ſhoots are ſolid, regular, tranſparent, and reflect the light very beautifully from their poliſhed ſides and angles. As the watery part evaporates, numbers of long ſlender bodies like hairs are ſeen here and there, ſome lying ſide by ſide, or croſſing each other as at 4, others forming ſtar-like figures with many radiations (5, 5). This ſalt ſhoots but ſlowly, and therefore requires patience. At laſt the true cryſtals begin to appear commonly in the middle of the drop, and are very prettily branched, as at 6.

3. *Diſtilled verdigris*, diſſolved as above directed, and immediately applied to the microſcope, ſhows abundance of the regular figures, 1, 2, 3, 4, 5, 6, 7 : but if the ſolution is ſuffered to ſtand for a few hours, and a drop of it is then heated over the fire on a ſlip of glaſs, till it begins to concrete about the ſides, and then examined, ſharp-pointed, ſolid, figures, biſected by a line cut through the middle, from which they are cut away toward the edges, begin to appear, and ſhooting forwards (1, 1, 1). Theſe figures are often ſtriated very prettily from the middle line to the edges obliquely (2, 2) ; and frequently they ariſe in cluſters ; and ſhooting from a centre (3, 3). Theſe figures are a long time in growing ; and whilſt they are doing ſo, regular cryſtals appear forming in ſeveral parts of the drop, of the moſt lovely emerald colour, and reflecting the light from their ſides and angles, which are moſt exactly diſpoſed, and finely poliſhed. No cryſtals are formed in the middle till the water is nearly evaporated ; and then they begin to form haſtily, for which reaſon they muſt be carefully attended. Their common figures reſembles two long *ſſ* croſſing each other in an angle of about 60°, and ſhooting branches every way : each of which again protrudes other branches from one and ſometimes from both, its ſides ; making together an appearance like four leaves of fern conjoined by their ſtalks (5, 5). Separate cluſters of the ſame ſharp pointed figures, as thoſe at the edges of the drop, are alſo formed in the middle of it (6). Sometimes alſo they put on another form like the leaves of dandelion (7). Very beautiful figures are likewiſe produced by a kind of combination of ſharp points and branches (8, 8). All theſe cryſtals are of a moſt beautiful green colour, but deeper or lighter according to the time of their production. The deepeſt are conſtantly produced firſt, and the paler ones afterwards. Towards the end of the proceſs ſome circular figures are formed, extremely thin, and ſo ſlightly tinged, with green lines radiating from a centre, as to be almoſt colourleſs (9, 9). When all

ſeems in a manner over, bundles of hair-like bodies appear frequently ſcattered here and there throughout the drop, like thoſe of blue vitriol already deſcribed.

4. *Alum.* The microſcopical cryſtals of this ſalt prove more or leſs perfect according to the ſtrength of the ſolution and the degree of heat employed in making the experiment. The ſolution of alum, however ſaturated with the ſalt, will not be found overſtrong after ſtanding ſome days; for in that time many cryſtals will have formed in it. This ſeparation will often leave the remainder too weak for the purpoſe; but by holding the vial over, or near the fire, the cryſtals will again diſſolve. After it has ſtood about half an hour it may then be uſed. The drop put on the glaſs and properly heated, exhibits commonly at firſt a dark cloud which appears in motion ſomewhere near the edge, and runs pretty ſwiftly both to the right and left, until it is either ſtopped by the intervention of regular cryſtals, or elſe it proceeds both ways at once, till having ſurrounded the whole drop, the two ends ruſh together, and join into one (*a*, *a*). This cloudy part, which ſeems to be violently agitated while it is running round, appears on a ſtrict examination to conſiſt of ſalts, ſhot into long and very ſlender lines, much finer than the ſmalleſt hair, croſſing each other at right angles. As they go along, rows of ſolid cryſtals are produced from their internal edges. Theſe are compoſed of many oblique plain ſides (*b*, *b*), and which have all a tendency towards the figures of the regular cryſtals to be deſcribed preſently. But it frequently happens, that, in ſome parts of the drop, many minute and circular figures are ſeen, riſing at ſome little diſtances from the edge, which enlarging themſelves continually, appear at laſt of a ſtar-like form (*c*, *c*). The cryſtals in the middle ſeldom appear till the fluid ſeems almoſt wholly evaporated; when, on a ſudden, many ſtraight lines appear puſhing forwards, whoſe ſides or edges are jagged, and from which other ſimilar ſtraight and jagged lines ſhoot out at right angles with the firſt. Theſe again have other ſmall ones of the ſame kind ſhooting out likewiſe from themſelves, and compoſe altogether a moſt beautiful and elegant configuration (D). Each of theſe lines increaſing in breadth towards its end, appears ſomewhat club-headed (*e*, *e*, *e*). Sometimes, inſtead of ſending branches from their ſides, many of theſe lines riſe parallel to each other, reſembling a kind of palliſadoe, and having numberleſs minute tranſverſe lines running between them (F). But the moſt wonderful part of all, though not producible without an exact degree of heat and right management, is the dark ground work (G). It conſiſts of an infinity of parallel lines, having others croſſing them at right angles, and producing a variety ſcarce conceivable from lines diſpoſed in no other manner: the direction of the lines (which are exquiſitely ſtraight and delicate) being ſo frequently and differently changed, that one would think it the reſult of long ſtudy and contrivance. During the time this ground work is framing, certain lucid points preſent themſelves to view moſt commonly on one ſide. Theſe grow continually larger, with radiations from a centre, and become ſtar-like figures as before mentioned. Some of them ſend out long tails, which give them the appearance of comets: and at the end of all, a dark lineation in various directions darts frequently through, and occupies all or moſt of the ſpaces between them, making thereby no ill repreſentation, when viewed by candle-light, of a dark ſky, illuminated with ſtars and comets. The regular cryſtals are often formed in the ſame drop with the others (*f*).

5. *Borax.* If a drop of ſolution of borax is held too long over the fire, it hardens on the ſlip of glaſs in ſuch a manner that no cryſtals can appear. The beſt method is to give it a briſk heat for about a ſecond, and then applying it to the microſcope, the cryſtals will quickly form themſelves as repreſented in the figure.

6. *Sal ammoniac* begins with ſhooting from the edges great numbers of ſharp, but thick and broad, ſpiculæ; from whoſe ſides are protruded, as they riſe, many others of the ſame ſhape, but very ſhort; parallel to each other, but perpendicular to their main ſtem (1). Theſe ſpiculæ arrange themſelves in all directions; but for the moſt part obliquely to the plane from whence they riſe, and many are frequently ſeen parallel to one another (1, 1). As they continue to puſh forwards, which they do without increaſing much in breadth, ſome ſhoot from them the ſmall ſpiculæ only (2); others divide in a ſingular manner by the ſplitting of the ſtem (3); and others branch out into ſmaller ramifications (4). Before the middle of the drop begins to ſhoot, ſeveral exceedingly minute bodies may be diſcerned at the bottom of the fluid. Theſe in a little while riſe to the top, and ſoon diſtinguiſh their ſhape as at (5). Their growth is very quick, and for ſome time pretty equal; but at laſt ſome branch gets the better of the reſt, and forms the figure (6). The other branches enlarge but little after this, all the attraction ſeeming to be lodged in that one that firſt began to lengthen; and from this, more branches being protruded, and they again protruding others, the whole appears as at (8). It is not uncommon to ſee in the middle of the drop ſome cryſtals, where, inſtead of the ſtraight ſtems above deſcribed, there is formed a kind of zig-zag, with ſpiculæ like thoſe in the other figures (7).

7. *Salt of Lead*, or *ſaccharum ſaturni*. A little of this ſalt diſſolved in hot water, which it immediately renders milky, after ſtanding a quarter of an hour to ſubſide, is in a fit condition for an examination by the microſcope. A drop of it then applied on a ſlip of glaſs, and held over the fire to put the particles in action, will be ſeen forming round the edge a pretty even and regular border of a clear and tranſparent film or glewy ſubſtance (*a a a a*); which if too ſudden and violent a heat be given, runs over the whole area of the drop, and hardens ſo on the glaſs as not to be got off without great difficulty. But if a moderate warmth be made uſe of, which likewiſe muſt not be too long continued, this border proceeds only a little way into the drop, with a kind of radiated figure compoſed of fine lines, or rather bundles of lines, beginning from the centres in the interior edge of the border, and ſpreading out at nearly equal diſtances from each other every way, towards the exterior (*b b b b*). From the ſame centres are produced afterwards a radiation inwards, compoſed of parallelograms of different lengths and breadths; from one, and ſometimes both the angles of theſe, are frequently ſeen ſhootings ſo exceedingly ſlender, that they are

Cryſtallization.

perhaps the beſt poſſible repreſentations of a mathematical line. The extremities of the parallelograms are generally caſt off at right angles; but they are ſometimes alſo ſeen oblique (*cccc*). Centres with the like radii iſſuing from them, and ſome of the glutinous matter for their root, are ſometimes formed in the drop, entirely detached from the edges; and in theſe it is very frequent to find a kind of ſecondary radii proceeding from ſome of the primary ones; and others from them again to a great number of gradations, forming thereby a very pretty figure (D).

8. *Salt of Tin*, produces at the edges of the drop a number of octaedra, partly tranſparent, ſtanding on long necks, at ſmall diſtances from each other, with angular ſhoots between them (*a a*). At the ſame time, ſolid and regular opaque cubes will be ſeen forming themſelves in other parts of the drop (*b b*). In the middle of the ſame drop, and in ſeveral other parts of it, very different figures will alſo be formed; particularly great numbers of flat, thin, tranſparent, hexangular bodies (*c c c*); ſome among which are thicker (*e*), and a few appear more ſolid, and with ſix ſloping ſides riſing to a point, as if cut and poliſhed (*d*). The figure (*f*) is compoſed of two high pyramids united at their baſe. Some in this kind of form are found truncated at one of their ends, and others at both. Several of the hexagonal bodies may be obſerved with ſloping ſides, forming a ſmooth, triangular, riſing plane, whoſe angles point to three intermediate ſides of the hexagon (*g*).

9. *Epſom Salt*, begins to ſhoot from the edge in jagged figures (*a*). From other parts differently figured cryſtals extend themſelves towards the middle, ſome of which have fine lines proceeding from both ſides of a main ſtem, in an oblique direction; thoſe on one ſide ſhooting upwards in an angle of about 60°, and thoſe on the other downwards in the ſame obliquity (*c f*). Others produce jags from their ſides nearly perpendicular to the main ſtem, thereby forming figures that reſemble ſome ſpecies of the polipody (*e*); but in others the jags are ſhorter (*d*). Now and then one of the main ſtems continues ſhooting to a conſiderable length, without any branchings from the ſides; but at laſt ſends out two branches from its extremity (*g*). Sometimes a figure is produced having many fine and minute lines radiating from a centre (*b*). The laſt ſhootings in the middle of the drop (*h*) are not unlike the frame-work of the flooring or roofing of a houſe, but with the angles oblique: and ſometimes a form of another kind preſents itſelf (*i*).

10. *Scarborough Salt*, begins to ſhoot from the edges: firſt of all in portions of quadrilateral figures, much reſembling thoſe of common ſalt; but two of their angles, inſtead of 90, are about 100°. They ſhoot in great numbers round the borders of the drop, having their ſides as nearly parallel to one another as the figure of the drop will allow: ſome proceed but a little way, others farther, before they renew the ſhoot (*a a*). In ſome places they appear more pointed and longer (*b*); and ſometimes, inſtead of the diagonal, one of the ſides is ſeen towards the edge, and the other ſhooting into the middle (*c*). The middle cryſtals (*d e f*) ſeem to be of the vitriolic kind.

11. *Glauber's Salt*, produces ramifications from the ſide of the drop, like the growth of minute plants, but extremely tranſparent and elegant (*c*). Some of them, however, begin to ſhoot from a centre at ſome diſtance from the edge, and protrude branches from that centre in a contrary direction (*b*). Sometimes they ſhoot from one, and ſometimes from more ſides of the central point in different varieties (*d*). Other figures are produced from different parts of the edge of the drop (*a, f, e*); but the moſt remarkable and beautiful cryſtallization forms laſt of all near the middle of the drop. It is compoſed of a number of lines proceeding from one another at right angles with tranſparent ſpaces and diviſions running between them, appearing altogether like ſtreets, alleys, and ſquares, (*g g*). When this cryſtallization begins, it forms with great rapidity, affording the obſerver a very agreeable entertainment: but its beauty is of very ſhort duration: in a few moments it diſſolves and vaniſhes like melted ice, which renders the drawing of it very difficult

12. *Salt of Jeſuits bark*. The few ſhootings which the ſalt produces at the edge of the drop are of no regular figure (*a*). The whole area becomes quickly filled with great numbers of rhombi, of different ſizes, extremely thin and tranſparent (*b*). Some of theſe enlarge greatly and acquire a conſiderable thickneſs, forming themſelves into ſolids of many ſides, (*c, c*). Near the concluſion ſome cryſtals of ſea-ſalt are formed (*dd*), and likewiſe a few odd triangular figures (*e*).

13. *Salt of Liquorice*, begins ſhooting from the edge with a ſort of rhombic ſpiculæ (*a*). Some four-branched figures like thoſe of vitriol commonly appear, but moulder away before their ramifications are completed, leaving only their ſtamina behind (*b b*). The middle of the drop is uſually overſpread with great numbers of parallelograms, ſome exceedingly tranſparent, being mere planes; having ſometimes one, ſometimes more, of the angles canted in ſuch a manner as to produce pentagonal, hexagonal, and other figures. Others have much thickneſs, and form parallelopipeds or priſms (*c*). Some of the plane figures now and then protrude an irregular kind of ſhooting which appears very pretty (*d*).

14. *Salt of Wormwood*. The firſt ſhootings of this ſalt from the edges of the drop appear of a conſiderable thickneſs in proportion to their length: their ſides are deeply and ſharply jagged or indented, being made up of many ſomewhat obtuſe angles, and their ends pointed with angles of the ſame kind (*a*). But other ſhoots frequently branch out from theſe original ones, and they again ſend forth others, making altogether a very pretty appearance (*bb*). The cryſtals of this ſalt are very different from each other, conſiſting of ſquares, rhombi, parallelograms, &c. (*c*).

15. *Salt of Tobacco*. If a moderate degree of heat is given to a ſolution of this ſalt its firſt ſhootings will be from the edges of the drop, in ſlender tapering figures, ending with very ſharp points, but at conſiderable diſtances from one another. Along with theſe are formed other cryſtals, nearly of the ſame kind, but entirely detached, and farther within the drop, having the thicker ends towards the centre of the drop, and the ſharp points turned towards its edge (*a*). When a little more heat has been given, other ſpiculæ are produced from the edge, whoſe ends ſpread on either ſide, and then terminate in a point;

and which have all along their ſides triangular pointed cryſtals, placed alternately ſo as to repreſent a zig-zag, with a line drawn through its middle (*b*). The regular cryſtals are produced in the middle of the drop, and are either hexagons or rhombi (*c*). When the moiſture is nearly exhaled, there are ſometimes ſeen to ſhoot from, or rather under the ſpiculæ, upon the plane of the glaſs, a repreſentation of leaves very ſmall at their firſt appearance, but gradually increaſing (*d*). A violent agitation may be diſcovered in the fluid by the firſt magnifier during the whole proceſs: but eſpecially at the beginning, and extremely minute cryſtals riſing from the bottom.

16. *Salt of Hartſhorn.* On the application of a very ſmall degree of heat, ſalt of hartſhorn ſhoots near the edges of the drop into ſolid figures ſomewhat reſembling razors or lancets, where the blade turns into the handle by a claſp (*d*). The cryſtals of this ſalt are produced with great velocity, and are ſomewhat opaque, ſhooting from the edges of the drop, on both ſides a main ſtem, and with a kind of regularity, rugged branches like thoſe of ſome ſorts of coral (*a a*). But ſometimes, inſtead of theſe branches, ſharp ſpiculæ, ſome plain, and others jagged, are protruded to a conſiderable depth on one ſide only (*b*). As the fluid exhales, ſome one of the branching figures generally extends to a great length, producing on one ſide ſhoots that are rugged and irregular, and on the other curious regular branches reſembling thoſe of ſome plant (*c*).

17. *Salt of Urine*, ſhoots from the edges of the drop in long parallelograms like nitre (*a a*). But in other places, along the ſides of the drop ſolid angles are formed, that ſeem to be the rudiments of common ſalt (*b*). Some of the parallelograms increaſe much in ſize, and ſpread themſelves in the middle, ſo as to change their firſt figure, and become three or four times bigger than the reſt: and theſe have a dividing line that runs through their whole length from end to end, whence iſſue other ſhort lines at ſmall diſtances, oppoſite to one another; all pointing with the ſame degree of obliquity towards the baſe (*c c*). Among theſe enlarged figures, ſome few ſhoot ſtill forward and tapering towards a point, but, before they form one, ſwell again, and begin as it were anew; and thus they proceed ſeveral times before their figure is quite finiſhed (*aa*). The figures 1, 2, 3, 4, 5, 6, are the regular cryſtals of this ſalt when it is allowed to diſſolve in the air, and no heat at all is given.

18. *Rheum*, or the clear liquor which diſtills from the noſtrils when people catch cold, is ſtrongly ſaturated with ſalt. A drop of it on a ſlip of glaſs will ſoon cryſtallize in a beautiful manner, either with or without heat; but if heated to about the warmth of the blood, and when viewed through the miſcrope. many lucid points will be ſeen riſing and increaſing gradually, till their form is ſhown to be quadrangular, with two tranſparent diagonals croſſing each other (*dd*). Theſe diagonals ſhoot ſoon after far beyond the ſquare, protruding other lines at right angles from their ſides; and thus they go on to form the moſt elegant and beautiful cryſtals (*bb*, *cc*). When a drop of rheum is ſet to cryſtallize without any heat, inſtead of branched cryſtals over the whole area. ſuch are formed only in the middle; but, about the edges, plant-like figures are produced ſhooting ſeveral ſtems from one point, and reſembling a kind of ſea-moſs (E).

19. *Camphire*, though inſoluble in water, diſſolves very readily in ſpirit of wine. A drop of this ſolution ſpread upon a ſlip of glaſs cryſtallizes inſtantly in the beautiful manner repreſented in the figure.

20. *Manna* eaſily diſſolves in water, and a drop of the ſolution is a very pretty object. Its firſt ſhootings are radiations from points at the very edge of the drop: the radiating lines ſeem opaque, but are very ſlender (*a a a*). Amongſt theſe ariſe many minute tranſparent columns, whoſe ends grow wider gradually as they extend in length, and terminate at laſt with ſome degree of obliquity (*b*). Some few figures radiating from a centre every way, and circumſcribed by an outline, are produced within the drop (*d d*). But the moſt ſurpriſing and elegant configuration is compoſed of many cluſters of radiations ſhooting one from another over great part of the drop, and making all together a figure not unlike a certain very beautiful ſea-plant (C).

5
Exceſſive variety in the forms of cryſtals.

The phenomena of cryſtallization have much engaged the attention of modern chemiſts, and a vaſt number of experiments has been made with a view to determine exactly the different figures aſſumed by ſalts in paſſing from a fluid to a ſolid form. It does not, however, appear, from all that has yet been done, that any certain rule can be laid down in theſe caſes, as the figure of ſaline cryſtals may be varied by the ſlighteſt circumſtances. Thus, ſal ammoniac, when prepared by a mixture of pure volatile alkali with ſpirit of ſalt, ſhoots into cryſtals reſembling feathers; but if, inſtead of a pure alkali, we make uſe of one juſt diſtilled from bones, and containing a great quantity of animal oil, we ſhall, after ſome cryſtallizations of the feathery kind, obtain the very ſame ſalt in the form of cubes.

Such ſalts as are ſublimeable cryſtallize not only in the aqueous way by ſolution and evaporation, but alſo by ſublimation; and the difference betwixt the figures of theſe cryſtals is often very remarkable. Thus ſal ammoniac by ſublimation never exhibits any appearance of feathery cryſtals, but always forms cubes or parallelopipeds. This method of cryſtallizing ſalts by ſublimation has not as yet been inveſtigated by chemiſts: nor indeed does the ſubject ſeem capable of inveſtigation without much trouble; as the leaſt augmentation of the heat beyond the proper degree would make the cryſtals run into a ſolid cake, while a diminution of it would cauſe them fall into powder. In aqueous ſolutions, too, the circumſtances which determine the ſhapes of the cryſtals are innumerable; and the degrees of heat, the quantity of ſalt contained in the liquor, nay, the quantity of liquor itſelf, and the various conſtitutions of the atmoſphere at the time of cryſtallization, often occaſion ſuch differences as ſeem quite unaccountable and ſurpriſing.

6
Mr Bergman's account of their formation.

Mr Bergman has given a diſſertation on the various forms of cryſtals; which, he obſerves, always reſemble geometrical figures more or leſs regular. Their variety at firſt appears infinite; but by a careful examination it will be found, that a great number of cryſtals, ſeemingly very different from each other, may be produced by the combination of a ſmall number of original figures, which therefore he thinks may be called *primitive*. On this principle he explains the formation of the cryſtalline gems as well as ſalts; and the reſults of his obſervations are as follow.

I. One of the primitive forms is that named by our author *ſpathaceous*; and theſe, he ſays, properly agglutinated, may form the great variety of diſſimilar bodies found among cryſtals.

7 **Of the ſchoerlaceous cryſtal.**

In the calcareous ſpar we find a combination of rhombi, whoſe obtuſe angles contain $101\frac{1}{2}$ degrees, and the acute $78\frac{1}{2}$. By a combination of theſe is formed the calcareous ſpar, which appears in the form of a teſſera or oblique parallelopiped; but by other combinations of the ſame planes, cryſtals apparently of the moſt oppoſite forms may be generated. Thus, for the formation of an hexaedral priſm, conſiſting of ſix equal and ſimilar parallelograms terminating at both ends in three rhombi which form a ſolid angle, we have only to ſuppoſe a continual addition of rhombi equal, ſimilar, and parallel to the oblique parallelopiped or cryſtal of the calcareous ſpar. Thus, ſuppoſe the figure ABCDE (fig. 1.) to repreſent a nucleus of the kind juſt mentioned, the axis of which paſſes through the two oppoſite angles B E; it is evident, that by a continual application of rhombi, ſuch as F G, H I, &c. to both ſides of the axis, we ſhall at laſt produce the figure A B, fig. 2. and which repreſents the hexaedral priſm required. This kind of cryſtal, our author tells us, belongs chiefly to the ſtones called *ſchoerls*, and is therefore called the *ſchoerlaceous* form. It belongs likewiſe to ſome others of the calcareous tribe.

Plate CLIII.

8 **Garnet cryſtal.**

From the ſchoerlaceous cryſtal that of the garnet is eaſily produced by a ſtoppage of the accumulation of the planes as ſoon as the ſides of the priſm have acquired a rhomboidal figure. Thus a complete dodecahedron is formed, which is always the figure of the garnet when perfect.

9 **Hyacinth.**

The figure of the garnet is eaſily changed into another, frequently aſſumed by the hyacinth, by the regular application of equal and ſimilar rhombi to each of the ſolid angles, which angles are formed by four planes. The garnet, when complete, has ſix angles compoſed of four planes, and eight with three. The formation of this kind of cryſtal will be underſtoood from an inſpection of fig. 3. In this operation the four rhombi are changed into an equal number of oblong hexagons; L H A B into L H *h a b* B: and ſo of the other rhombi repreſented by the different letters of the figure.

10 **Pyramidal cryſtals.**

In ſome caſes the original planes decreaſe according to a certain law; and this, from whatever cauſe it may ariſe, muſt neceſſarily change the appearance of the terminating planes, and occaſionally either augment or diminiſh their number. Thus, inſtead of a priſm, we ſhall have a double pyramid, one tending upwards and other downwards, as will be eaſily underſtood from what has been already ſaid. This is the form aſſumed by the calcareous cryſtals commonly called *pig-tooth* by the miners.

If the decreaſing ſeries of rhombi is ſtopped before they vaniſh ultimately in a point, the formation of truncated pyramids, of which many examples are to be met with in the mineral kingdom, muſt neceſſarily take place. In caſes of this kind, it is eaſy to ſee why the pyramids, if ſtruck in one direction, will break over ſmoothly and eaſily, but not in another.

11 **Deviations from a perfect cryſtalline form.**

It is not uncommon to find the original cryſtals themſelves imperfect; in which caſe the large cryſtals, formed by combining them together, muſt deviate more or leſs from the perfect form. Thus, let A B C D E F G (fig. 4.) repreſent the three rhombi which conſtitute the apex of a perfect ſchoerlaceous cryſtal; and let us next ſuppoſe the rhombus A G truncated in the direction of the line *a b*, C G along *c d*, and E G along *e f*. Thus, the regular hexagonal figure of the priſm A B C D E F will be changed into an irregular one *a b c d* D *e f* F, conſiſting of nine unequal ſides, whoſe apex is compoſed of three irregular pentagons, *a b* B G F, *c d* D C B, and *e f* F G D. The rough tourmalins of Tyrol and Ceylon particularly aſſume this form, though it ſometimes belongs to bodies both of the calcareous and ſchoerlaceous kind.

12 **Triangular cryſtals.**

Triangular cryſtals may be ſuppoſed to ariſe from thoſe of the pentagonal kind; it being obvious, that the periphery of a pentagon, as *a b* B G F, approaches more nearly to a triangle in proportion as the diſtance between *a b* and B F grows leſs: and when theſe diſtances vaniſh entirely, a triagonal priſm is formed, terminated by three triangles: if the cutting line *a b* approach ſtill nearer to the centre G, the form ſtill remains the ſame.

13 **Varieties of the garnet cryſtal.**

Let us now ſuppoſe, that the garnet cryſtal, whoſe ſhape is repreſented fig. 5. inſtead of complete rhombi, has others accumulated about its axis, whoſe three external angles are truncated; or, which is the ſame thing, if the longitudinal margins of the priſm be cut by planes parallel to the axis, cryſtals will be formed, whoſe ſhape is repreſented by the ſmall letters in the figure. Calcareous cryſtals are ſometimes found of this ſhape; but generally ſo low, that *e* nearly coincides with *a*, *c* with *d*, &c. and hence the pentagon *a b c d e* becomes almoſt of a triangular figure, which has been attributed to theſe cryſtals by ſome authors who did not underſtand their true origin. The pyritaceous cryſtals ſometimes afford inſtances of this kind complete. Sometimes the garnet conſiſts of 24 ſides, by having all the margins truncated; a change which may eaſily be underſtood from what has been already mentioned. If the interſection *c d* of the planes *e c* and *c r* fall without the plane B G, a figure of a very different kind will be generated.

14 **Cruciform hyacinthine cryſtal.**

Sometimes the hyacinthine cryſtal aſſumes the cruciform appearance A B C D E F G H I K L M, fig. 6. Here the apex is at C, the figure A B C *b c a* being all in the ſame inclined plane, which is the caſe with the other three homologous figures. Now, in order to inveſtigate the formation of theſe cryſtals, let us ſuppoſe the rhombi C O, C P, and C Q, to be completed, which to an eye placed in the high axis C, will appear like as many ſquares ſituated in the ſubjacent plane. Thus we may underſtand the formation of the cryſtals of granite as well as of the hyacinth. The former may be ſuppoſed a quadrangular priſm compoſed of four rhombi, touching one another only at their apices, and terminated at each end by four rhombi meeting at the apex. When this form is a little protracted, or augmented by applying to the apices, ſimilar and equal planes, it becomes that of the hyacinth; whence the granite cryſtal may be called the rudiment of the hyacinth alſo. The variety here mentioned

CHRYSTALLIZATION

Plate CLIII.

Fig. 2

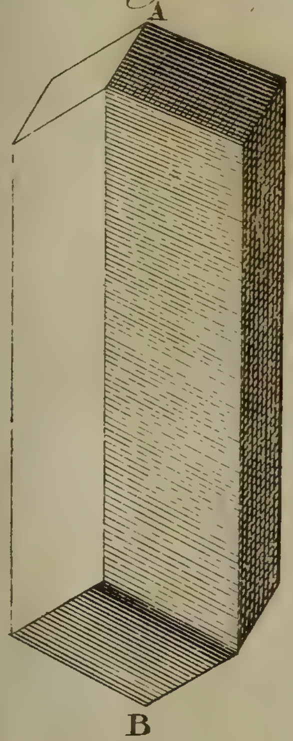


Fig. 1

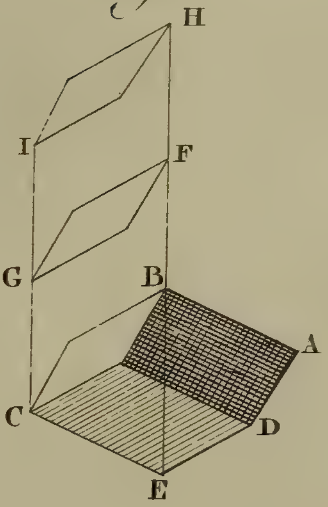


Fig. 3

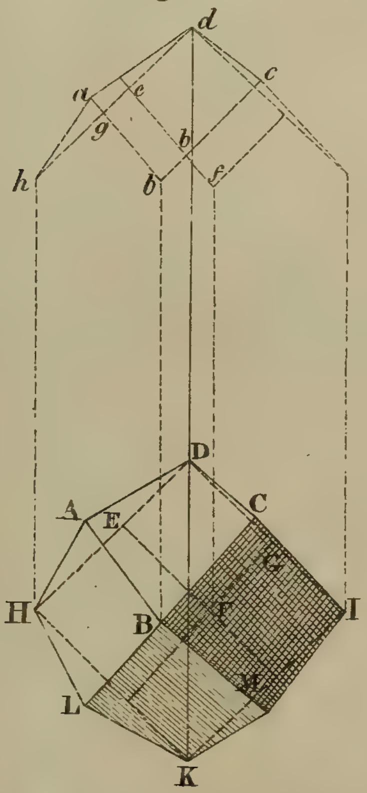


Fig. 6

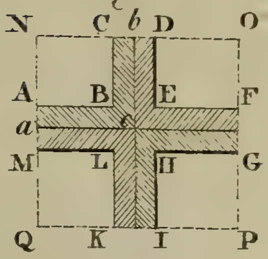


Fig. 7

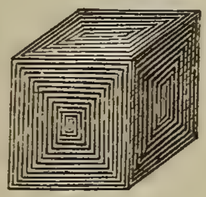


Fig. 10

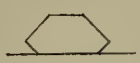


Fig. 8

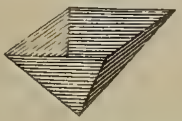


Fig. 5

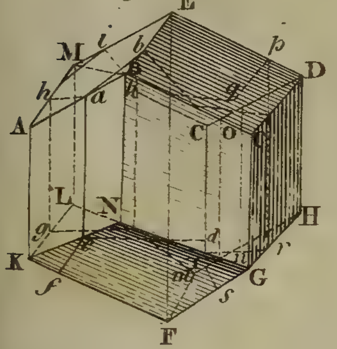
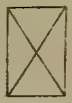


Fig. 11



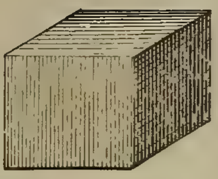


Fig. 14

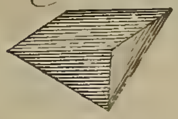


Fig. 9

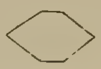


Fig. 12

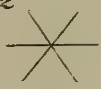


Fig. 15

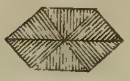


Fig. 13

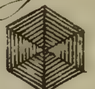


Fig. 19

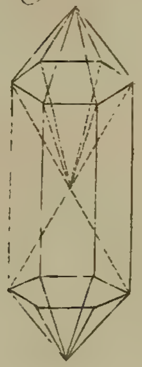


Fig. 20

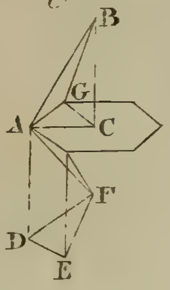


Fig. 4

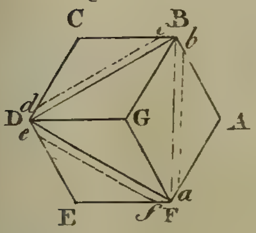


Fig. 17

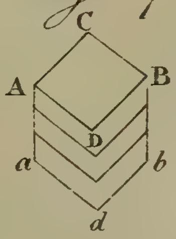


Fig. 18

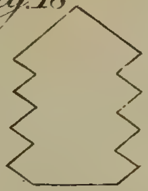
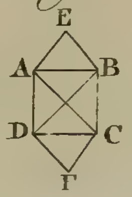


Fig. 16



Scot Philad.a

mentioned, of hyacinthine cryſtals, is met with in the Hartz mines. Mr Ehrhart ſays, that they are of a ſiliceous, and not of a calcareous, nature.

15 Other varieties of the forms of cryſtals.

If planes ſimilar to one another, but diſſimilar to the fundamental ones, be added, a vaſt variety of ſhapes may be produced, of which it is needleſs to give more examples at preſent. Our author appeals to experience for the truth of it; and aſſerts, that the looſe texture of calcareous cryſtals will clearly ſhow their conſtruction, if carefully and completely broken. The harder cryſtals can ſcarcely be broken in ſuch a manner as to ſhow their ſtructure; but the ſchoerls diſcover it very plainly, and even the garnets ſhow themſelves to be compoſed of laminæ.

“ Finally (ſays Mr Bergman), we may add one particular obſervation concerning priſmatic and hexagonal calcareous cryſtals truncated perpendicularly; ſuch ſometimes occur, and they cannot derive their origin, in the manner above deſcribed, from the ſpathaceous particles, and by no other way can hexagonal priſms be generated. What, then, is the cauſe which deſtroys their apices? I confeſs this to be a queſtion which I am wholly unable to anſwer, unleſs we may aſſume an accumulation of planes more and more deficient around the axis. We may from hence conclude, that ſomething unuſual occurs; as the truncated extremity is opaque, while the reſt of the priſm is tranſparent; but the upper hexagonal ſection is ſmooth and poliſhed.”

On the whole, our author obſerves, that the greateſt varieties may occur in the figures of cryſtals, though all of them may be generated from thoſe of the ſpathaceous form, and the ſubſtance of all may be ultimately the ſame; whence we ſhould be induced to put but little confidence in the figure. “ If, then, (ſays he), this teſt, which undoubtedly is the moſt remarkable ſo far as externals reach, is of ſo little uſe, of what value can the others be? and with what ſucceſs can we hope to form a ſyſtem of mineralogy upon ſuch diſtinctions? External criteria ſhould certainly not be neglected, but he who truſts implicitly to them deceives himſelf.”

16 Of the minute conſtituent parts of cryſtals.

II. From a conſideration of the larger lamellæ of which cryſtals are compoſed, our author naturally proceeds to an inveſtigation of their ſmaller conſtituent parts. Here he is of opinion, that the different external appearance of all cryſtals is owing to varieties in their mechanical elements. A queſtion, however, occurs, Whether thoſe very minute molecules, which may, as it were, be called the *ſtamina* of cryſtals, be naturally poſſeſſed of a determinate angular figure, or whether they acquire it by cryſtallization? In anſwer to this, he mentions the following facts, which he has had an opportunity of obſerving himſelf.

1. “ If the ſmall particles which ſeparate from lime-water, when expoſed to the air, be inſpected with a microſcope, they will be found ſpathaceous.

2. “ The greater ſpathous teſſeræ, when accurately examined, are frequently found with ſtriæ running diagonally, ſuch as often appear in ſaline cryſtals, by which their internal ſtructure is diſcovered.

3. “ The cubes of common ſalt not only exhibit diagonal ſtriæ, but frequently, upon each ſide, ſhow ſquares parallel to the external ſurface, and gradually decreaſing inwards (fig. 7.), by which we diſcover their internal ſtructure: for every cube is compoſed of ſix quadrangular hollow pyramids, joined by their apices and external ſurfaces; each of theſe filled up by others ſimilar, but gradually decreaſing, completes the form. By a due degree of evaporation, it is no difficult matter to obtain theſe pyramids ſeparate and diſtinct, as in fig. 8. or ſix of ſuch, either hollow, or more or leſs ſolid, joined round a centre. This is the whole courſe of the operation from beginning to end. This takes place in the ſalited vegetable alkali, or *ſal digeſtivus Sylvii*; in the cryſtallized luna cornea; the galena or ſulphurated lead; and quadrangular nitre, which is of the ſpathaceous form, produces a ſimilar congeries of pyramids, and theſe almoſt equally diſtinct with the preceding cubic cryſtals. A ſolution of alum, upon evaporation, generally produces ſolid octaedra; but ſometimes alſo it exhibits hollow pyramids, and upon ſuch of them as are complete, the junctures are very diſtinctly marked by conſpicuous lines.

4. “ Sometimes, too, other ſalts indicate the ſame conſtruction by viſible diagonals. Fig. 9. repreſents a ſection of the hexagonal priſm formed by Rochelle ſalt. The arrangement of the internal particles of this ſalt cannot be known when the cryſtal is complete: but when it is formed on the bottom of the veſſel, as repreſented fig. 10. the lower ſide cannot be perfect; and this parallelogram exhibits two diagonals diſtinctly, as repreſented fig. 11. This is likewiſe the caſe with the ſalt extracted from human urine, called *microcoſmic ſalt*. Beſides, we ſhould obſerve of the vertical triangles, that they are alternately tranſparent and opaque in pairs; which plainly points out a difference in the ſituation of their elements. Some cryſtals of nitre are alſo marked with diagonals; a circumſtance which in others is generally concealed by the cloſe connection of the particles.

5. “ If we examine the hollow pyramid of common ſalt farther, we ſhall find it compoſed of four triangles, and each of theſe formed of threads parallel to the baſe; which threads, upon accurate examination, are found to be nothing elſe than a ſeries of ſmall cubes: Therefore, although the above circumſtances ſeem plainly to point out the formation of all cryſtals from the union and coheſion of pyramids, whoſe ſides, being different in form and magnitude, occaſion the differences of forms; it yet remains uncertain whether the ſame internal ſtructure takes place in thoſe whoſe minuteneſs renders them totally inviſible; and whether the primary ſtamina poſſeſs a determinate figure, or are compoſed by the union of many ſhapeleſs particles. We have long known, that the ſmalleſt concretions which are viſible by a microſcope poſſeſs a determined figure: but theſe are compounds. In the mean time, until this veil be removed in ſome meaſure at leaſt, we cannot avoid comparing the proceſs of cryſtallization with the congelation of water.

“ While the watery particles are concreting, they exert a double tendency; by one of which they are formed into ſpiculæ, by the other theſe ſpiculæ are ranged in ſuch a manner with reſpect to one another as to form angles of 60 degrees: from hence the varieties obſerved in the particles of ſnow may be eaſily explained. The moſt ſimple figure is that where ſix equal radii diverge from a centre in the angle above-mentioned, as in fig. 12. The ſame angle will be preſerved if the extremities of theſe be joined by right lines; which will alſo be the caſe, if each of the triangles thus formed be filled with right lines parallel to the baſe, as in fig. 13.

"Let us now ſuppoſe the particles which are employed in cryſtallization endowed with a tendency to form ſpiculæ, and theſe ſpiculæ with a tendency to arrange themſelves at equal angles of inclination, and we ſhall have both the triangles and the pyramids compoſed of them, even although the primary ſtamina had not a determined figure. As the angles of inclination vary, the triangles and pyramids will alſo vary; and hence the different forms of cryſtals will be produced, which may to a certain degree be inveſtigated geometrically, the angles being given.

17 Different ways in which they may be produced.

III. Mr Bergman now conſiders the various ways in which cryſtals may be produced; which are, 1. By water; 2. By a liquefying heat; 3. By a volatilizing heat.

1. The moſt common method of obtaining cryſtals is by means of water; as by this medium ſaline ſubſtances are very readily taken up, and appear again in a ſolid form when the liquid is properly diminiſhed by evaporation. It is not only when diſſolved in water that they acquire determinate forms; this happens alſo when they are ſufficiently attenuated and mixed with it; for ſubſtances not ſoluble in water will remain ſuſpended in it, when, by ſufficient diviſion, they have acquired as much ſurface as makes them approach the ſpecific gravity of the fluid; and it ſeems very probable, that many of the earths met with in the mineral kingdom, which have a regular form, have coaleſced in this way. We muſt, however, carefully diſtinguiſh between mechanical mixture and true ſolution, even though both ſhould agree in weight. When ſolid bodies are mechanically mixed with water, they will remain at the bottom of the veſſel if laid there in powder, unleſs diffuſed by agitation; but ſoluble ſubſtances totally and ſpontaneouſly diſtribute themſelves through the menſtruum even without any agitation, though this certainly accelerates the ſolution.

2. Another method of obtaining cryſtals is by fuſion and ſlow cooling. Thus ſulphur, when melted and cooled, ſhoots into long ſtriæ, acquiring at the ſame time an electrical property: biſmuth, zinc, and regulus of antimony, acquire a teſſelated appearance; nay, the laſt of theſe, when ſet to cool in a conical mould, becomes ſtellated, not only on the upper ſurface or baſis of the maſs, but along the whole axis. Glaſs alſo, when melted and ſlowly cooled, will ſometimes ſhoot into beautiful cryſtals. Our author mentions his having ſometimes ſeen the ſcoria of furnaces, where iron had been melted with the addition of calcareous earth, of a regular priſmatic figure; and when crude iron has been melted with lime, he has ſometimes alſo found complete octaedra in the ſcoria. In large metallic maſſes, however, the under parts are generally ſo much preſſed by the weight of thoſe above, that they ſhow no ſigns of cryſtallization, though beautiful cryſtals are often formed on the ſurface of gold, ſilver, iron, &c.

3. The particles of bodies volatilized by heat, if during cooling they are ſufficiently at liberty, often obey the laws of attraction, and form cryſtals. To this claſs we may refer thoſe which are condenſed from the vapours of regulus of antimony, called the *flores argentini*. The galena which is frequently interſperſed among the copper-ore at Fahlun ſends forth a vapour which condenſes on the upper ſtrata, forming hollow pyramids, which are the baſes of the cubes of galena, entirely ſimilar to thoſe which compoſe common ſalt. In the heaps of arſenical ore expoſed to the fire at Loefa, our author has collected very beautiful cryſtals, of white, yellow, and red colours, partly tetraedral and partly octaedral. Some of theſe exhibit hollow pyramids, whoſe ſides conſiſt of threads parallel to the baſe, and exactly ſimilar to thoſe formed in the moiſt way. Theſe cryſtals, when complete, frequently ſhow the junctures of the pyramids very diſtinctly by ſtraight lines; and by careful examination, we may be able to trace the whole proceſs through its various ſteps, from the very beginning to the end of the operation.

18 Formation of priſms of various kinds.

Priſms of any kind may be formed by the apices of proper pyramids meeting together in a certain number round the ſame point. The apex may alſo be formed by a ſingle pyramid, having its vertical angle turned outward. Thus, by adding to the cube ABCD the quadrangular pyramids AEB DCF, we ſhall have a four-ſided priſm (fig. 16.); and thus, though very ſeldom, common ſalt ſometimes acquires an apex. If we apply to one or both of the apices of the octaedron ACBD, fig. 17. a hollow pyramid *a d b*, ſimilar and equal to the fundamental figure, we will have a priſm of the ſame kind: alum, however, has never been obſerved of a priſmatic form by our author, though ſometimes conſiſting of octaedra imperfectly joined together, as in fig. 18. Four ſided pyramids may be compoſed of four tetraedra, and conſequently 24 of the ſame may make up a cube; "and (ſays our author) it has alſo a double apex of 32. Thus we have a new conſtruction, which undoubtedly ſometimes takes place; for, as I have already ſaid, arſenical cryſtals ſometimes take the tetraedral, ſometimes the octaedral, form, which may therefore eaſily be mutually exchanged.

"It is with leſs facility that hexagonal priſms are formed of ſuch pyramids as have the ſame number of ſides, unleſs tetraedra be admitted. In fig. 19. four hexagonal and ſix tetragonal pyramids meet; the former are eaſily reſolved into ſix and the latter into four tetraedra (fig. 20.); 48 of which conſequently make up the whole maſs, ſuppoſing this to be the method followed by nature. I have no doubt that this conſtruction is probable on many accounts; for it requires only the moſt ſimple elements, and ſuch as are conformable to the figures of all cryſtals. That tetraedra adapted to this purpoſe have ſometimes diſſimilar and unequal ſides, makes not againſt the ſuppoſition: but what is moſt to the purpoſe is, that ſometimes ſuch tetraedra are employed without the ſmalleſt doubt. All theſe circumſtances are of no ſmall weight; but as long as no traces of tetraedra are to be found among the pyramids of common ſalt, the laws of ſound reaſoning forbid us to draw any general concluſion. I am perfectly certain that nature does frequently employ pyramids in this operation; it remains for future experiments to determine whether this be always the caſe."

19 Different theories of cryſtallization.

IV. We come now to conſider the ultimate cauſe of cryſtallization, concerning which there have been many different theories. Some have been of opinion that there cannot be any cryſtallization without a ſaline principle in ſome degree exiſting in the cryſtallizing ſubſtance. This opinion, however, is oppoſed by Mr Bergman on the following grounds:

1. He ſuppoſes cryſtallization to be an effect of attraction;

traction; conſequently, as all other matters as well as ſalts are ſubject to the laws of that attraction, we cannot conſider the regular and ſymmetrical form in which they arrange themſelves as peculiar to ſaline bodies; and hence cryſtals are alſo produced by ſuch methods as will ſufficiently attenuate and diſengage the integrant parts from each other.

2. The more ſimple that any ſaline body is, and the more free from any kind of heterogeneous matter, the more difficult it is to reduce it into a cryſtalline form. Thus the pure acids and cauſtic alkali cannot be made to aſſume the form of cryſtals without the greateſt difficulty.

3. The ſimilarity of forms in cryſtals, Mr Bergman obſerves, "does not depend upon the acid; as the priſmatic and quadrangular nitre are formed from the ſame acid, though joined indeed to different alkalies. Neither is the baſis ſufficient to determine the figure; for the vegetable, as well as the mineral alkali, when ſaturated with marine acid, will produce cubical cryſtals. The external appearance, therefore, depends on the menſtruum and the baſe jointly. We are not, however, to imagine from thence that there is preſent a neutral or middle ſalt whenever the figure of ſuch a one is diſcoverable; for not the ſmalleſt particle of alum is found in nickel or lead when united with nitrous acid, though both theſe compounds yield octaedral cryſtals." Here we may again remark, that the figure of cryſtals depends upon circumſtances altogether unknown, of which Dr Eaſon, in a paper on this ſubject in the Mancheſter Tranſactions, gives a remarkable inſtance in gypſum, which is known to be a combination of the vitriolic acid with a calcareous baſis; yet this compound is found naturally cryſtallized in five ways, ſo very different from each other, that mineralogiſts have diſtinguiſhed them by five diſtinct names, viz. Lapis ſpecularis. 2. Striated gypſum. 3. Gypſeous alabaſter. 4. Selenites properly ſo called. 5. A gypſeous ſpar frequently adhering to the veins of ore in mountains. All of theſe, when chemically examined, exhibit preciſely the ſame phenomena, and are really nothing but different cryſtallizations of the ſame compound ſalt.

4. Mr Bergman likewiſe obſerves, that there is a great variety in the forms of cryſtals, though the matter remains the ſame; of which examples have been given in the calcareous cryſtals, and in the different kinds of gypſum juſt mentioned. Among the pyrites alſo we meet with cubes ſtriated in a very ſingular manner; the lines of one ſide being perpendicular to thoſe which diſtinguiſh the different ſides, as repreſented fig. 14.; but among theſe there are likewiſe tetraedra, octaedra, dodecaedra, and icoſaedra, to be met with.

5. A great number of cryſtals are either totally deſtitute of any ſaline matter, or poſſeſs it in ſuch a ſmall degree that no experiments hitherto tried have been able to diſcover the ſmalleſt ſenſible traces of it. Thus mica ſometimes ſhoots into hexangular priſms compoſed of parallel lamellæ, the elementary ſpiculæ of which are diſpoſed as in fig. 15.; gems, ſchoerls, granites, and other earthy bodies, are frequently found figured, though no ſaline matter can be diſcovered by analyſis; and the ſame holds good of gold, ſilver, lead, tin, biſmuth, and zinc, united with mercury, all of which regular forms, according to the quantity of the mercury.

"If we have recourſe (concludes Mr Bergman) to the ſuppoſition of an hidden ſaline ſubſtance which cannot be diſcovered by art, it muſt ſurely be unreaſonable to attribute to ſuch a principle ſo great a power as that of arranging the particles in the order neceſſary for cryſtallization; a cauſe, beyond queſtion, unequal to the magnitude of the effect: for how is it poſſible that a ſaline matter, the preſence of the ſmalleſt atom of which cannot be diſcovered by the moſt delicate teſts, ſhall in pure water have yet power to effect the icy cryſtallization with ſuch force as to overcome the ſtrongeſt obſtacles? How can a ſaline matter, which by no teſt can be diſcovered, have power, in an amalgam of gold, to arrange the ponderous particles of both metals in a particular manner? What ſalt is able to form the ſtellated regulus of antimony? What the hexagonal lamellæ of mica?"

20 All of them inſufficient

On this ſubject we may remark, that whether we affirm or deny a ſaline principle to be the cauſe of cryſtallization, the ultimate power by which it is effected muſt be equally unknown. A ſaline principle can make other bodies cryſtallize along with it only by virtue of the diſpoſition it has of itſelf to aſſume a cryſtalline appearance; and we muſt therefore ſeek for the cauſe of this cryſtallization of the ſalt, as well as of the ſubſtance with which it is mixed. Mr Bergman, as well as others, have endeavoured to account for this on the principle of attraction; but with little ſucceſs. Sir Iſaac Newton ſuppoſes the particles of ſalt to be diffuſed through the ſolvent fluid at equal diſtances from each other; on which account he concludes that they muſt come together in regular figures. Mr Bergman conſiders the particles which form ſaline ſubſtances as endowed with a twofold tendency: one to arrange themſelves in ſpiculæ, the other for the ſpiculæ to arrange themſelves at certain angles of inclination; and as theſe angles vary, different forms of cryſtals muſt be produced. Both theſe effects, he thinks, may be owing to the ſame cauſe, viz. a mutual attraction between the particles; which, according to the various ſhapes and particular figures of the atoms, at one time arranges them in the form of ſpiculæ, and again connects the ſpiculæ already formed under different angles of inclination.

This ſeems to be much the ſame with what other chemiſts underſtand by the *polarity* of the ſaline particles, by which they are arranged in certain directions. All this, however, is totally inſufficient to explain the phenomenon. If, according to Sir Iſaac Newton's ſuppoſition, the particles were brought together by a general attraction, after being placed at equal diſtances by the ſolvent for ſome time, we muſt expect to find all kinds of ſalts cryſtallized in the ſame manner, or rather running into one ſolid lump. The arrangement of the particles, or their tendency to arrangement, aſſigned by Mr Bergman as a cauſe, is only explaining the phenomenon by itſelf; for it is the *cauſe* of this tendency which is the point in queſtion. Now, that the attraction of the ſaline particles to each other cannot be the cauſe of cryſtalline arrangements, is evident from the following conſiderations: 1. The cryſtals of every kind of ſalt contain water as an eſſential part of their compoſition; and if deprived of this, they loſe their cryſtalline form entirely, and fall into powder. It is plain, therefore, that the ſaline particles attract not only one another, but ſome part of the water which diſſolves them; whence it ſeems probable that the proceſſes of cryſtallization and vegetation are analogous to each other. This is likewiſe confirmed by the many curious vegetations of ſalts known by the name of *effloreſcences*. Theſe cannot be owing merely to attraction; becauſe they frequently protrude from a large ſaline maſs, in which they ought rather to be detained by the attraction of the reſt. Thus, if a quantity of the reſiduum of Glauber's ſpirit of nitre diſtilled with a large proportion of vitriolic acid, be expoſed to a moiſt air, beautiful ramifications ſomewhat reſembling ſhrubs will ſometimes ſhoot out to the length of more than an inch. This ſurely cannot be the effect of attraction; but rather of ſome repulſive power by which the particles of the large maſs at firſt tend to ſeparate from one another †. 2. Attraction, in ſuch a manner as would diſpoſe the particles into certain determinate forms, cannot take place where they are all homogeneous, which muſt be the caſe with metals; all of which are capable of forming cryſtals when ſlowly cooled; ſuch cryſtallizations, therefore, muſt be produced by ſome other power.

† See *Effloreſcence*.

Mr Bergman conſiders the congelation of water as a ſpecies of cryſtallization; and in order to prove the ſimilitude, he takes notice, that it is by means of the matter of heat that this element becomes fluid. He obſerves likewiſe, that ſalts, in the act of cryſtallizing, part with heat as water does in the act of being converted into ice. It would ſeem, therefore, that the particles were arranged in certain forms by the action of the heat when paſſing from a latent to a ſenſible ſtate. From a late experiment, it would ſeem that the electric fluid was principally concerned. This was firſt diſcovered by Lichtenberg, and conſiſts only in ſprinkling powdered roſin upon an electrophorus, which in certain circumſtances arranges itſelf into ſtars with radii ſimilar to thoſe of the cryſtals of ſnow. See ELECTRICITY.

CRYSTALS, in chemiſtry, ſalts or other matters ſhot or congealed in the manner of cryſtal. See CHEMISTRY-*Index*; and CRYSTALLIZATION.

CTESIAS, a native of Cnidos, who accompanied Cyrus the ſon of Darius in his expedition againſt his brother Artaxerxes; by whom he was taken priſoner. But curing Artaxerxes of a wound he received in the battle, he became a great favourite at the court of Perſia, where he continued practiſing phyſic for 17 years, and was employed in ſeveral negociations. He wrote the Hiſtory of Perſia in 23 books, and a Hiſtory of the Indies: but theſe works are now loſt, and all we have remaining of them is an abridgement compiled by Photius. The moſt judicious among the ancients looked upon Cteſias as a fabulous writer; yet ſeveral of the ancient hiſtorians and modern Chriſtian writers have adopted in part his chronology of the Aſſyrian kings.

CTESIBIUS, a mathematician of Alexandria, about 120 years before Chriſt. He was the firſt who invented the pump. He alſo invented a clepſydra, or a water clock. This invention of meaſuring time by water was wonderful and ingenious. Water was let drop upon wheels which it turned: the wheels communicated their regular motion to a ſmall wooden image, which by a gradual riſe pointed with a ſtick to the proper hours and months, which were engraved on a column near the machine. This artful invention gave riſe to many improvements; and the modern manner of meaſuring time with an hour-glaſs is in imitation of the clepſydra of Cteſibius.

CTESIPHON, a celebrated Greek architect, who gave the deſigns for the famous temple of Epheſus, and invented a machine for bringing thither the columns to be uſed in that noble ſtructure. He flouriſhed 544 B. C.

CTESIPHON (anc. geog.), a large village, or rather a fine city, of Chalonitis, the moſt ſouthern province of Aſſyria. It was ſituated on the left or eaſt ſide of the Tigris, oppoſite to Seleucia on this ſide; and built by the Parthians, to rival Seleucia. Here the kings of Parthia paſſed the winter (Strabo); as they did the ſummer at Ecbatana.

CTESIPHON was alſo the name of ſeveral noted perſons of antiquity. 1. An Athenian, who adviſed his fellow citizens to crown publicly Demoſthenes with a golden crown for his probity and virtue. This was oppoſed by the orator Æſchines, the rival of Demoſthenes, who accuſed Cteſiphon of ſeditious views. Demoſthenes undertook the defence of his friend, in a celebrated oration ſtill extant, and Æſchines was baniſhed. 2. A Greek architect, who made the plan of Diana's temple at Epheſus. 3. An elegiac poet, whom king Attalus ſet over his poſſeſſions in Æolia. 4. A Greek hiſtorian, who wrote an hiſtory of Bœotia.

CUB, a bear's whelp. Among hunters, a fox and marteon of the firſt year are alſo called *cubs*. See URSUS.

CUBA, a large and very important iſland in the Weſt Indies, belonging to Spain. On the eaſt ſide it begins at 20. 20. N. Lat. touches the tropic of Cancer on the north, and extends from 74. to 85. 15. W. Long. It lies 60 miles to the weſt of Hiſpaniola, 25 leagues north of Jamaica, 100 miles to the eaſt of Jucatan, and as many to the ſouth of Cape Florida; and commands the entrance of the gulphs both of Mexico and Florida, as alſo the windward paſſages. By this ſituation it may be called the *key* of the Weſt Indies. It was diſcovered by Columbus in 1492, who gave it the name of Ferdinando, in honour of king Ferdinand of Spain; but it quickly after recovered its ancient name of *Cuba*. The natives did not regard Columbus with a very favourable eye at his landing; and the weather proving very tempeſtuous, he ſoon left this iſland, and ſailed to *Hayta*, now called *Hiſpaniola*, where he was better received. The Spaniards, however, ſoon became maſters of it. By the year 1511 it was totally conquered; and in that time they had deſtroyed, according to their own accounts, ſeveral millions of people. But the poſſeſſion of Cuba was far from anſwering the expectations of the Spaniſh adventurers, whoſe avarice could be ſatiated with nothing but gold. Theſe monſters finding that there was gold upon the iſland, concluded that it muſt come from mines; and therefore tortured the few inhabitants they had left, in order to extort from them a diſcovery of the places where theſe mines lay. The miſeries endured by theſe poor creatures were ſuch that they almoſt unanimouſly reſolved to put an end to their own lives; but were prevented by one of the

Cuba.

the Spaniſh tyrants called *Vaſco Porcellos*. This wretch threatened to hang himſelf along with them, that he might have the pleaſure, as he ſaid, of tormenting them in the next world worſe than he had done in this; and ſo much were they afraid of the Spaniards, that this threat diverted theſe poor ſavages from their deſperate reſolution. In 1511, the town of Havannah was built, now the principal place on the iſland. The houſes were at firſt built only of wood; and the town itſelf was for a long time ſo inconſiderable, that in 1536 it was taken by a French pirate, who obliged the inhabitants to pay 700 ducats to ſave it from being burnt. The very day after the pirate's departure, three Spaniſh ſhips arrived from Mexico, and having unloaded their cargoes, ſailed in purſuit of the pirate ſhip. But ſuch was the cowardice of the officers, that the pirate took all the three ſhips, and returning to the Havannah, obliged the inhabitants to pay 700 ducats more. To prevent misfortunes of this kind, the inhabitants built their houſes of ſtone; and the place has ſince been ſtrongly fortified. See HAVANNAH.

According to the Abbé Raynal, the Spaniſh ſettlement at Cuba is very important, on three accounts: 1. The produce of the country, which is conſiderable. 2. As being the ſtaple of a great trade; and, 3. As being the key to the Weſt Indies. The principal produce of this iſland is cotton. The commodity, however, through neglect, is now become ſo ſcarce, that ſometimes ſeveral years paſs without any of it being brought into Europe. In place of cotton, coffee has been cultivated: but, by a ſimilar negligence, that is produced in no great quantity; the whole produce not exceeding 30 or 35 thouſand weight, one-third of which is exported to Vera Cruz, and the reſt to Madrid. The cultivation of coffee naturally leads to that of ſugar; and this, which is the moſt valuable production of America, would of itſelf be ſufficient to give Cuba that ſtate of proſperity for which it ſeems deſigned by nature. Although the ſurface of the iſland is in general uneven and mountainous, yet it has plains ſufficiently extenſive, and well enough watered, to ſupply the conſumption of the greateſt part of Europe with ſugar. The incredible fertility of its new lands, if properly managed, would enable it to ſurpaſs every other nation, however they may have now got the ſtart of it: yet ſuch is the indolence of the Spaniards, that to this day they have but few plantations, where, with the fineſt canes, they make but a ſmall quantity of coarſe ſugar at a great expence. This ſerves partly for the Mexican market, and partly for the mother-country; while the indolent inhabitants are content to import ſugar for themſelves at the expence of near 220,000 l. annually. It has been expected with probability, that the tobacco imported from Cuba would compenſate this loſs; for after furniſhing Mexico and Peru, there was ſufficient, with the little brought from Caracca and Buenos Ayres, to ſupply all Spain. But this trade too has declined through the negligence of the court of Madrid, in not gratifying the general taſte for tobacco from the Havannah. The Spaniſh colonies have an univerſal trade in ſkins; and Cuba ſupplies annually about 10 or 12 thouſand. The number might eaſily be increaſed in a country abounding with wild cattle where ſome gentlemen poſſeſs large tracts of ground, that for want of population can ſcarce be applied to any other purpoſe than that of breeding cattle. The hundredth part of this iſland is not yet cleard. The true plantations are all confined to the beautiful plains of the Havannah, and even thoſe are not what they might be. All theſe plantations together may employ about 25,000 male and female ſlaves. The number of whites, meſtees, mulattoes, and free negroes, upon the whole iſland, amounts to about 30,000. The food of theſe different ſpecies conſiſts of excellent pork, very bad beef, and caſſava bread. The colony would be more flouriſhing, if its productions had not been made the property of a company, whoſe excluſive privilege operates as a conſtant and invariable principle of diſcouragement. If any thing could ſupply the want of an open trade, and atone for the grievances occaſioned by this monopoly at Cuba, it would be the advanage which this iſland has for ſuch a long time enjoyed, in being the rendezvous of almoſt all the Spaniſh veſſels that ſail to the new world. This practice commenced almoſt with the colony itſelf. Ponce de Leon having made an attempt upon Florida in 1512, became acquainted with the new canal of Bahama. It was immediately diſcovered that this was the beſt route the ſhips bound from Mexico to Europe could poſſibly take; and to this the wealth of the iſland is principally, if not altogether owing.

Cube
Cubitus.

CUBE, in geometry, a ſolid body conſiſting of ſix equal ſides. See GEOMETRY.

CUBE-Root of any Number or Quantity, is ſuch a number or quantity, which, if multiplied into itſelf, and then again the product thence ariſing by that number or quantity, being the cube-root, this laſt product ſhall be equal to the number or quantity whereof it is the cube-root; as 2 is the cube-root of 8: becauſe two times 2 is 4, and two times 4 is 8; and $a+b$ is the cube-root of $a^3+3aab+3abb+b^3$. See ALGEBRA.

CUBEBS, in the materia medica, a ſmall dried fruit reſembling a grain of pepper, but often ſomewhat longer, brought into Europe from the iſland of Java. In aromatic warmth and pungency, they are far inferior to pepper,

CUBIC EQUATION. See ALGEBRA.

CUBIDIA, a genus of ſpars. The word is derived from κυϐος, "a die;" and is given them from their being of the ſhape of a common die, or of a cubic figure. Theſe bodies owe this ſhape to an admixture of lead, and there are only two known ſpecies of the genus. 1. A colourleſs cryſtalline one, with thin flakes, found in the lead-mines of Yorkſhire, and ſome other parts of Britain; and, 2. A milky white one with thicker cruſts. This is found in the lead mines of Derbyſhire and Yorkſhire, but is uſually ſmall, and is not found plentifully.

CUBIT, in the menſuration of the ancients, a long meaſure, equal to the length of a mans's arm, from the elbow to the tip of the fingers.

Dr Arbuthnot makes the Engliſh cubit equal to 18 inches; the Roman cubit equal to 1 foot 5.406 inches; and the cubit of the ſcripture equal to 1 foot 9.888 inches.

CUBITÆUS MUSCLES, the name of two muſcles of the hand. See ANATOMY, *Table of the Muſcles*.

CUBITUS, in anatomy, a bone of the arm, reaching from the elbow to the wriſt; otherwiſe called *ulna* or the *greater foſſile*. Some uſe the word for all that part of the arm between the elbow and the wriſt; including the *ulna* or *cubitus*, properly ſo called, and the *radius*.

CUBOIDES, or *Os Cubiforme*, in anatomy, the ſeventh bone of the foot; ſo called from its being in form of a cube or die.

CUCKING-Stool, an engine invented for puniſhing ſcolds and unquiet women, by ducking them in water; called in ancient times a *tumbrel*, and ſometimes a *trebuchet*. In Domeſday, it is called *cathedra ſtercoris*: and it was in uſe even in the Saxons time, by whom it was deſcribed to be *cathedra in qua rixoſæ mulieres ſedentes aquis demergebantur*. It was anciently alſo a puniſhment inflicted upon brewers and bakers tranſgreſſing the laws; who were thereupon in ſuch a ſtool immerged over head and ears *in ſtercore*, ſome ſtinking water. Some think it a corruption from *ducking-ſtool*; others from *choaking ſtool, quia hoc modo demerſæ aquis fere ſuffocantur*. See Gastigatory.

CUCKOW, in ornithology. See Cuculus.

Cuckow-Spit, the ſame with froth-Spit. See *Froth-Spit*, and Cicada.

CUCUBALUS, berry-bearing chickweed: A genus of the trigynia order, belonging to the decandria claſs of plants, and in the natural method ranking under the 22d order, *Caryophillei*. The calyx is inflated; the petals five, unguiculated without a nectariferous corona at the throat; the capſule is trilocular. There are 15 ſpecies, the moſt remarkable of which are,

1. The beken, Swediſh lychnis, or gumſcpungar, is a native of ſeveral parts of Europe. The empalement of its flower is curiouſly wrought like a network, and is of a purpliſh colour. The leaves have ſomewhat of the flavour of peaſe, and proved of great uſe to the inhabitants of Minorca in 1685, when a ſwarm of locuſts had deſtroyed the harveſt. The Gothlanders apply the leaves to eryſipelatous eruptions. Horſes, cows, ſheep, and goats, eat this plant.

2. The noctiflora, or night-flowering lychnis, grows naturally in Spain and Italy. It is a perennial plant, riſing with an upright branching ſtalk, a foot and an half high, garniſhed with very narrow leaves, placed oppoſite. The upper part of the ſtalk branches very much; the flowers ſtand upon long naked footſtalks, each ſupporting three or four flowers which have long tubes with ſtriped empalements: the petals are large, deeply divided at top, and of a pale bluiſh colour. The flowers are cloſed all the day; but when the ſun leaves them, they expand, and then emit a very agreeable ſcent. It may be propagated by ſeeds ſown in the ſpring on a bed of light earth; and when the plants are fit to remove, they ſhould be planted in a nurſery bed at about four inches diſtance, where they may remain till autumn. They may then be planted in the borders where they are to remain, and will flower the following year.

3. The otites, or catch fly, is a native of Britain, and other European countries. It hath a thick, fleſhy perennial root, which ſtrikes deep into the ground from whence riſes a jointed ſtalk three or four feet high. At the joints there exſudes a viſcous clammy juice, that ſticks to the fingers when handled; and the ſmall inſects which ſettle upon thoſe parts of the ſtalks are thereby ſo faſtened that they cannot get off. The flowers are ſmall, and of a greeniſh colour. The plant is propagated by ſeeds.

CUCULUS, the Cuckow, in orinthology, a genus belonging to the order of picæ: the characters of which are: The bill is ſmooth, and more or leſs bending; the noſtrils are bounded by a ſmall rim; the tongue is ſhort and pointed; the feet and toes formed for climbing. The moſt remarkable ſpecies are: Pate CLI.

1. The canorus, or common cuckow, weighs about five ounces; and is in length 14 inches, in breadth 25. The bill is black, and about two thirds of an inch in length. The head, hind part of the neck, coverts of the wings and rump, are of a dove colour; darker on the head and paler on the rump. The throat and upper part of the neck, are of a pale grey; the breaſt and belly white, croſſed elegantly with undulated lines of black. The tail conſiſts of ten feathers of unequal lengths; the two middle tail-feathers are black tipped with white; the others are marked with white ſpots on each ſide their ſhafts. The legs are ſhort; and the toes diſpoſed two backwards and two forwards, like thoſe of the wood-pecker, though it is never obſerved to run up the ſides of trees. The female differs in ſome reſpects. The neck before and behind is of a browniſh-red; the tail barred with the ſame colour and black, and ſpotted on each ſide the ſhaft with white. The young birds are brown mixed with black, and in that ſtate have been deſcribed by ſome authors as old ones.

"This bird appears in our country early in the ſpring, and makes the ſhorteſt ſtay with us of any bird of paſſage. It is compelled here, as Mr Stilingfleet obſerves, by that conſtitution of the air which cauſes the fig-tree put forth its fruit; though it has been ſuppoſed that ſome of theſe birds do not quit this iſland during the winter; but that they ſeek ſhelter in hollow trees and lie torpid, unleſs animated by unuſually warm weather." Mr Pennant gives two inſtances of their being heard in February; one in 1771, in the end of that month; the other in 1769, on the 4th day; but after that they were heard no more, being probably chilled again into torpidity. There is a remarkable coincidence between the ſong of theſe birds and the mackarels continuing in full roe; that is, from about the middle of April to the latter end of June. The cuckow is ſilent for ſome time after his arrival; his note is a call to love, and uſed only by the male, who ſits perched generally on ſome dead tree or bare bough, and repeats his ſong, which he loſes as ſoon as the amorous ſeaſon is over. His note is ſo uniform, that his name in all languages ſeems to have been derived from it; and in all countries it is uſed in the ſame reproachful ſenſe:

> The plain-ſong *cuckow* grey,
> Whoſe note full many a man doth mark,
> And dares not anſwer nay. *Shakeſpeare.*

The reproach ſeems to ariſe from the cuckow's making uſe of the bed or neſt of another to depoſite its eggs in, leaving the care of its young to an improper parent; but Juvenal with more juſtice gives the infamy to the bird in whoſe neſt the ſuppoſititious eggs were laid:

Tu tibi nunc corruca *places.*

On the natural hiſtory of this ſingular bird, we have a very curious paper by Mr Jenner, publiſhed in the Philoſophical Tranſactions for 1738†. The firſt appearance of cuckows in Britain, as already obſerved, is about the middle of April; (the 17th according to Mr Jenner, whoſe obſervations were made in Glouceſterſhire). The ſong of the male, which is well known, ſoon proclaims its arrival. The ſong of the female (if the peculiar notes of which it is compoſed may be ſo called) is widely different, and has been ſo little attended to, that perhaps few are acquainted with it: the cry of the dab-chick bears ſome reſemblance to it.

Unlike the generality of birds, cuckows do not pair. When a female appears on the wing, ſhe is often attended by two or three males, who ſeem to be earneſtly contending for her favours. From the time of her appearance till after the middle of ſummer the neſts of the birds ſelected to receive her eggs are to be found in great abundance; but, like the other migrating birds, ſhe does not begin to lay till ſome weeks after her arrival.

It is on all hands allowed, that the cuckow does not hatch its own eggs; for which different reaſons have been given, as will be afterwards noticed. The hedge-ſparrow, the water-wagtail, the tit-lark, the redbreaſt, the yellow hammer, the green linnet, or the whinchat, is generally the nurſe of the young cuckow: but Buffon enumerates 20 ſorts of neſts at leaſt in which they have depoſited their eggs. It may be ſuppoſed, that the female cuckow lays her egg in the abſence of the bird in whoſe neſt ſhe intends to depoſite; as it has been known, that on ſight of one of theſe a redbreaſt and its mate jointly attacked her on approaching the neſt, putting her to flight; and ſo effectually drove her away, that ſhe did not dare to return. Among the birds abovementioned, it generally, according to Mr Jenner's obſervations, ſelects the three firſt, but ſhows a much greater partiality to the hedge-ſparrow. This laſt commonly takes up four or five days in laying her eggs. During this time (generally after ſhe has laid one or two) the cuckow contrives to depoſite her egg among the reſt, leaving the future care of it entirely to the hedge-ſparrow. This intruſion often occaſions ſome diſcompoſure; for the old hedge-ſparrow at intervals, whilſt ſhe is ſitting, not unfrequently throws out ſome of her own eggs, and ſometimes injures them in ſuch a way that they become addle; ſo that it more frequently happens that only two or three hedge-ſparrows eggs are hatched with the cuckow's than otherwiſe. But whether this be the caſe or not, ſhe ſits the ſame length of time as if no foreign egg had been introduced, the cuckow's egg requiring no longer incubation than her own.

When the hedge-ſparrow has ſat her uſual time, and diſengaged the young cuckow and ſome of her own offspring from the ſhell*, her own young ones, and any of her eggs that remain unhatched, are ſoon turned out, the young cuckow remaining poſſeſſor of the neſt, and ſole object of her future care. The young birds are not previouſly killed, nor are the eggs demoliſhed; but all are left to periſh together, either entangled about the buſh which contains the neſt, or lying on the ground under it.

"The early fate of the young hedge-ſparrows (Mr Jenner obſerves) is a circumſtance that has been noticed by others, but attributed to wrong cauſes. A variety of conjectures have been formed upon it. Some have ſuppoſed the parent cuckow the author of their deſtruction; while others, as erroneouſly, have pronounced them ſmothered by the diſproportionate ſize of their fellow-neſtling. Now the cuckow's egg being not much larger than the hedge-ſparrow's (as I ſhall more fully point out hereafter), it neceſſarily follows, that at firſt there can be no great difference in the ſize of the birds juſt burſt from the ſhell. Of the fallacy of the former aſſertion alſo I was ſome years ago convinced, by having found that many cuckows eggs were hatched in the neſts of other birds after the old cuckow had diſappeared, and by ſeeing the ſame fate than attend the neſtling ſparrows as during the appearance of the old cuckows in the country. But before I proceed to the facts relating to the death of the young ſparrows, it will be proper to lay before you ſome examples of the incubation of the egg, and the rearing of the young cuckow; ſince even the well-known fact, that this buſineſs is intruſted to the care of other birds, has been controverted by an author who has lately written on this ſubject †; and ſince, as it is a fact ſo much out of the ordinary courſe of nature, it may ſtill probably be diſbelieved by others.

"*Example* 1. The titlark is frequently ſelected by the cuckow to take charge of its young one; but as it is a bird leſs familiar than many that I have mentioned, its neſt is not ſo often diſcovered. I have, nevertheleſs, had ſeveral cuckows eggs brought to me that were found in titlarks neſts, and had one opportunity of ſeeing the young cuckow in the neſt of this bird. I ſaw the old bird feed it repeatedly; and, to ſatisfy myſelf that they were realy titlarks, ſhot them both, and found them to be ſo.

"*Example* 2. A cuckow laid her egg in a water-wagtail's neſt in the thatch of an old cottage. The wagtail ſat her uſual time, and then hatched all the eggs but one; which, with all the young ones except the cuckow, was turned out of the neſt. The young birds, conſiſting of five, were found upon the rafter that projected from under the thatch, and with them was the egg not in the leaſt injured. On examining the egg, I found the young wagtail it contained quite perfect, and juſt in ſuch a ſtate as birds are when ready to be diſengaged from the ſhell. The cuckow was reared by the wagtails till it was nearly capable of flying, when it was killed by an accident.

"*Example* 3. A hedge-ſparrow built her neſt in a hawthorn buſh in a timber yard. After ſhe had laid two eggs, a cuckow dropped in a third. The ſparrow continued laying as if nothing had happened, till ſhe had laid five, her uſual number, and then ſat.

"June 20. 1786. On inſpecting the neſt, I found that the bird had hatched this morning, and that every thing but the young cuckow was thrown out Under the neſt I found one of the young hedge-ſparrows dead, and one egg by the ſide of the neſt entangled with the coarſe woody materials that formed its outſide covering. On examining the egg, I found one end of the ſhell

† Part II. art. 14.

* The young cuckow is commonly hatched firſt.

†The Hon. Daines Barrington.

ſhell a little cracked, and could ſee that the ſparrow it contained was yet alive. It was then reſtored to the neſt, but in a few minutes was thrown out. The egg being again ſuſpended by the outſide of the neſt, was ſaved a ſecond time from breaking. To ſee what would happen if the cuckow was removed, I took out the cuckow, and placed the egg containing the hedge-ſparrow in the neſt in its ſtead. The old birds, during this time, flew about the ſpot, ſhowing ſigns of great anxiety; but when I withdrew, they quickly came to the neſt again. On looking into it in a quarter of an hour afterwards, I found the young one completely hatched, warm, and lively. The hedge-ſparrows were ſuffered to remain undiſturbed with their new charge for three hours (during which time they paid every attention to it), when the cuckow was again put into the neſt. The old ſparrows had been ſo much diſturbed by theſe intruſions, that for ſome time they ſhowed an unwillingneſs to come to it. However, at length they came; and on examining the neſt again in a few minutes, I found the young ſparrow was tumbled out. It was a ſecond time reſtored, but again experienced the ſame fate.

"From theſe experiments, and ſuppoſing, from the feeble appearance of the young cuckow juſt diſengaged from the ſhell, that it was utterly incapable of diſplacing either the egg or the young ſparrows, I was induced to believe that the old ſparrows were the only agents in this ſeeming unnatural buſineſs. But I afterwards clearly perceived the cauſe of this ſtrange phenomenon, by diſcovering the young cuckow in the act of diſplacing its fellow-neſtlings, as the following relation will fully evince.

"June 18. 1787, I examined the neſt of a hedge-ſparrow, which then contained a cuckow's and three hedge-ſparrow's eggs. On inſpecting it the day following, I found the bird had hatched, but that the neſt now contained only a young cuckow and one young hedge-ſparrow. The neſt was placed ſo near the extremity of a hedge, that I could diſtinctly ſee what was going forward in it; and, to my aſtoniſhment, ſaw the young cuckow, though ſo newly hatched, in the act of turning out the young hedge-ſparrow.

"The mode of accompliſhing this was very curious. The little animal, with the aſſiſtance of its rump and wings, contrived to get the bird upon its back; and making a lodgement for the burden by elevating its elbows, clambered backward with it up the ſide of the neſt till it reached the top; where reſting for a moment, it threw off its load with a jerk, and quite diſengaged it from the neſt. It remained in this ſituation a ſhort time, feeling about with the extremities of its wings, as if to be convinced whether the buſineſs was properly executed, and then dropped into the neſt again. With theſe (the extremities of its wings) I have often ſeen it examine, as it were, an egg and neſtling before it began its operations; and the nice ſenſibility which theſe parts appeared to poſſeſs, ſeemed ſufficiently to compenſate the want of ſight, which as yet it was deſtitute of. I afterwards put in an egg; and this, by a ſimilar proceſs, was conveyed to the edge of the neſt and thrown out. Theſe experiments I have ſince repeated ſeveral times in different neſts, and have always found the young cuckow diſpoſed to act in the ſame manner. In climbing up the neſt, it ſometimes drops its burthen, and thus is foiled in its endeavours; but, after a little reſpite, the work is reſumed, and goes on almoſt inceſſantly till it is effected. It is wonderful to ſee the extraordinary exertions of the young cuckow, when it is two or three days old, if a bird be put into the neſt with it that is too weighty for it to lift out. In this ſtate it ſeems ever reſtleſs and uneaſy. But this diſpoſition for turning out its companions begins to decline from the time it is two or three till it is about twelve days old; when, as far as I have hitherto ſeen, it ceaſes. Indeed, the diſpoſition for throwing out the egg appears to ceaſe a few days ſooner; for I have frequently ſeen the young cuckow, after it had been hatched nine or ten days, remove a neſtling that had been placed in the neſt with it, when it ſuffered an egg, put there at the ſame time, to remain unmoleſted. The ſingularity of its ſhape is well adapted to theſe purpoſes; for, different from other newly-hatched birds, its back, from the ſcapulæ downwards, is very broad, with a conſiderable depreſſion in the middle. This depreſſion ſeems formed by nature for the deſign of giving a more ſecure lodgement to the egg of the hedge-ſparrow or its young one when the young cuckow is employed in removing either of them from the neſt. When it is about 12 days old, this cavity is quite filled up, and then the back aſſumes the ſhape of neſtling birds in general.

"Having found that the old hedge-ſparrow commonly throws out ſome of her own eggs after her neſt has received the cuckow's, and not knowing how ſhe might treat her young ones if the young cuckow was deprived of the power of diſpoſſeſſing them of the neſt, I made the following experiment.

"July 9. A young cuckow, that had been hatched by a hedge-ſparrow about four hours, was confined in the neſt in ſuch a manner that it could not poſſibly turn out the young hedge-ſparrows which were hatched at the ſame time, though it was almoſt inceſſantly making attempts to effect it. The conſequence was, the old birds fed the whole alike, and appeared in every reſpect to pay the ſame attention to their own young as to the young cuckow, until the 13th, when the neſt was unfortunately plundered.

"The ſmallneſs of the cuckow's egg, in proportion to the ſize of the bird, is a circumſtance that hitherto, I believe, has eſcaped the notice of the ornithologiſt. So great is the diſproportion, that it is in general ſmaller than that of the houſe-ſparrow; whereas the difference in the ſize of the birds is nearly as five to one. I have uſed the term *in general*, becauſe eggs produced at different times by the ſame bird vary very much in ſize. I have found a cuckow's egg ſo light that it weighed only 43 grains, and one ſo heavy that it weighed 55 grains. The colour of the cuckow's eggs is extremely variable. Some, both in ground and penciling, very much reſemble the houſe-ſparrow's; ſome are indiſtinctly covered with bran-coloured ſpots: and others are marked with lines of black, reſembling, in ſome meaſure, the eggs of the yellow-hammer.

"The circumſtance of the young cuckow's being deſtined by nature to throw out the young hedge-ſparrows, ſeems to account for the parent cuckow's dropping her egg in the neſts of birds ſo ſmall as thoſe I have particulariſed. If ſhe were to do this in the neſt of a bird which produced a large egg, and conſequently a large neſtling, the young cuckow would probably find an inſurmountable difficulty in ſolely poſſeſſing the neſt, as its exertions would be unequal to the labour of turning out the young birds. Beſides though many of the larger birds might have fed the neſtling cuckow very properly had it been committed to their charge, yet they could not have ſuffered their own young to have been ſacrificed for the accommodation of the cuckow in ſuch great number as the ſmaller ones, which are ſo much more abundant; for though it would be a vain attempt to calculate the numbers of neſtlings deſtroyed by means of the cuckow, yet the ſlighteſt obſervation would be ſufficient to convince us that they muſt be very large."

Here Mr Jenner remarks, that though nature permits the young cuckow to make this great waſte, yet the animals thus deſtroyed are not thrown away or rendered uſeleſs. At the ſeaſon when this happens, great numbers of tender quadrupeds and reptiles are ſeeking proviſion; and if they find the callow neſtlings which have fallen victims to the young cuckow, they are furniſhed with food well adapted to their peculiar ſtate.

It appears a little extraordinary, that two cuckows eggs ſhould ever be depoſited in the ſame neſt, as the young one produced from one of them muſt inevitably periſh; yet two inſtances of this kind fell under our author's obſervation, one of which he thus relates: "June 27. 1787. Two cuckows and a hedge-ſparrow were hatched in the ſame neſt this morning; one hedge-ſparrow's egg remained unhatched. In a few hours after, a conteſt began between the cuckows for the poſſeſſion of the neſt, which continued undetermined till the next afternoon, when one of them, which was ſomewhat ſuperior in ſize, turned out the other, together with the young hedge-ſparrow and the unhatched egg. This conteſt was very remarkable. The combatants alternately appeared to have the advantage, as each carried the other ſeveral times nearly to the top of the neſt, and then ſunk down again, oppreſſed by the weight of its burden; till at length, after various efforts, the ſtrongeſt prevailed, and was afterwards brought up by the hedge-ſparrows."

But the principal circumſtance that has agitated the mind of the naturaliſt reſpecting the cuckow is, Why, like other birds, it ſhould not build a neſt, incubate its eggs, and rear its own young?

There is no apparent reaſon, Mr Jenner thinks, why this bird, in common with others, ſhould not perform all theſe ſeveral offices; for it is in every reſpect perfectly formed for collecting materials and building a neſt. Neither its external ſhape nor internal ſtructure prevent it from incubation; nor is it by any means incapacitated from bringing food to its young. It would be needleſs to enumerate the various opinions of authors on this ſubject from Ariſtotle to the preſent time. Thoſe of the ancients appear to be either viſionary or erroneous; and the attempts of the moderns towards its inveſtigation have been confined within very narrow limits: for they have gone but little farther in their reſearches than to examine the conſtitution and ſtructure of the bird; and having found it poſſeſſed of a capacious ſtomach with a thin external covering, concluded that the preſſure upon this part, in a ſitting poſture, prevented incubation. They have not conſidered that many of the birds which incubate have ſtomachs analogous to thoſe of cuckows. The ſtomach of the owl, for example, is proportionably capacious, and is almoſt as thinly covered with external integuments. Nor have they conſidered, that the ſtomachs of the neſtlings are always much diſtended with food; and that this very part, during the whole time of their confinement to the neſt, ſupports in a great degree the weight of the whole body: whereas, in a ſitting-bird, it is not nearly ſo much preſſed upon, for the breaſt in that caſe fills up chiefly the cavity of the neſt; for which purpoſe, from its natural convexity, it is admirably well fitted.

Theſe obſervations may be ſufficient to ſhow, that the cuckow is not rendered incapable of ſitting through any peculiarity either in the ſituation or formation of the ſtomach; yet, as a proof ſtill more deciſive, our obſerver adduces the following fact.

"In the ſummer of the year 1786, I ſaw, in the neſt of a hedge-ſparrow, a cuckow, which, from its ſize and plumage, appeared to be nearly a fortnight old. On lifting it up in the neſt, I obſerved two hedge-ſparrows eggs under it. At firſt I ſuppoſed them part of the number which had been ſat upon by the hedge-ſparrow with the cuckow's egg, and that they had become addle, as birds frequently ſuffer ſuch eggs to remain in their neſts with their young; but on breaking one of them I found it contained a living fœtus: ſo that of courſe theſe eggs muſt have been laid ſeveral days after the cuckow was hatched; as the latter now completely filled up the neſt, and was by this peculiar incident performing the part of a ſitting-bird. At this time I was unacquainted with the fact, that the young cuckow turned out the eggs of the hedge-ſparrow; but it is reaſonable to conclude, that it had loſt the diſpoſition for doing this when theſe eggs were depoſited in the neſt.

"Having under my inſpection, in another hedge-ſparrow's neſt, a young cuckow about the ſame ſize as the former, I procured two wagtails eggs which had been ſat upon a few days, and had them immediately conveyed to the ſpot, and placed under the cuckow. On the ninth day after the eggs had been in this ſituation, the perſon appointed to ſuperintend the neſt (as it was ſome diſtance from the place of my reſidence) came to inform me that the wagtails were hatched. On going to the place, and examining the neſt, I found nothing in it but the cuckow and the ſhells of the wagtail's eggs. The fact, therefore, of the birds being hatched, I do not give you as coming immediately under my own eye, but the teſtimony of the perſon appointed to watch the neſt was corroborated by that of another witneſs."

In conſidering to what cauſes may be attributed the ſingularities of the cuckow, Mr Jenner ſuggeſts the following as the moſt probable: "*The ſhort reſidence this bird is allowed to make in the country where it is deſtined to propagate its ſpecies; and the call that nature has upon it, during that ſhort reſidence, to produce a numerous progeny.* The cuckow's firſt appearance here is about the middle of April, commonly on the 17th. Its egg is not ready for incubation till ſome weeks after its arrival, ſeldom before the middle of May. A fortnight is taken up by the ſitting-bird in hatching the egg. The young bird generally continues three weeks in the neſt before it flies, and the foſter-parents feed it more than five weeks after this period ; ſo that if a cuckow ſhould be ready with an egg much ſooner than the time pointed out, not a ſingle neſtling, even one of the earlieſt, would be fit to provide for itſelf before its parent would be inſtinctively directed to ſeek a new reſidence, and be thus compelled to abandon its young one ; for old cuckows take their final leave of this country the firſt week in July.

“ Had nature allowed the cuckow to have ſtaid here as long as ſome other migrating birds, which produce a ſingle ſet of young ones (as the ſwift or nightingale, for example), and had allowed her to have reared as large a number as any bird is capable of bringing up at one time, theſe might not have been ſufficient to have anſwered her purpoſe ; but by ſending the cuckow from one neſt to another, ſhe is reduced to the ſame ſtate as the bird whoſe neſt we daily rob of an egg, in which caſe the ſtimulus for incubation is ſuſpended. Of this we have a familiar example in the common domeſtic fowl. That the cuckow actually lays a great number of eggs, diſſection ſeems to prove very deciſively. Upon a compariſon I had an opportunity of making between the ovarium, or racemus vitellorum, of a female cuckow, killed juſt as ſhe had began to lay, and of a pullet killed in the ſame ſtate, no eſſential difference appeared. The uterus of each contained an egg perfectly formed and ready for excluſion ; and the ovarium exhibited a large cluſter of eggs, gradually advanced from a very diminutive ſize to the greateſt the yolk acquires before it is received into the oviduct. The appearance of one killed on the third of July was very different. In this I could diſtinctly trace a great number of the membranes which had diſcharged yolks into the oviduct ; and one of them appeared as if it had parted with a yolk the preceding day. The ovarium ſtill exhibited a cluſter of enlarged eggs, but the moſt forward of them was ſcarcely larger than a muſtard-ſeed.

“ I would not be underſtood to advance, that every egg which ſwells in the ovarium at the approach or commencement of the propagating ſeaſon is brought to perfection : but it appears clearly, that a bird, in obedience to the dictates of her own will, or to ſome hidden cauſe in the animal economy, can either retard or bring forward her eggs. Beſides the example of the common fowl above alluded to, many others occur. If we deſtroy the neſt of a blackbird, a robin, or almoſt any ſmall bird, in the ſpring, when ſhe has laid her uſual number of eggs, it is well known to every one who has paid any attention to inquiries of this kind, in how ſhort a ſpace of time ſhe will produce a freſh ſet. Now, had the bird been ſuffered to have proceeded without interruption in her natural courſe, the eggs would have been hatched, and the young ones brought to a ſtate capable of providing for themſelves, before ſhe would have been induced to make another neſt, and excited to produce another ſet of eggs from the ovarium. If the bird had been deſtroyed at the time ſhe was ſitting on her firſt laying of eggs, diſſection would have ſhown the ovarium containing a great number in an enlarged ſtate, and advancing in the uſual progreſſive order. Hence it plainly appears, that birds can keep back or bring forward (under certain limitations) their eggs at any time during the ſeaſon appointed for them to lay ; but the cuckow, not being ſubject to the common interruptions, goes on laying, from the time ſhe begins till the eve of her departure from Britain ; for although old cuckows in general take their leave the firſt week in July (and I never could ſee one after the 5th day of that month, though I conceive it poſſible that here and there a ſtraggling cuckow may be ſeen after this time) ; yet I have known an inſtance of an egg's being hatched in the neſt of an hedge-ſparrow ſo late as the 15th. And a farther proof of their continuing to lay till the time of their leaving us may, I think, be fairly deduced from the appearances on diſſection of the female cuckow above mentioned, killed on the 3d of July.”

Among the many peculiarities of the young cuckow, there is one that ſhows itſelf very early. Long before it leaves the neſt, it frequently, when irritated, aſſumes the manner of a bird of prey, looks ferocious, throws itſelf back, and pecks at any thing preſented to it with great vehemence, often at the ſame time making a cuckling noiſe like a young hawk. Hence probably the vulgar opinion, that this bird changes into a hawk and devours its nurſe on quitting its neſt ; whence the French proverb, *Ingrat comme un coucou.* Sometimes, when diſturbed in a ſmaller degree, it makes a kind of hiſſing noiſe, accompanied with a heaving motion of the whole body.

The growth of the young cuckow is uncommonly rapid. Its chirp is plaintiff, like that of the hedge-ſparrow ; but the ſound is not acquired from the foſter-parent, as it is the ſame whether it be reared by the hedge-ſparrow or any other bird. It never acquires the adult note during its ſtay in Britain.

The ſtomachs of young cuckows contain a great variety of food. On diſſecting one that was brought up by wagtails, and fed by them at the time it was ſhot (though it was nearly of the ſize and fulneſs of plumage of the parent-bird), Mr Jenner found in its ſtomach the following ſubſtances : Flies and beetles of various kinds ; ſmall ſnails with their ſhells unbroken ; graſhoppers ; caterpillars ; part of a horſe-bean ; a vegetable ſubſtance, reſembling bits of tough graſs rolled into a ball ; and the ſeeds of a vegetable that reſembled thoſe of the gooſe-graſs. In the ſtomach of one fed by hedge-ſparrows, the contents were almoſt entirely vegetable ; ſuch as wheat, ſmall vetches, &c. “ But this (ſays our author) was the only inſtance of the kind I had ever ſeen, as theſe birds in general feed the young cuckow with ſcarcely any thing but animal food. However, it ſerved to clear up a point which before had ſomewhat puzzled me ; for having found the cuckow's egg in the neſt of a green linnet, which begins very early to feed its young with vegetable food, I was apprehenſive, till I ſaw this fact, that this bird would have been an unfit foſter-parent for the young cuckow.

“ The tit-lark, I obſerve, feeds it principally with graſhoppers.

“ But the moſt ſingular ſubſtance, ſo often met with in the ſtomachs of young cuckows, is a ball of hair curiouſly wound up. I have found it of various ſizes, from that of a pea to that of a ſmall nutmeg. It ſeems to be compoſed chiefly of horſe hairs ; and from the reſemblance it bears to the inſide covering of the neſt, I conceive the bird ſwallows it while a neſtling. In the ſtomachs of old cuckows are often ſeen maſſes of hair; but theſe had evidently once formed a part of the hairy caterpillar, which the cuckow often takes for its food."

There ſeems to be no preciſe time fixed for the departure of young cuckows. Mr Jenner believes they go off in ſucceſſion, probably as ſoon as they are capable of taking care of themſelves; for although they ſtay in Britain till they become nearly equal in ſize and growth of plumage to the old cuckow, yet in this very ſtate the foſtering care of the hedge-ſparrow is not withdrawn from them. "I have frequently (ſays he) ſeen the young cuckow of ſuch a ſize that the hedge-ſparrow has perched on its back, or half-expanded wing, in order to gain ſufficient elevation to put the food into its mouth. At this advanced ſtage, I believe that young cuckows procure ſome food for themſelves; like the young rook, for inſtance, which in part feeds itſelf, and is partly fed by the old ones, till the approach of the pairing ſeaſon. If they did not go off in ſucceſſion, it is probable we ſhould ſee them in large numbers by the middle of Auguſt; for as they are to be found in great plenty when in a neſtling ſtate, they muſt now appear very numerous, ſince all of them muſt have quitted the neſt before this time. But this is not the caſe; for they are not more numerous at any ſeaſon than the parent-birds are in the months of May and June.

The ſame inſtinctive impulſe which directs the cuckow to depoſite her eggs in the neſts of other birds, directs her young one to throw out the eggs and young of the owner of the neſt. The ſcheme of nature would be incomplete without it; for it would be extremely difficult, if not impoſſible, for the little birds deſtined to find ſuccour for the cuckow, to find alſo for their own young ones after a certain period; nor would there be room for the whole to inhabit the neſt."

It is ſuppoſed, that there are more male cuckows than females; ſince two are often ſeen in diſpute where a third has been in ſight; which, no doubt, was of the oppoſite ſex. Mr Pennant obſerved, that five male birds were caught in a trap in one ſeaſon; and Mr Latham ſays, that "out of at leaſt half a dozen that I have attended to, my chance has never directed me to a female; and it is to be wiſhed, that future obſervers may determine whether our obſervations have riſe only in chance, or are founded on the general circumſtance." He believes that the male birds are more liable to be ſhot, their note directing the gunner where to take aim, while the female is ſecured by her ſilence.

Cuckows may be, and often are, brought up tame, ſo as to become familiar. They will eat in this ſtate bread and milk, fruits, inſects, eggs, and fleſh either cooked or raw; but in a ſtate of nature, I believe, chiefly live on caterpillars; which, in a few I have obſerved were all of the ſmooth kind; others have found vegetable matter, beetles, and ſmall ſtones. When fat, they are ſaid to be as good eating as a land rail. The French and Italians eat them to this day. The ancient Romans admired them greatly as food; Pliny ſays that there is no bird which can be compared to them for delicacy.

In migrating, the major part of theſe birds are ſuppoſed to go into Africa, ſince they are obſerved to viſit the iſland of Malta twice in a year, in their paſſage backwards and forwards, as is ſuppoſed, to that part of the world. They are well known alſo at Aleppo. To the north, it is ſaid to be common in Sweden: but not to appear ſo early by a month as in Britain. Ruſſia is not deſtitute of this bird; and Mr Latham has ſeen a ſpecimen brought from Kamtſchatka, now in the poſſeſſion of Sir Joſeph Banks.

2. The Americanus, or cuckow of Carolina. It is about the ſize of a blackbird, the upper mandible of the bill black, the lower yellow; the large wing-feathers are reddiſh; the reſt of the wing, and all the upper part of the body, head and neck, is of an aſh-colour; all the under part of the body, from the bill to the tail, white; the tail long and narrow, compoſed of ſix long and four ſhorter feathers; their legs ſhort and ſtrong. Their note is very different from the cuckow of Britain, and not ſo remarkable to be taken notice of. It is a ſolitary bird, frequenting the darkeſt receſſes of woods and ſhady thickets. They retire on the approach of winter.

Plate CLIV.

3. The indicator, or honey-guide, is a native of Africa. The following deſcription is given of it by Dr Sparrman in the Philoſophical Tranſactions for 1777. "This curious ſpecies of cuckow is found at a conſiderable diſtance from the Cape of Good Hope, in the interior parts of Africa, being entirely unknown at that ſettlement. The firſt place I heard of it was in a wood called the *Groot-vaader's Boſch*, "the Grand-father's Wood," ſituated in a deſert near the river which the Hottentots call *T'kaut'kai*. The Dutch ſettlers thereabouts have given this bird the name of *honiguyzer*, or "honey-guide." from its quality of diſcovering wild honey to travellers. Its colour has nothing ſtriking or beautiful. Its ſize is conſiderably ſmaller than that of the cuckow in Europe: but in return, the inſtinct which prompts it to ſeek its food in a ſingular manner is truly admirable. Not only the Dutch and Hottentots, but likewiſe a ſpecies of quadruped named *ratel* (probably a new ſpecies of badger), are frequently conducted to wild bee-hives by this bird, which, as it were, pilots them to the very ſpot. The honey being its favourite food, its own intereſt prompts it to be inſtrumental in robbing the hive, as ſome ſcraps are commonly left for its ſupport. The morning and evening are its times of feeding, and it is then heard calling in a ſhrill tone, *cherr, cherr;* which the honey-hunters carefully attend to as the ſummons to the chace. From time to time they anſwer with a ſoft whiſtle; which the bird hearing, always continues its note. As ſoon as they are in ſight of each other, the bird gradually flutters toward the place where the hive is ſituated, continually repeating its former call of *cherr, cherr:* nay, if it ſhould happen to have gained a conſiderable way before the men (who may eaſily be hindered in the purſuit by buſhes, rivers, or the like), it returns to them again, and redoubles its note, as it were to reproach them with their inactivity. At laſt the bird is obſerved to hover for a few moments over a certain ſpot, and then ſilently retiring to a neighbouring buſh or reſting-place, the hunters are ſure of finding the bees neſt in that identical ſpot; whether it be in a tree or in the crevice of a rock, or (as is moſt commonly the caſe) in the earth. Whilſt the hunters are buſy in taking the honey, the bird is

ſeen looking on attentively to what is going forward, and waiting for its ſhare of the ſpoil. The bee-hunters never fail to leave a ſmall portion for their conductor; but commonly take care not to leave ſo much as would ſatisfy its hunger. The bird's appetite being whetted by this parſimony, it is obliged to commit a ſecond treaſon by diſcovering another bee's neſt, in hopes of a better ſalary. It is further obſerved, that the nearer the bird approaches the hidden hive, the more frequently it repeats its call, and ſeems the more impatient. I have had frequent opportunities of ſeeing this bird, and have been witneſs to the deſtruction of ſeveral republics of bees by means of its treachery. I had, however, but two opportunities of ſhooting it, which I did to the great indignation of my Hottentots. It is about ſeven inches in length, and is of a ruſty brown colour on the back, with a white breaſt and belly." A neſt which was ſhown to Dr Sparrman for that of this bird, was compoſed of ſlender filaments of bark, woven together in the form of a bottle; the neck and opening hung downwards, and a ſtring, in an arched ſhape, was ſuſpended acroſs the opening faſtened by the two ends, perhaps for the bird to perch on.

4. The Cape cuckow *(Buff.)*, is a trifle ſmaller than ours: the bill a deep brown; the upper part of the body greeniſh brown: throat, cheeks, fore part of the neck, and upper wing coverts, of a deep rufous colour: tail feathers rufous, but paler, tipped with white; the breaſt, and all the under parts of the body white, croſſed with lines of black: the legs reddiſh brown. It inhabits the Cape of Good Hope; and is moſt likely the ſame bird which is called *Edolio*, from its pronouncing that word frequently in a low melancholy tone.—Voyagers alſo mention another cuckow, which is common to Loango in Africa. It is bigger than ours, but of the ſame colour; and repeats the word *cuckow* like that bird, but in different inflexion of voice. It is ſaid that the male and female together go through the whole eight notes of the gamut; the male, beginning by itſelf, ſounds the three firſt, after which he is accompanied by the female through the reſt of the octave.

5. The honoratus, or ſacred cuckow, is ſomewhat leſs than our cuckow: the general colour is blackiſh aſh on the upper parts, marked with two ſpots of white on each feather; beneath white, tranſverſely ſpotted with aſh colour: the quills are cinereous, tranſverſely ſpotted with white: the tail is much cuneated, five inches and a half long, and of the ſame colour as the quills; the outer feather only three inches long: the legs and claws are of a pale aſh colour. This ſpecies inhabits Malabar, here the natives hold it ſacred. It feeds on reptiles, which, perhaps may be ſuch as are the moſt noxious; if ſo, this ſeeming ſuperſtition may have riſe from a more reaſonable foundation than many others of the like ſort.

6. The ſhining cuckow is the ſize of a ſmall thruſh: the bill is bluiſh: the upper part of the body green, with a rich gilded gloſs, the under parts are white, tranſverſely waved with green gold: the under tail coverts almoſt white; the quills and tail duſky-brown; the legs are bluiſh. This inhabits New Zealand, where it is called *Poopo-arowro*. See Plate CLI.

7. The vetula is a trifle bigger than a blackbird: the bill above an inch and a half long: the upper mandible black; the lower whitiſh: crown of the head brown, the feathers of it ſoft and ſilky: the upper parts of the body and the quills cinereous olive: throat and fore part of the neck whitiſh; the reſt of the under parts rufous: the tail is much cuneated; the two middle feathers cinereous olive, the others duſky black tipped with white; the outer feather very ſhort: legs blue-black. This ſpecies inhabits Jamaica, where it is frequent in the woods and hedges all the year round. It feeds on ſeeds, ſmall worms, and caterpillars, and is very tame. This bird has the name *tacco* from its cry, which is like that word; the firſt ſyllable of this is pronounced hardly, the other following in a full octave lower than the firſt. It has alſo another cry like *qua, qua, qua;* but that only when alarmed by an enemy. Beſides inſects, it will alſo eat lizards, ſmall ſnakes, frogs, young rats, and ſometimes even ſmall birds. The ſnakes they ſwallow head foremoſt, letting the tail hang out of the mouth till the fore-parts are digeſted. This bird, it is moſt likely, might be eaſily tamed, as it is ſo gentle as to ſuffer the negro children to catch it with their hands. Its gait is that of leaping, like a magpie; being frequently ſeen on the ground; and its flight but ſhort, chiefly from buſh to buſh. At the time when other birds breed, they likewiſe retire into the woods, but their neſts have never yet been found; from which one ſhould be inclined to think, that they were indebted to other birds for the rearing their young in the manner of the common cuckow. It has the name of *rain-bird*, as it is ſaid to make the greateſt noiſe before rain. Common all the year at Jamaica. In another ſpecies or variety, common in Jamaica, the feathers on the throat appear like a downy beard, whence probably the name of *old-man rain-bird*, given it there and by Ray, Sloane, &c.

8. The nævius, ſpotted cuckow, or rail-bird, is about the ſize of a fieldfare: the bill three quarters of an inch; the upper mandible black on the top, and rufous on the ſides; the under wholly rufous: the general colour of the plumage is rufous in two ſhades; the under parts rufous white: the feathers on the crown are of a deep brown, and pretty long, with rufous tips and ſome of them margined with rufous: the hind part of the neck is a rufous grey; down the ſhafts deep brown: back and rump the ſame; each feather tipped with a rufous ſpot: on each feather of the throat and neck is a tranſverſe browniſh line near the end: the under tail coverts are rufous: the quills are grey brown, edged with rufous, and a ſpot of the ſame at the tips: the tail is near ſix inches long, much cuneated; the outer feathers only half the length of the middle ones; colour of it the ſame as the quills; ſome of the upper coverts reach to near two-thirds of the length of the tail: the legs are aſh-colour; the claws greyiſh brown. It inhabits Cayenne.—Buffon mentions a variety of this by the name of *rail-bird*. It is much the ſame in ſize, but has leſs rufous, being grey in the place of that colour: the ſide tail-feathers have white tips: the throat is pale grey; under the body white; the tail a trifle longer than in the other. Whether a variety or different ſex, is not known. This is common at Cayenne and Guiana; and is ſeen often perched upon gates and rails, whence its name; and when in this ſituation continually moves its tail. Theſe

are not very wild birds, yet do not form themſelves into troops, although numbers are often found in the ſame diſtrict: nor do they frequent the thick woods like many of the genus.

9. The cayanus, or Cayenne cuckow, is the ſize of a blackbird: the bill is grey brown, above an inch long, and a little bent at the tip: the plumage on the upper parts of the body is purpliſh cheſnut; beneath, the ſame, but paler: the quills are the ſame as the upper parts, tipped with brown: the tail is the ſame; near the end black, and tipped with white; it is much cuneated, and above ten inches long: the legs and claws are grey brown. This inhabits Cayenne, where it goes by the name of *piaye*, or *devil*. The natives give it that name as a bird of ill omen. The fleſh they will not touch; and indeed not without reaſon, as it is very bad and lean. It is a very tame ſpecies, ſuffering itſelf to be almoſt touched by the hand before it offers to eſcape. Its flight is almoſt like that of a king's fiſher; frequents the borders of rivers, on the low branches; feeds on inſects; often wags its tail on changing place.

There are 37 other ſpecies, which inhabit different parts of the globe, and are principally diſtinguiſhed by the ſhape of the tail and variations in colour.

CUCUMBER, in botany. See CUCUMIS.

CUCUMIS, the CUCUMBER: A genus of the ſyngeneſia order, belonging to the monœcia claſs of plants; and in the natural method ranking under the 34th order, *Cucurbitaceæ*. The male calyx is quinquedentated, the corolla quinquepartite; the filaments three. The female calyx is quinquedentated, the corolla quinquepartite, the piſtil trifid; the ſides of the apple ſharp pointed. In this genus Linnæus includes alſo the MELON; (ſee that article). There are 11 ſpecies, of which the following are the moſt remarkable.

1. The ſativa, or common cucumber, hath roots compoſed of numerous, long, ſlender, white fibres; long ſlender ſtalks, very branchy at their joints, trailing on the ground, or climbing by their claſpers, adorned at every joint by large angular leaves on long erect footſtalks, with numerous and monopetalous bell-ſhaped flowers of a yellow colour, ſucceeded by oblong rough fruit. The varieties of this kind are, (1.) The common rough green prickly cucumber; a middle-ſized fruit, about ſix or ſeven inches long, having a dark-green rough rind, cloſely ſet with very ſmall prickles; the plant is of the hardieſt ſort, but does not ſhow its fruit early. (2.) The ſhort green prickly cucumber is about three or four inches long; the rind rather ſmooth, and ſet with ſmall black prickles. It is valuable chiefly for being one of the earlieſt and hardieſt ſorts. (3.) The long green prickly cucumber, grows from ſix to nine inches in length, and is rather thinly ſet with prickles. And as there is an early and late cucumber, it is conſiderably the beſt variety for the main crops, both in the frames and hand-glaſs, as well as in the open ground for pricklers. Of this there is another variety with white fruit. (4.) The early green cluſter cucumber is a ſhortiſh fruit, remarkable for growing in cluſters, and appearing early. (5.) The long ſmooth green Turkey cucumber, is a ſmooth green-rinded fruit, growing from 10 to 15 inches in length, without prickles. The plants are ſtrong growers, with very large leaves. (6.) The long ſmooth white Turkey cucumber, is a ſmooth rinded fruit, from 10 to 15 inches long, without prickles. (7.) The large ſmooth green Roman cucumber is a very large and long ſmooth green fruit produced from a ſtrong growing plant. (8). The long white prickly Dutch cucumber, is a white fruit 8 or 10 inches long, ſet with ſmall black prickles; the plants are but bad bearers in Britain.

2. The chata, or round-leaved Egyptian cucumber. According to Mr Haſſelquiſt, this grows in the fertile earth near Cairo after the inundation of the Nile, and not in any other place in Egypt, nor does it grow in any other ſoil. It ripens with the water-melons. The fruit is a little watery; the fleſh almoſt of the ſame ſubſtance with the melons; it taſtes ſomewhat ſweet and cool; but is far from being as cool as the water-melons. This the grandees and Europeans in Egypt eat as the moſt pleaſant fruit they find, and that from which they have the leaſt to apprehend. It is the moſt excellent fruit of this tribe of any yet known.

The four firſt varieties of the cucumis ſativa are thoſe chiefly cultivated in Britain. They are raiſed at three different ſeaſons of the year: 1. on hot-beds, for early fruit; 2. under bell, or hand-glaſſes, for the middle crop; 3. on the common ground, which is for a late crop, or to pickle. The cucumbers which are ripe before April are unwholeſome; being raiſed wholly by the heat of the dung without the aſſiſtance of the ſun. Thoſe raiſed in April are good, and are raiſed in the following manner.

Towards the latter end of January, a quantity of freſh horſe-dung muſt be procured with the litter among it; and a ſmall proportion of ſea-coal aſhes ſhould be added to it. In four or five days the dung will begin to heat; at which time a little of it may be drawn flat on the outſide, and covered with two inches thickneſs of good earth: this muſt be covered with a bell-glaſs; and after two days, when the earth is warm, the ſeeds muſt be ſown on it, covered with a quarter of an inch of freſh earth, and the glaſs then ſet on again. The glaſs muſt be covered with a mat at night, and in four days the young plants will appear. When theſe are ſeen, the reſt of the dung muſt be made up into a bed for one or more lights. This muſt be three feet thick, beat cloſe together, and covered three inches deep with fine freſh earth; the frame muſt then be put on, and covered at night, or in bad weather, with mats. When the earth is hot enough, the young plants from under the bell muſt be removed into it, and ſet two inches diſtance. The glaſſes muſt be now and then a little raiſed, to give air to the plants, and turned often, to prevent the wet from the ſteam of the dung from dropping down upon them. The plants muſt be watered at proper times; and the water uſed for this purpoſe muſt be ſet on the dung till it becomes as warm as the air in the frame: and as the young plants increaſe in bulk, they muſt be earthed up, which will give them great additional ſtrength. If the bed is not hot enough, ſome freſh litter ſhould be laid round its ſides: and if too hot, ſome holes ſhould be bored into ſeveral parts of it with a ſtake, which will let out the heat; and when the bed is thus brought to a proper coolneſs, the holes are to be ſtopped up again with freſh dung. When theſe plants begin to ſhoot their third or rough leaf, another bed muſt be prepared for them like the firſt; and when it is properly warm through the earth, the plants of the other bed muſt be taken up, and planted in this, in which there muſt be a hole in the middle of each light, about a foot deep, and nine inches over, filled with light and fine freſh earth laid hollow in form of a baſon: in each of theſe holes there muſt be ſet four plants: theſe muſt be, for two or three days, ſhaded from the ſun, that they may take firm root; after which they muſt have all the ſun they can, and now and then a little freſh air, as the weather will permit. When the plants are four or five inches high, they muſt be gently pegged down towards the earth, in directions as different from one another as may be; and the branches afterwards produced ſhould be treated in the ſame manner. In a month after this the flowers will appear, and ſoon after the rudiments of the fruit. The glaſſes ſhould now be carefully covered at night; and in the daytime the whole plants ſhould be gently ſprinkled with water. Theſe will produce fruit till about midſummer; at which time the ſecond crop will come in to ſupply their place: theſe are to be raiſed in the ſame manner as the early crop, only they do not require ſo much care and trouble. This ſecond crop ſhould be ſown in the end of March or beginning of April. The ſeaſon for ſowing the cucumbers of the laſt crop, and for pickling, is towards the latter end of May, when the weather is ſettled: theſe are ſown in holes dug to a little depth, and filled up with fine earth, ſo as to be left in the form of a baſon; eight or nine ſeeds being put into one hole. Theſe will come up in five or ſix days; and till they are a week old, are in great danger from the ſparrows. After this they requre only to be kept clear of weeds, and watered now and then. There ſhould be only five plants left at firſt in each hole; and when they are grown a little farther up, the worſt of theſe is to be pulled up, that there may finally remain only four. The plants of this crop will begin to produce fruit in July.

The cucumber is taken in great cities by the lower people as nouriſhment; but by the better ſort is chiefly uſed as a refrigerant, or condiment, to accompany animal food. They have a bland inſipid juice, without acidity or ſweetneſs, approaching, as appears by their ripening, to a farinaceous matter. When uſed green they have no nouriſhment, ſo they are only to be uſed in the ſummer ſeaſon and by the ſedentary. Although cucumbers are neither ſweet nor acid, yet they are conſiderably aceſcent, and ſo produce flatulency, cholera, diarrhœa, &c. Their coldneſs and flatulency may be likewiſe in part attributed to the firmneſs of their texture. They have been diſcharged with little change from the ſtomach, after being detained there for 48 hours. By this means, therefore, their acidity is greatly increaſed. Hence oil and pepper, the condiments commonly employed, are very uſeful to check their fermentation. We have lately uſed another condiment, *viz.* the ſkin, which is bitter, and may therefore ſupply the place of aromatics; but ſhould only be uſed when young.

Beſides the abovementioned ſpecies which are proper for the table, this genus affords alſo two articles for the materia medica.

1. The elaterium of the ſhops, is the inſpiſſated fæcula of the juice of a kind of wild cucumber, called alſo the aſs's cucumber. It comes to this country from Spain and the ſouthern parts of France, where the plant is very common. It is brought to us in ſmall flat whitiſh lumps or cakes that are dry, and break eaſily between the fingers. It is of an acrid, bitter, and nauſeous taſte, and has a ſtrong offenſive ſmell when newly made: but theſe, as well as its other qualities, it loſes after being kept ſome time. Elaterium is a very violent purge and vomit, and is now very ſeldom uſed. The plant is commonly called ſpirting cucumber, from its caſting out its ſeeds with great violence, together with the viſcid juice in which they are lodged, if touched when ripe; from this circumſtance it has obtained the appellation of *noli me tangere*, or "touch me not."

2. The colocynthis, the colocynth, coloquintida, or bitter apple of the ſhops, is brought to us from Aleppo and the iſland of Crete. The leaves of the plant are large, placed alternate, almoſt round, and ſtand upon footſtalks four inches long. The flowers are white; and are ſucceeded by a fruit of the gourd kind, of the ſize of a large apple, and which is yellow when ripe. The ſhelly or huſky outſide incloſes a bitter pulp interſperſed with flattiſh ſeeds. If a hole is made in one of theſe ripe gourds, and a glaſs of rum poured in, and ſuffered to remain 24 hours, it proves a powerful purgative. The pulp itſelf dried and powdered is commonly uſed as a purgative in this country, but is one of the moſt draſtic and diſagreeable we know. If taken in a large doſe, it not only often brings away blood, but produces colics, convulſions, ulcers in the bowels, and fatal ſuper-purgations. The moſt effectual corrector of theſe virulent qualities is to triturate it finely with ſugar or ſweet almonds.

CUCURBIT, the name of a chemical veſſel employed in diſtillation, when covered with its head. Its name comes from its lengthened ſhape, by which it reſembles a gourd: ſome cucurbits, however, are ſhallow, and wide-mouthed. They are made of copper, tin, glaſs, and ſtone-ware, according to the nature of the ſubſtances to be diſtilled. A cucurbit, provided with its capital, conſtitutes the veſſel for diſtillation called an *alembic*.

CUCURBITA, the GOURD, and POMPION: A genus of the ſyngeneſia order, belonging to the monœcia claſs of plants; and in the natural method ranking under the 34th order, *Cucurbitaceæ*. The calyx of the male is quinquedentated; the corolla quinquefid; the filaments three. The calyx of the female is quinquedentated; the corolla quinquefid; the piſtil quinquefid; the ſeeds of the apple with a tumid margin. There are five ſpecies.

1. The lagenaria, or bottle gourd, riſes with thick trailing downy ſtalks, branching into many ſpreading runners. Theſe extend along the ground ſometimes 15 or 20 feet in length. The leaves are large, roundiſh, heart-ſhaped, indented, and woolly. The flowers are large and white, ſucceeded by long incurvated whitiſh yellow fruit, obtaining from about two to five or ſix feet in length, and from about nine to 24 inches in circumference, having a ligneous and durable ſhell.

2. The papo or pompion, commonly called pumpkin,

kin, hath ſtrong, trailing, rough ſtalks, branching into numerous runners. Theſe are much larger than the former, extending from 10 to 40 or 50 feet each way. Theſe are garniſhed with large, roundiſh, lobated, rough leaves, and yellow flowers. The flowers are ſucceeded by large, round, ſmooth fruit, of different forms and ſizes, ſome as big as a peck, others as big as half a buſhel meaſure; ſome conſiderably leſs, and others not exceeding the bulk of an orange; ripening to a yellow, and ſometimes to a whitiſh colour. This ſpecies is the moſt hardy of any, as well as the moſt extenſive in their growth. A ſingle plant, if properly encouraged, will overſpread 10 or 15 rods of ground, and produce a great number of fruit, which, when young, are generally a mixture between a deep blue and pale white, but change as they increaſe in bulk.

3. The verrucoſa, or warted gourd, hath trailing ſtalks very branchy, and running upon the ground 10 or 15 feet each way; large lobated leaves, and yellow flowers, ſucceeded by roundiſh, knobby, warted white fruit, of moderate ſize.

4. The melopepo, erect gourd, or ſquaſh. This riſes with an erect ſtrong ſtalk ſeveral feet high, rarely ſending forth ſide-runners, but becoming buſhy upward. It is adorned with large lobated leaves; and the flowers are ſucceeded by depreſſed knotty fruit, both white and yellow, commonly of a moderate ſize.

5. The lignoſa, ligneous ſhelled gourd, often called calabaſh. This hath trailing ſtalks, branching into runners, which extend far every way; the leaves are large, lobated, and rough; the flowers yellow, and are ſucceeded by roundiſh ſmooth fruit of a moderate ſize, with hard woody ſhells. Of all theſe ſpecies there are a great many varieties, and the fruit of every ſpecies is obſerved to be ſurpriſingly apt to change its form.

Culture. All the ſpecies of gourds and pompions, with their reſpective varieties are raiſed from ſeed ſown annually in April or the beginning of May, either with or without the help of artificial heat. But the plants forwarded in a hot-bed till about a month old, produce fruit a month or ſix weeks earlier on that account, and ripen proportionably ſooner. The firſt ſpecies particularly will ſcarce ever produce tolerably ſized fruit in Britain without the treatment abovementioned.

Uſes. In Britain theſe plants are cultivated only for curioſity; but in the places where they are natives, they anſwer many important purpoſes. In both the Indies, bottle-gourds are very commonly cultivated and ſold in the markets. They make the principal food of the common people, particularly in the warm months of June, July, and Auguſt. The Arabians call this kind of gourd *charrah*. It grows commonly on the mountains in theſe deſarts. The natives boil and ſeaſon it with vinegar; and ſometimes, filling the ſhell with rice and meat, make a kind of pudding of it. The hard ſhell is uſed for holding water, and ſome of them are capacious enough to contain 22 gallons; theſe, however, are very uncommon. The fruit of the pompion likewiſe conſtitutes a great part of the food of the common people during the hot months, in thoſe places where they grow. If gathered when not much bigger than a hen or gooſe egg, and properly ſeaſoned with butter, vinegar, &c. they make a tolerable good ſauce for butcher's meat, and are alſo uſed in ſoups. In England they are ſeldom uſed till grown to maturity. A hole is then made in one ſide, through which the pulp is ſcooped out: after being diveſted of the ſeeds, it is mixed with ſliced apples, milk, ſugar, and grated nutmeg, and thus a kind of pudding is made. The whole is then baked in the oven, and goes by the name of a *pumkin pye*. For this purpoſe the plants are cultivated in many places of England by the country people, who raiſe them upon old dung hills. The third ſpecies is alſo uſed in North America for culinary purpoſes. The fruit is gathered when about half grown, boiled, and eaten as ſauce to butcher's meat. The ſquaſhes are alſo treated in the ſame manner, and by ſome people eſteemed delicate eating.

CUCURBITACEÆ, the name of the 34th order in Linnæus's fragments of a natural method, conſiſting of plants which reſemble the gourd in external figure, habit, virtues, and ſenſible qualities. This order contains the following genera, viz. gronovia, melothria, paſſiflora, anguria, bryonia, cucumis, cucurbita, fevillea, momordica, ſicyos, trichoſanthes.

CUCURUCU, in zoology, the name of a ſerpent found in America, growing 10 or 12 feet long. It is alſo very thick in proportion to its length, and is of a yellowiſh colour, ſtrongly variegated with black ſpots, which are irregularly mixed among the yellow, and often have ſpots of yellow within them. It is a very poiſonous ſpecies, and greatly dreaded by the natives; but its fleſh is a very rich food, and much eſteemed among them, when properly prepared.

CUD, ſometimes means the inſide of the throat in beaſts; but generally the food that they keep there, and chew over again. See COMPARATIVE *Anatomy*, n° 92—94.

CUDDALORE, a town on the coaſt of Coromandel in India, belonging to the Engliſh, very near the place where Fort St David once ſtood. N. Lat. 11. 30. E. Long. 79. 53. 30. This place was reduced by the French in the year 1781; and in 1783 underwent a ſevere ſiege by the Britiſh forces commanded by General Stuart. At this time it was become the principal place of arms held by the French on that coaſt: they had exerted themſelves to the utmoſt in fortifying it; and it was garriſoned by a numerous body of the beſt forces of France, well provided with artillery, and every thing neceſſary for making a vigorous defence.

Previous to the commencement of the ſiege, they had conſtructed ſtrong lines of defence all along the fort, excepting one place where the town was covered by a wood, ſuppoſed to be inacceſſible. Through this wood, however, General Stuart began to cut his way; on which the beſieged began to draw a line of fortification within that alſo. The Britiſh commander then determined to attack theſe fortifications before they were quite completed; and for this purpoſe a vigorous attack was made by the troops under General Bruce. The grenadiers aſſailed a redoubt which greatly annoyed them, but were obliged to retire; on which the whole army advanced to the attack of the lines. The French defended themſelves with reſolution; and as both parties charged each other with fixed bayonets, a dreadful ſlaughter enſued. At laſt the Britiſh were obliged to retreat; but the French having imprudently come out of their lines to purſue them, were in their turn defeated, and obliged to give up the lines they had conſtructed with ſo much pains and ſo gallantly defended. The loſs on the part of the Britiſh amounted to near 1000 killed and wounded, one half of whom were Europeans; and that of the French was not leſs than 600.

Though the Britiſh proved victorious in this conteſt, yet the victory coſt ſo dear that there was not now a ſufficient number to carry on the ſiege with any effect. The troops alſo became ſickly; and their ſtrength diminiſhed ſo much, that the beſieged formed a deſign of not only obliging them to raiſe the ſiege, but of totally deſtroying them. For this purpoſe 4000 men were landed from the ſquadron commanded by M. Suffrein; and the conduct of the enterpriſe committed to the Chevalier de Damas, an experienced and valiant officer. On the 25th of June 1783, he ſallied out at the head of the regiment of Aquitaine, ſuppoſed to be one of the beſt in the French ſervice, and of which he was colonel; with other troops ſelected from the braveſt of the garriſon. The attack was made by day-break; but though the Britiſh were at firſt put into ſome diſorder, they quickly recovered themſelves, and not only repulſed the enemy, but purſued them ſo warmly, that the Chevalier de Damas himſelf was killed with about 200 of his countrymen, and as many taken priſoners.

This engagement was attended with one of the moſt remarkable circumſtances that happened during the whole war, *viz.* A corps of Sepoy grenadiers encountering the French troops oppoſed to them with fixed bayonets, and overcoming them. This extraordinary bravery was not only noticed with due applauſe, but procured for that corps a proviſion for themſelves and families from the preſidencies to which they belonged. No other operation of any conſequence took place during the ſiege, which was now ſoon ended by the news of peace having taken place between the belligerent powers of Europe.

CUDDY, in a firſt-rate man of war, is a place lying between the captain lieutenant's cabin and the quarter-deck; and divided into partitions for the maſter and other officers. It denotes alſo a kind of cabin near the ſtern of a lighter or barge of burden.

CUDWEED, in botany. See GNAPHALIUM.

CUDWORTH (Ralph), a very learned divine of the church of England in the 17th century. In January 1657 he was one of the perſons nominated by a committee of the parliament to be conſulted about the Engliſh tranſlation of the Bible. In 1678 he publiſhed his *True Intellectual ſyſtem of the Univerſe;* a work which met with great oppoſition. He likewiſe publiſhed a treatiſe, intitled, *Deus juſtificatus:* or, "The divine goodneſs of God vindicated, againſt the aſſertions of abſolute and unconditionate reprobation." He embraced the mechanical or corpuſcular philoſophy: but with regard to the Deity, ſpirits, genii, and ideas, he followed the Platoniſts. He died at Cambridge in 1688. The editor of the new edition of the Biographia Britannica obſerves, that it is not eaſy to meet with a greater ſtore-houſe of ancient literature than the "Intellectual Syſtem;" and various writers, we believe, have been indebted to it for an appearance of learning which they might not otherwiſe have been able to maintain. That Dr Cudworth was fanciful in ſome of his opinions, and that he was too devoted a follower of Plato and the Platoniſts, will ſcarcely be denied even by thoſe who are moſt ſenſible of his general merit. The reflections that have been caſt upon ſuch a man as the author, by bigotted writers, are altogether contemptible. It is the lot of diſtinguiſhed merit to be thus treated. Lord Shafteſbury, ſpeaking on this ſubject, has given an honourable teſtimony to the memory of Dr Cudworth. "You know (ſays his lordſhip) the common fate of thoſe who dare to appear fair authors. What was that pious and learned man's caſe, who wrote the Intellectual Syſtem of the Univerſe? I confeſs it was pleaſant enough to conſider, that though the whole world were no leſs ſatisfied with his capacity and learning, than with his ſincerity in the cauſe of Deity; yet he was accuſed of giving the upper hand to the Atheiſt, for having only ſtated their reaſons, and thoſe of their adverſaries, fairly together."

It is obſerved by Dr Birch, that Dr Cudworth's Intellectual Syſtem of the Univerſe has raiſed him a reputation, to which nothing can add but the publication of his other writings ſtill extant in manuſcript. That theſe writings are very valuable cannot be doubted. We may be aſſured that they diſplay a great compaſs of ſentiment and a great extent of learning. Neverthleſs, from their voluminous quantity, from the abſtruſeneſs of the ſubjects they treat upon, and from the revolutions of literary taſte and opinion, it is morally certain that the publication of them would not be ſucceſsful in the preſent age. Mr Cudworth's daughter Damaris, who married Sir Francis Maſham of Oates in Eſſex, was a lady of genius and learning: ſhe had a great friendſhip for Mr Locke, who reſided ſeveral years at her houſe at Oates, where he died in 1704.

CUE, an *item* or *inuendo*, given to the actors on the ſtage what or when to ſpeak. See PROMPTER.

CUENZA, a town of Spain, in New Caſtile, and in the territory of the Sierra, with a biſhop's ſee. It was taken by Lord Peterborough in 1706, but retaken by the Duke of Berwick. It is ſeated on the river Xucar, in W. Long. 1. 45. N. Lat. 40. 10.

CUERENHERT (Theodore Van), a very extraordinary perſon, was a native of Amſterdam, where he was born in 1522. It appears, that early in life he travelled into Spain and Portugal; but the motives of his journey are not aſcertained. He was a man of ſcience, and, according to report, a good poet. The ſiſter arts at firſt he conſidered as an amuſement only; but in the end he was, it ſeems, obliged to have recourſe to engraving alone for his ſupport. And though the different ſtudies in which he employed his time prevented his attachment to this profeſſion being ſo cloſe as it ought to have been, yet at laſt the marks of genius are diſcoverable in his works. They are ſlight, and haſtily executed with the graver alone; but in an open careleſs ſtyle, ſo as greatly to reſemble deſigns made with a pen. He was eſtabliſhed at Haerlem; and there purſuing his favourite ſtudies in literature, he learned Latin, and was made ſecretary to that town, from whence he was ſent ſeveral times as ambaſſador to the Prince of Orange to whom he addreſſed a famous maniſeſto, which that prince publiſhed in 1566. Had he ſtopped here, it had been well; but directing his thoughts into a different channel, he undertook an argument as dangerous as it was abſurd. He maintained, that all religious communications were corrupted; and that, without a ſupernatural miſſion, accompanied with miracles, no perſon had a right to adminiſter in any religious office: he therefore pronounced that man to be unworthy the name of a Chriſtian who would enter any place of public worſhip. This he not only advanced in words, but ſtrove to ſhow the ſincerity of his belief by practice; and for that reaſon would not communicate with either Proteſtant or Papiſt. His works were publiſhed in three volumes folio in 1630; and though he was ſeveral times impriſoned, and at laſt ſentenced to baniſhment, yet he does not appear to have altered his ſentiments. He died at Dergoude in 1590, aged 68 years. It is no ſmall addition to the honour of this ſingular man, that he was the inſtructor of that juſtly celebrated artiſt Henry Goltzius. Cuerenhert worked conjointly with the Galles and other artiſts, from the deſigns of Martin Hemſkerck. The ſubjects are from the Old and New Teſtament, and conſiſt chiefly of middling ſized plates lengthwiſe. He alſo engraved ſeveral ſubjects from Franc. Floris.

CUERPO. To *walk in cuerpo*, is a Spaniſh phraſe for going without a cloak; or without all the formalities of a full dreſs.

CUFF (Henry), the unfortunate ſecretary of the unfortunate earl of Eſſex, was born at Hinton St George in Somerſetſhire, about the year 1560, of a genteel family, who were poſſeſſed of conſiderable eſtates in that county. In 1576, he was entered of Trinity college Oxford; where he ſoon acquired conſiderable reputation as a Grecian and diſputant. He obtained a fellowſhip in the abovementioned college; but was afterwards expelled for ſpeaking diſreſpectfully of the founder (A). He was, however, ſoon after admitted of Merton college; of which, in 1586, he was elected probationer, and in 1588 fellow. In this year he took the degree of maſter of arts. Some time after he was elected Greek profeſſor, and in 1594 proctor of the univerſity. When he left Oxford is uncertain; nor are we better informed as to the means of his introduction to the earl of Eſſex. When that nobleman was made lord lieutenant of Ireland, Mr Cuff was appointed his ſecretary, and continued intimately connected with his lordſhip until his confinement in the tower; and he is generally ſuppoſed to have adviſed thoſe violent meaſures which ended in their mutual deſtruction. The earl indeed confeſſed as much before his execution, and charged him to his face with being the author of all his misfortunes. Mr Cuff was tried for high-treaſon, convicted, and executed at Tyburn on the 30th of March 1601. Lord Bacon, Sir Henry Wotton, and Camden, ſpeak of him in very harſh terms. He was certainly a man of learning and abilities. He wrote two books; the one intitled, The Differences of the Ages of Man's Life; the other, *De Rebus Geſtis in Sancto Concilio Nicæno*. The firſt was publiſhed after his death; the ſecond is ſtill in manuſcript.

CUJAS (James), in Latin *Cujacius*, the beſt civilian of his time, was born at Toulouſe, of obſcure parents, in 1520. He learned polite literature and hiſtory; and acquired great knowledge in the ancient laws, which he taught with extraordinary reputation at Toulouſe, Cahors, Bourges, and Valence, in Dauphiné. Emanuel Philibert, duke of Savoy, invited him to Turin, and gave him ſingular marks of his eſteem. Cujas afterwards refuſed very advantageous offers from Pope Gregory XIII. who was deſirous of having him teach at Bologna: but he choſe rather to fix at Bourges, where he had a prodigious number of ſcholars; whom he not only took great pleaſure in inſtructing, but aſſiſted with his ſubſtance, which occaſioned his being called the *The father of his Scholars*. He died at Bourges in 1590, aged 70. His works are in high eſteem among civilians.

CUJAVA, a territory of Great Poland, having on the north the duchy of Pruſſia, on the weſt the palatinate of Kaliſk, on the ſouth thoſe of Licici and Rava, and on the weſt that of Ploczko. It contains two palatinates, the chief towns of which are Inowloez and Breſt; as alſo Uladiſlaw, the capital of the diſtrict.

CUIRASSE, a piece of defenſive armour, made of iron plate, well hammered, ſerving to cover the body from the neck to the girdle, both before and behind. Some derive the word, by corruption, from the Italian *cuore*, "heart;" becauſe it covers that part: others from the French *cuir*, or the Latin *corium*, "leather;" whence *coriaceous*: becauſe defenſive arms were originally made of leather. The cuiraſſe was not brought into uſe till about the year 1300, though they were known both to the ancient Greeks and Romans in different forms.

CUIRASSIERS, cavalry armed with cuiraſſes, as moſt of the Germans are: The French have a regiment of cuiraſſiers; but there have been none in the Britiſh army ſince the revolution.

CULDEES, in church-hiſtory, a ſort of monkiſh prieſts, formerly inhabiting Scotland and Ireland. Being remarkable for the religious exerciſes of preaching and praying, they were called by way of eminence, *cultores Dei*; from whence is derived the word *culdees*. They made choice of one of their own fraternity to be their ſpiritual head, who was afterwards called the *Scots biſhop*.

CULEMBACH, a diſtrict or marquiſate of the circle of Franconia, in Germany. It is bounded on the weſt by the biſhopric of Bamberg; on the ſouth by the territory of Nuremberg; on the eaſt by the palatinate of Bavaria and Bohemia; and on the north by Voightland

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(A) The founder of Trinity college was Sir Thomas Pope, who, it ſeems, would often take a piece of plate from a friend's houſe, and carry it home concealed under his gown; out of fun, no doubt. Cuff, being merry with ſome of his acquaintance at another college, happened to ſay, alluding to Sir Thomas Pope's uſual joke abovementioned, "A pox on this beggarly houſe! why, our founder ſtole as much plate as would build ſuch another." This piece of wit was the cauſe of his expulſion. The heads of colleges in thoſe days did not underſtand humour. Anthony Wood was told this ſtory by Dr Bathurſt.

land and part of the circle of Upper Saxony. It is about 50 miles in length from north to ſouth, and 30 in breadth from eaſt to weſt. It is full of foreſts and high mountains; the moſt conſiderable of the latter are thoſe of Frichtelberg, all of them covered with pine-trees. Here are the ſources of four large rivers, the Maine, the Sala, the Eger, and the Nab. This marquiſate is the upper part of the burgraviate of Nuremberg.

CULEMBACH, a town of Germany, in Franconia, the capital of the marquiſate of the ſame name. It has good fortifications, and is ſeated at the confluence of two branches of the river Maine. It was pillaged and burnt by the Huſſites in 1430, and by the inhabitants of Nuremberg in 1573. E. Long. 11. 28. N. Lat. 50. 12.

CULEUS, in Roman antiquity, the largeſt meaſure of capacity for things liquid, containing 20 amphoræ, or 40 urnæ. It contained 143 gallons 3 pints, Engliſh wine-meaſure, and was 110.95 ſolid inches.

CULEX, the GNAT; a genus of inſects belonging to the order of diptera. The mouth is formed by a flexible ſheath, incloſing briſtles pointed like ſtings.

Plate. CLI.

The antennæ of the males are filiform; thoſe of the females feathered. There are ſeven ſpecies. Theſe inſects, too well known by the ſevere punctures they inflict, and the itchings thence ariſing, afford a moſt intereſting hiſtory. Before they turn to flying inſects, they have been in ſome manner fiſhes, under two different forms.

Barbut's Genera of Inſects.

You may obſerve in ſtagnating waters, from the beginning of May till winter, ſmall grubs with their heads downwards, their hinder-parts on the ſurface of the water; from which part ariſes ſideways a kind of vent-hole, or ſmall hollow tube like a funnel, and this is the organ of reſpiration. The head is armed with hooks, that ſerve to ſeize on inſects and bits of graſs on which it feeds. On the ſides are placed four ſmall fins, by the help of which the inſect ſwims about, and dives to the bottom. Theſe larvæ retain their form during a fortnight or three weeks, after which period they turn to chryſalids. All the parts of the winged inſect are diſtinguiſhable through the outward robe that ſhrouds them. The chryſalids are rolled up into ſpirals. The ſituation and ſhape of the windpipe is then altered; it conſiſts of two tubes near the head, which occupy the place of the ſtigmata, through which the winged inſect is one day to breathe. Theſe chryſalids, conſtantly on the ſurface of the water in order to draw breath, abſtain now from eating: but upon the leaſt motion are ſeen to unroll themſelves, and plunge to the bottom, by means of little paddles ſituated at their hinder-part. After three or four days ſtrict faſting, they paſs to the ſtate of gnats. A moment before, water was its element; but now, become an aerial inſect, he can no longer exiſt in it. He ſwells his head, and burſts his incloſure. The robe he lately wore turns to a ſhip, of which the inſect is the maſt and ſail. If at the inſtant the gnat diſplays his wings there ariſes a breeze, it proves to him a dreadful hurricane; the water gets into the ſhip, and the inſect, who is not yet looſened from it, ſinks and is loſt. But in calm weather, the gnat forſakes his ſlough, dries himſelf, flies into the air, ſeeks to pump the alimentary juice of leaves, or the blood of man and beaſts. The ſting which our naked eye diſcovers, is but a tube, containing five or ſix ſpicula of exquiſite minuteneſs; ſome dentated at their extremity like the head of an arrow, others ſharp-edged like razors. Theſe ſpicula introduced into the veins, act as pump-ſuckers, into which the blood aſcends by reaſon of the ſmallneſs of the capillary tubes. The inſect injects a ſmall quantity of liquor into the wound, by which the blood becomes more fluid, and is ſeen through the microſcope paſſing through thoſe ſpicula. The animal ſwells, grows red, and does not quit its hold till it has gorged itſelf. The liquor it has injected cauſes by its fermenting that diſagreeable itching which we experience; and which may be removed by volatile alkali, or by ſcratching the part newly ſtung, and waſhing it with cold water; for later, the venom ferments, and you would only increaſe the tumor and the itching. Rubbing one's ſelf at night with fuller's-earth and water, leſſens the pain and inflammation. Gnats perform their copulation in the air. The female depoſites her eggs on the water; by the help of her moveable hinder part and her legs, placing them one by the ſide of another in the form of a little boat. This veſſel, compoſed of two or three hundred eggs, ſwims on the water for two or three days, after which they are hatched. If a ſtorm ariſes, the boats are ſunk. Every month there is a freſh progeny of theſe inſects. Were they not devoured by ſwallows, other birds, and by ſeveral carnivorous inſects, the air would be darkened by them.

Gnats, however troubleſome they may be, do not make us feel them ſo ſeverely as the muſketo-flies *(culex pipiens)* do. In the day-time or at night theſe come into the houſes; and when the people are gone to bed they begin their diſagreeable humming, approach always nearer to the bed, and at laſt ſuck up ſo much blood that they can hardly fly away. Their bite cauſes bliſters in people of a delicate complection. When the weather has been cool for ſome days the muſquetoes diſappear; but when it changes again, and eſpecially after a rain, they gather frequently in ſuch quantities about the houſes, that their numbers are aſtoniſhing. In ſultry evenings they accompany the cattle in great ſwarms, from the woods to the houſes or to town; and when they are driven before the houſes, the gnats fly in wherever they can. In the greateſt heat of ſummer, they are ſo numerous in ſome places, that the air ſeems to be quite full of them, eſpecially near ſwamps and ſtagnate waters, ſuch as the river Morris in New Jerſey. The inhabitants therefore make a fire before their houſes to expel theſe diſagreeable gueſts by the ſmoke.

CULIACAN, a province of North America, in the audience of Guadalajara. It is bounded on the north by new Mexico, on the eaſt by New Biſcay and the Zacatecas, on the ſouth by Chiametlan, and on the weſt by the ſea. It is a fruitful country, and has rich mines.

CULLIAGE, a barbarous and immoral practice, whereby the lords of manors anciently aſſumed a right to the firſt night of their vaſſals brides.

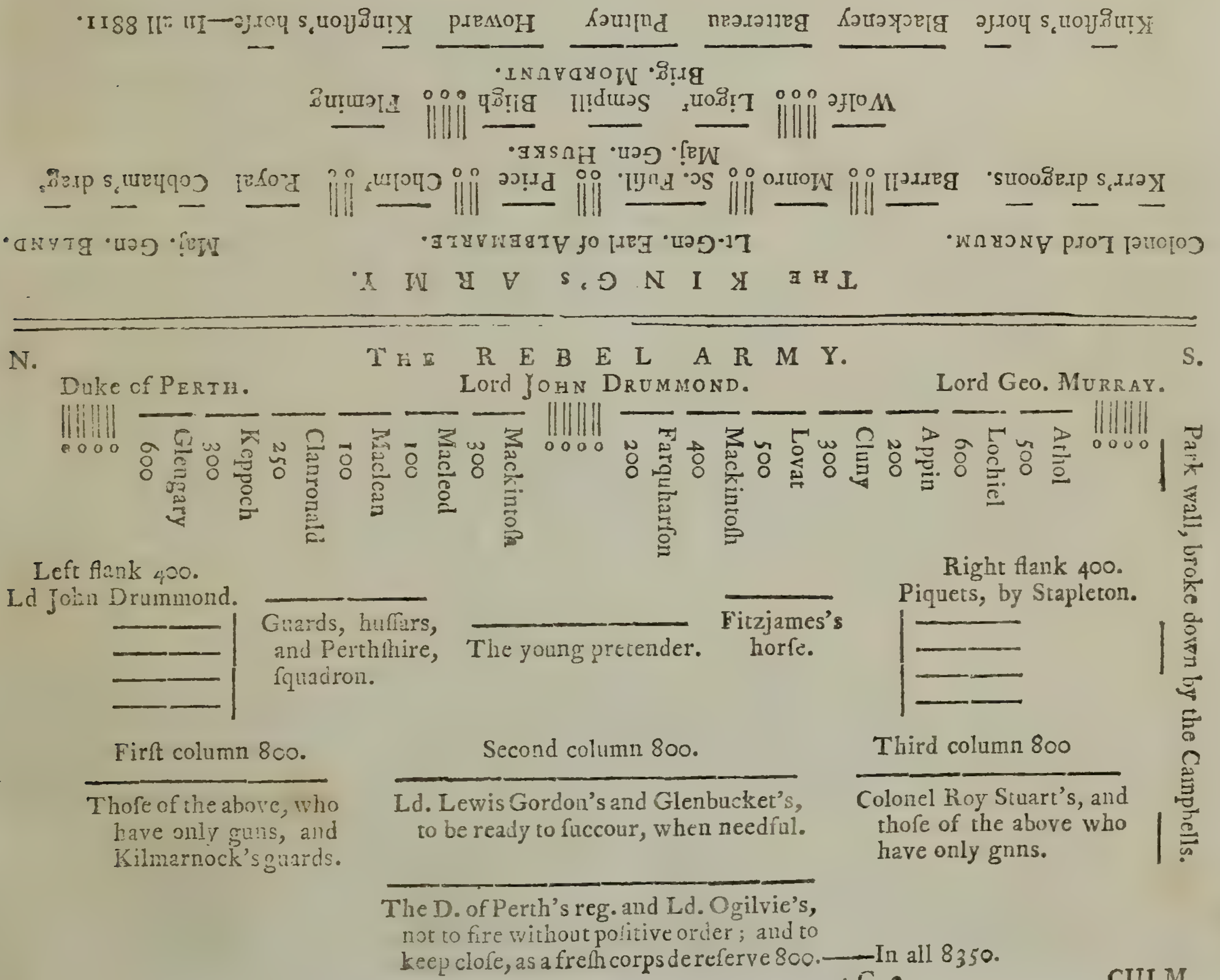
CULLEN, a parliament-town in Scotland, ſituated on the ſea-coaſt of Banff-ſhire. W. Long. 2. 12. and N. Lat. 57. 38.

CULLODEN, a place in Scotland within two miles of Inverneſs, chiefly remarkable for a complete

Culloden.

victory gained over the rebels on the 16th of April 1746. That day the royal army, commanded by the late Duke of Cumberland, began their march from Nairn, formed into five lines of three battalions each; headed by Major-general Huſke on the left, Lord Sempill on the right, and Brigadier Mordaunt in the centre; flanked by the horſe under the Generals Hawley and Bland, who at the ſame time covered the cannon on the right and left. In this order they marched about eight miles, when a detachment of Kingſton's horſe, and of the Highlanders, having advanced before the reſt of the army, diſcovered the van of the rebels commanded by the young pretender. Both armies immediately formed in the order and numbers ſhown in the annexed ſcheme.

About two in the afternoon the rebels began to cannonade the king's army: but their artillery being ill ſerved, did little execution; while the fire from their enemies was ſeverely felt, and occaſioned great diſorder. The rebels then made a puſh at the right of the royal army, in order to draw the troops forward; but finding themſelves diſappointed, they turned their whole force on the left; falling chiefly on Barrell's and Monro's regiments, where they attempted to flank the king's front-line. But this deſign alſo was defeated by the advancing of Wolfe's regiment, while in the mean time the cannon kept playing upon them with cartridge-ſhot. General Hawley, with ſome Highlanders, had opened a paſſage through ſome ſtone-walls to the right for the horſe which advanced on that ſide; while the horſe on the king's right wheeled off upon their left, diſperſed their body of reſerve, and met in the centre of their front-line in their rear; when being repulſed in the front, and great numbers of them cut off, the rebels fell into very great confuſion. A dreadful carnage was made by the cavalry on their backs; however, ſome part of the foot ſtill preſerved their order: but the Kingſton's horſe, from the reſerve, galloped up briſkly, and falling on the fugitives, did terrible execution. A total defeat inſtantly took place, with the loſs of 2,000 killed, wounded, and priſoners, on the part of the rebels; while the royaliſts loſt not above 200. The young pretender had his horſe ſhot under him during the engagement; and after the battle retired to the houſe of a factor of Lord Lovat, about ten miles from Inverneſs, where he lay that night. Next day he ſet out for Fort-Auguſtus, from whence he purſued his journey through wild deſarts with great difficulty and diſtreſs, till at laſt he ſafely reached France, as related under the article BRITAIN, n° 423.



CULM, or Culmus, among botaniſts, a ſtraw or haulm; defined by Linnæus to be the proper trunk of the graſſes, which elevates the leaves, flower, and fruit.

This ſort of trunk is tubular or hollow, and has frequently knots or joints diſtributed at proper diſtances through its whole length. The leaves are long, ſleek, and placed either near the roots in great numbers, or proceed ſingly from the different joints of the ſtalk, which they embrace at the baſe, like a ſheath or glove.

The haulm is commonly garniſhed with leaves: ſometimes, however, it is naked; that is, devoid of leaves, as in a few ſpecies of cypreſs-graſs. Moſt graſſes have a round cylindrical ſtalk; in ſome ſpecies of ſchœnus, ſcirpus, cypreſs-graſs, and others, it is triangular.

The ſtalk is ſometimes entire, that is, has no branches; ſometimes branching, as in *ſchœnus aculeatus & capenſis;* and not ſeldom conſiſts of a number of ſcales, which lie over each other like tiles.

Laſtly, in a few graſſes, the ſtalk is not interrupted with joints, as in the greater part. The ſpace contained betwixt every two knots or joints, is termed by botaniſts *internodium* and *articulus culmi.*

This ſpecies of trunk often affords certain marks of diſtinction, in diſcriminating the ſpecies. Thus in the genus eriocaulon, the ſpecies are ſcarce to be diſtinguiſhed but by the angles of the culmus or ſtalks. Theſe in ſome ſpecies are in number 5, in others 6, and in others 10.

CULMIFEROUS plants, (from *culmus,* a ſtraw or haulm): plants ſo called, which have a ſmooth jointed ſtalk, uſually hollow, and wrapped about at each joint with ſingle, narrow, ſharp-pointed leaves, and the ſeeds contained in chaffy huſks; ſuch are oats, wheat, barley, rye, and the other plants of the natural family of the grasses.

CULMINATION, in aſtronomy, the paſſage of any heavenly body over the meridian, or its greateſt altitude for that day.

CULPRIT, a term uſed by the clerk of the arraignments, when a perſon is indicted for a criminal matter. See *Plea to Indictment,* par. 11.

CULROSS, a parliament town in Scotland, ſituated on the river Forth, about 23 miles north-weſt of Edinburgh. Here is a magnificent houſe with 13 windows in front, built about the year 1590 by Edward Lord Kinloſs, better known in England by the name of Lord Bruce, ſlain in the noted duel between him and Sir Edward Sackville. Some poor remains of the Ciſtercian abbey are ſtill to be ſeen here, founded by Malcolm earl of Fife in 1217. The church was jointly dedicated to the Virgin and St Serf confeſſor. The revenue at the diſſolution was 768 pounds Scots, beſides the rents paid in kind. The number of monks, excluſive of the abbot, were nine. W. Long. 3. 34. N. Lat. 56. 8.

CULVERIN, a long ſlender piece of ordnance or artillery, ſerving to carry a ball to a great diſtance. Manege derives the word from the Latin *colubrina;* others from *coluber,* "ſnake;" either on account of the length and ſlenderneſs of the piece or of the ravages it makes.

There are three kinds of culverins, *viz.* the extraordinary, the ordinary, and the leaſt ſized. 1. The culverin extraordinary has 5½ inches bore; its length 32 calibers, or 13 feet; weighs 4800 pounds; its load above 12 pounds; carries a ſhot 5¼ inches diameter, weighing 20 pounds weight. 2. The ordinary culverin is 12 feet long; carries a ball of 17 pounds 5 ounces; caliber 5½ inches; its weight 4500 pounds. 3. The culverin of the leaſt ſize, has its diameter 5 inches; is 12 feet long; weighing about 4000 pounds; carries a ſhot 3¾ inches diameter, weighing 14 pounds 9 ounces.

CULVERTAILED, among ſhipwrights, ſignifies the faſtening or letting of one timber into another, ſo that they cannot ſlip out, at the corlings into the beams of a ſhip.

CUMA, or Cumæ (anc. geog.), a town of Æolia in Aſia Minor. The inhabitants have been accuſed of ſtupidity for not laying a tax upon all the goods which entered their harbour during 300 years. They were called *Cumani.*

CUMÆ, or Cuma (anc. geog.), a city of Campania near Puteoli founded by a colony from Chalcis and Cumæ of Æolia before the Trojan war. The inhabitants were called *Cumæi.* One of the Sibyls fixed her reſidence in a cave in the neighbourhood, and was called the *Cumean Sibyl.*

CUMBERLAND, Cumbria, ſo denominated from the *Cumbri* or Britons who inhabited it; one of the moſt northerly counties in England. It was formerly a kingdom extending from the vallum of Adrian to the city of Dumbritton, now Dumbarton, on the frith of Clyde in Scotland. At preſent it is a county of England, which gives the title of *duke* to one of the royal family, and ſends two members to parliament. It is bounded on the north and north-weſt by Scotland; on the ſouth and ſouth-eaſt by part of Lancaſhire and Weſtmoreland; it borders on the eaſt with Northumberland and Durham; and on the weſt is waſhed by the Iriſh ſea. The length from north to ſouth may amount to 55 miles, but the breadth does not exceed 40. It is well watered with rivers, lakes, and fountains; but none of its ſtreams are navigable. In ſome places there are very high mountains. The air is keen and piercing on theſe mountains towards the north; and the climate is moiſt, as in all hilly countries. The ſoil varies with the face of the country; being barren on the moors and mountains, but fertile in the valleys and level ground bordering on the ſea. In general the eaſtern parts of the ſhire are barren and deſolate; yet even the leaſt fertile parts are rich in metals and minerals. The mountains of Copland abound with copper: veins of the ſame metal, with a mixture of gold and ſilver, were found in the reign of queen Elizabeth among the fells of Derwent; and royal mines were formerly wrought at Keſwick. The county produces great quantities of coal, ſome lead, abundance of the mineral earth called *black-lead,* ſeveral mines of lapis calaminaris; and an inconſiderable pear-fiſhery on the coaſt near Ravenglaſs.

Cumberland (Richard), a very learned Engliſh divine in the latter end of the 17th century, was ſon of a citizen of London, and educated at Cambridge. In 1672, he publiſhed his excellent Treatiſe of the Laws of Nature; and in 1686, An Eſſay toward the

Jewiſh Weights and Meaſures. After the revolution he was nominated by king William to the biſhopric of Peterborough, without the leaſt ſolicitation on his part. He purſued his ſtudies to the laſt; and the world is obliged to him for clearing up ſeveral difficulties in hiſtory, chronology, and philoſophy. After the age 83, he applied himſelf to the ſtudy of the Coptic language, of which he made himſelf maſter. He was as remarkable for humility of mind, benevolence of temper, and innocence of life, as for his extenſive learning. He died in 1718.

CUMINUM, cumin: A genus of the digynia order, belonging to the pentandria claſs of plants; and in the natural method ranking under the 45th order, *Umbellatæ*. The fruit is ovate and ſtriated; there are four partial umbels, and the involucra are quadrifid. There is but one ſpecies, *viz.* the cyminum. It is an annual plant, periſhing ſoon after the ſeed is ripe. It riſes 9 or 10 inches high in the warm countries where it is cultivated; but ſeldom riſes above four in Britain. It has ſometimes flowered very well here but never brings its ſeeds to perfection. The leaves are divided into long narrow ſegments, like thoſe of fennel, but much ſmaller: they are of a deep green, and generally turned backward at their extremity: the flowers grow in ſmall umbels at the top of the ſtalks: they are compoſed of five unequal petals, of a pale bluiſh colour, which are ſucceeded by long, channelled, aromatic ſeeds. The plant is propagated for ſale in the iſland of Malta. In Britain the ſeeds muſt be ſown in ſmall pots, and plunged in a very moderate hot-bed to bring up the plants. Theſe, after, having been gradually inured to the open air, turned out of the pots, and planted in a warm border of good earth, preſerving the balls of earth to their roots, will flower pretty well, and may perhaps even perfect a few ſeeds in warm ſeaſons. Theſe ſeeds have a bitteriſh warm taſte, accompanied with an aromatic flavour, not of the moſt agreeable kind. They are accounted good carminatives; but not very often made uſe of. An eſſential oil of them is kept in the ſhops.

CUNÆUS (Peter), born in Zealand, in 1586, was diſtinguiſhed by his knowledge in the learned languages, and his ſkill in the Jewiſh antiquities. He alſo ſtudied law, which he taught at Leyden, in 1615; and read politics there till his death, in 1638. His principal work is a treatiſe, in Latin, on the republic of the Hebrews.

CUNEIFORM, in general an appellation given to whatever reſembles a wedge.

Cuneiform-Bone, in anatomy, the ſeventh bone of the cranium, called alſo *os baſilare*, and *os ſphenoides*. See Anatomy, n° 16.

CUNEUS, in antiquity, a company of infantry drawn up in form of a wedge, the better to break through the enemy's ranks.

CUNICULUS, in zoology, See Lepus.

Cuniculus, in mining, a term uſed by authors in diſtinction from *puteus*, to expreſs the ſeveral ſorts of paſſages and cuts in theſe ſubterranean works. The *cuniculi* are thoſe direct paſſages in mines where they walk on horizontally; but the putei are the perpendicular cuts or deſcents. The miners in Germany call theſe by the name *ſtollen*, *ſchachts*; the the firſt word expreſſing the horizontal, and the ſecond the perpendicular cuts.

CUNILA, in botany: A genus of the monogynia order, belonging to the monandria claſs of plants; and in the natural method ranking under the 42d order, *Verticillatæ*. The corolla is ringent, with its upper lip erect and plane; there are two filaments, caſtrated, or wanting antheræ; the ſeeds are four. There are three ſpecies, none of which has any remarkable property.

CUNINA, in mythology, a goddeſs who had the care of little children.

CUNITZ (Mary), one of the greateſt geniuſes in the 16th century, was born in Sileſia. She learned languages with amazing facility; and underſtood Poliſh, German, French, Italian, Latin, Greek, and Hebrew. She attained a knowledge of the ſciences with equal eaſe: ſhe was ſkilled in hiſtory, phyſic, poetry, painting, muſic, and playing upon inſtruments; and yet theſe were only an amuſement. She more particularly applied herſelf to the mathematics, and eſpecially to aſtronomy, which ſhe made her principal ſtudy, and was ranked in the number of the moſt able aſtronomers of her time. Her Aſtronomical Tables acquired her a prodigious reputation: ſhe printed them in Latin and German, and dedicated them to the emperor Ferdinand III. She married Elias de Lewin, M. D.; and died at Piſtehen, in 1664.

CUNNINGHAM, one of the four bailiwicks in Scotland; and one of the three into which the ſhire of Air is ſubdivided. It lies north-eaſt of Kyle. Its chief town is Irvin.

Cunningham (Alexander), author of a Hiſtory of Great Britain from the revolution to the acceſſion of George I. was born in the ſouth of Scotland about the year 1654, in the regency of Oliver Cromwell. His father was miniſter at Ettrick, in the preſbytery and ſhire of Selkirk. He was educated, as was the cuſtom among the Scottiſh preſbyterian gentlemen of thoſe times, in Holland; where he imbibed his principles of government, and lived much with the Engliſh and Scots refugees at the Hague before the revolution; particularly with the earls of Argyle and Sunderland. He came over to England with the prince of Orange, and enjoyed the confidence and intimacy of many leading men among the whig party, that is, the friends and abettors of king William and the revolution. He was employed at different times, in the character of a travelling companion or tutor; firſt, to the earl of Hyndford, and his brother Mr William Carmichael, ſolicitor general, in the reign of queen Anne, for Scotland; ſecondly, with the lord Lorne, afterwards ſo well known under the name of *John duke of Argyle*; and thirdly, with the lord viſcount Lonſdale. In his travels, we find him, at the German courts, in company with the celebrated Mr Joſeph Addiſon, whoſe virtues he celebrates, and whoſe fortune, like that of our author, compelled him to.

" ———become for hire,
" A trave'ling tutor to a ſquire."

Lord Lorne, at the ſame time was under the tuition of Mr Cunningham, though not ſeventeen years of age, was colonel of a regiment, which his father, the earl of Argyle, had raiſed for his majeſty's ſervice in Flanders. Mr Cunningham's connection with the duke of Argyle, with whom he had the honour of maintaining an intimacy as long as he lived, together with the opportunities he enjoyed of learning, in his travels, what may be called *military geography*, naturally tended to qualify him for writing intelligibly on military affairs.

Mr Cunningham, both when he travelled with the noblemen abovementioned, and on other occaſions, was employed by the Engliſh miniſtry in tranſmitting ſecret intelligence to them on the moſt important ſubjects. He was alſo, on ſundry occaſions, employed by the generals of the confederate armies, to carry intelligence, and to make repreſentations to the court of Britain. In Carſtares's State-papers, publiſhed by Dr Macormick principal of the united college of St Andrew's in 1774, there are two letters from our author, dated Paris the 22d and 26th of Auguſt 1701, giving an account of his conferences with the marquis de Torcy, the French miniſter, relative to the Scots trade with France. This commercial negociation, from the tenor of Cunningham's letters compared with his hiſtory, appears to have been the only oſtenſible object of his attention; for he ſent an exact account to king William, with whom he was perſonally acquainted, of the military preparations throughout all France.

Mr Cunningham's political friends, Argyle, Sunderland, Sir Robert Walpole, &c. on the acceſſion of George I. ſent him as Britiſh envoy to the republic of Venice. He arrived in that city in 1715; and continued there, in the character of reſident, till the year 1720, when he returned again to London. He lived many years after, which he ſeems chiefly to have paſſed in a ſtudious retirement. In 1735, he was viſited in London by lord Hyndford, by the direction of his lordſhip's father, to whom he had been tutor, when he appeared to be very old. He ſeems to have lived about two years after; for the body of an Alexander Cunningham lies interred in the vicar chancel of St Martin's church, who died in the 83d year of his age, on the 15th day of May 1737; and who was probably the ſame perſon.

His "Hiſtory of Great Britain, from the revolution in 1688 to the acceſſion of George I." was publiſhed in two volumes 4to, in 1787. It was written by Mr Cunningham in Latin, but was tranſlated into Engliſh by the reverend William Thomſon, L. L. D. The original manuſcript came into the poſſeſſion of the reverend Dr Hollingberry, archdeacon of Chicheſter, ſome of whoſe relations had been connected with the author. He communicated it to the earl of Hardwicke, and to the reverend Dr Douglas now biſhop of Carliſle, both of whom recommended the publication. In a ſhort preface to the work, the archdeacon ſays, "My firſt deſign was to have produced it in the original; but knowing how few are ſufficiently learned to underſtand, and how many are indiſpoſed to read two quarto volumes in Latin, however intereſting and entertaining the ſubject may be, I altered my purpoſe, and intended to have ſent it into the world in a tranſlation. A nervous fever depriving me of the power, defeated the ſcheme." But he afterwards transferred the undertaking to Dr Thomſon; and Dr Hollingberry obſerves, that Dr Thomſon "has expreſſed the ſenſe of the author with fidelity." The work was undoubtedly well deſerving of publication. It contains the hiſtory of a very intereſting period, written by a man who had a conſiderable degree of authentic information, and his book contains many curious particulars, not to be found in other hiſtories. His characters are often drawn with judgment and impartiality: at other times they are ſomewhat tinctured with prejudice. This is particularly the caſe with reſpect to biſhop Burnet, againſt whom he appears to have conceived a ſtrong perſonal diſlike. But he was manifeſtly a very attentive obſerver of the tranſactions of his own time; his work contains many juſt political remarks; and the facts which he relates are exhibited with great perſpicuity and often with much animation. Throughout his book he frequently interſperſes ſome account of the literature, and of the moſt eminent perſons of the age concerning which he writes; and he has alſo adorned his work with many alluſions to the claſſics and to ancient hiſtory.

Alexander Cunningham, the author of the hiſtory of Great Britain, has been ſuppoſed to be the ſame perſon whith Alexander Cunningham who publiſhed an edition of Horace at the Hague, in two volumes 8vo, in 1721, which is highly eſteemed. But from the beſt information we have been able to collect, they were certainly different perſons; though they were both of the ſame name, lived at the ſame time, had both been travelling tutors, were both ſaid to have been eminent for their ſkill at the game of cheſs, and both lived to a very advanced age. The editor of Horace is generally ſaid to have died in Holland, where he taught both the civil and canon laws, and where he had collected a very large library, which was ſold in that country.

CUNNUS, in anatomy, the *pudendum muliebre*, or the anterior parts of the genitals of a woman, including the *labia pudendi* and *mons veneris*.

CUNOCEPHALI, in mythology, (from κυων, "dog." and κεφαλη, "head."), a kind of baboons, or animals with heads like thoſe of dogs, which were wonderfully endowed, and were preſerved with great veneration by the Egyptians in many of their temples. It is related that by their aſſiſtance the Egyptians found out the particular periods of the ſun and moon; and that one half of the animal was often buried, while the other half ſurvived; and that they could read and write. This ſtrange hiſtory, Dr Bryant imagines, relates to the prieſts of Eygypt, ſtyled *cahen*, to the novices in their temples, and to the examinations they were obliged to undergo, before they could be admitted to the prieſthood. The Egyptian colleges were ſituated upon rocks or hills, called *caph*, and from their conſecration to the ſun, *caph-el*: whence the Greeks deduced κεφαλη, and from *cahen-caph-el* they formed κυνοκεφαλος. So that *cahen-caph-el* was ſome royal ſeminary in Upper Egypt, whence they drafted novices to ſupply their colleges and temples. By this etymology he explains the above hiſtory. The death of one part, while the other ſurvived, denoted the regular ſucceſſion of the Egyptian prieſthood. The *cunocephali* are alſo found in India and other parts of the world. Theſe and the *acephali* were thus denominated from their place of reſidence and from their worſhip.

CUNODONTES, a people mentioned by Solinus and Iſidorus, and by them ſuppoſed to have the teeth of dogs. They were probably denominated, ſays Dr Bryant, from the object of their worſhip, the deity Chan-Adon, which the Greeks expreſſed Κυνοδων, and thence called his votaries *Cunodontes*.

CUNONIA, in botany: A genus of the digynia order, belonging to the decandria claſs of plants; and in the natural method ranking with thoſe of which the order is doubtful. The corolla is pentapetalous; the calyx pentaphyllous; the capſule bilocular, accuminated, polyſpermous; the ſtyles longer than the flower.

CUOGOLO, in natural hiſtory, the name of a ſtone much uſed by the Venetians in glaſs-making, and found in the river Feſino. It is a ſmall ſtone of an impure white, of a ſhattery texture, and is of the ſhape of a pebble.

CUP, a veſſel of capacity of various forms and materials, chiefly to drink out of. In the Ephem. German. we have a deſcription of a cup made of a common pepper-corn by Oſwald Merlinger, which holds 1200 other ivory cups, having each its ſeveral handle, all gilt on the edges; with room for 400 more.

Cup, in botany. See Calyx.

Cup-Galls, in natural hiſtory, a name given by authors to a very ſingular kind of galls found on the leaves of the oak and ſome other trees. They are of the figure of a cup, or drinking-glaſs without its foot, being regular cones adhering by their point or apex to the leaf; and the top or broad part is hollowed a little way, ſo that it appears like a drinking-glaſs with a cover, which was made ſo ſmall as not to cloſe it at the mouth, but fall a little way into it. This cover is flat, and has in the centre a very ſmall protuberance, reſembling the nipple of a woman's breaſt. This is of a pale green, as is alſo the whole of the gall, excepting only its rim that runs round the top: this is of a ſcarlet colour, and that very beautiful. Beſides this ſpecies of gall, the oak leaves furniſh us with ſeveral others, ſome of which are oblong, ſome round, and others flatted; theſe are of various ſizes, and appear on the leaves at various ſeaſons of the year. They all contain the worm of ſome ſmall fly; and this creature paſſes all its changes in this its habitation, being ſometimes found in the worm, ſometimes in the nymph, and ſometimes in the fly-ſtate, in the cavity of it.

CUPANIA, in botany: A genus of the adelphia order, belonging to the monœcia claſs of plants; and in the natural method ranking under the 38th order, *Tricoccæ*. The calyx of the male is triphyllous; the corolla pentapetalous; the ſtamina five. The calyx of the female triphyllous; the corolla tripetalous; the ſtyle trifid; and a pair of ſeeds. There is but one ſpecies, a native of America, and which poſſeſſes no remarkable property.

CUPEL, in metallurgy, a ſmall veſſel which abſorbs metallic bodies when changed by fire into a fluid ſcoria; but retains them as long as they continue in their metallic ſtate. One of the moſt proper materials for making a veſſel of this kind is the aſhes of animal bones; there is ſcarcely any other ſubſtance which ſo ſtrongly reſiſts vehement fire, which ſo readily imbibes metallic ſcoriæ, and which is ſo little diſpoſed to be vitrified by them. In want of theſe, ſome make uſe of vegetable aſhes, freed by boiling in water from their ſaline matter, which would cauſe them melt in the fire.

The bones, burnt to perfect whiteneſs, ſo as that no particle of coaly or inflammable matter may remain in them, and well waſhed from filth, are ground into moderately fine powder; which, in order to its being formed into cupels, is moiſtened with juſt as much water as is ſufficient to make it hold together when ſtrongly preſſed between the fingers; ſome direct glutinous liquids, as whites of eggs or gum-water, in order to give the powder a greater tenacity; but the inflammable matter, however ſmall in quantity, which accompanies theſe fluids, and cannot be eaſily burnt out from the internal part of the maſs, is apt to revive a part of the metallic ſcoria that has been abſorbed, and to occaſion the veſſel to burſt or crack. The cupel is formed in a braſs ring, from three quarters of an inch to two inches diameter, and not quite ſo deep, placed upon ſome ſmooth ſupport: the ring being filled with moiſtened powder, which is preſſed cloſe with the fingers; a round-faced peſtle, called a *monk*, is ſtruck down into it with a few blows of a mallet, by which the maſs is made to cohere, and rendered ſufficiently compact, and a ſhallow cavity formed in the middle: the figure of the cavity is nearly that of a ſphere, that a ſmall quantity of metal melted in it may run together into one bead. To make the cavity the ſmoother, a little of the ſame kind of aſhes levigated into an impalpable powder, and not moiſtened, is commonly ſprinkled on the ſurface, through a ſmall fine ſieve made for this purpoſe, and the monk again ſtruck down upon it. The ring or mould is a little narrower at bottom than at top; ſo that by preſſing it down on ſome of the dry powder ſpread upon a table, the cupel is looſened, and forced upwards a little; after which it is eaſily puſhed out with the finger, and is then ſet to dry in a warm place free from duſt.

CUPELLATION, the act of refining gold or ſilver by means of a cupel. For this purpoſe another veſſel, called a *muffle*, is made uſe of, within which one or more cupels are placed. The muffle is placed upon a grate in a proper furnace, with its mouth facing the door, and as cloſe to it as may be. The furnace being filled up with fuel, ſome lighted charcoal is thrown on the top, and what fuel is afterwards neceſſary is ſupplied through a door above. The cupels are ſet in the muffle; and being gradually heated by the ſucceſſive kindling of the fuel, they are kept red-hot for ſome time, that the moiſture which they ſtrongly retain may be completely diſſipated: for if any vapours ſhould iſſue from them after the metal is put in, they would occaſion it to ſputter, and a part of it to be thrown off in little drops. In the ſides of the muffle are ſome perpendicular ſlits, with a knob over the top of each, to prevent any ſmall pieces of coals or aſhes from falling in. The door, or ſome apertures made in it being kept open, for the inſpection of the cupels, freſh air enters into the muffle, and paſſes off through theſe ſlits: by laying ſome burning charcoal on an iron plate before the door, the air is heated before its admiſſion; and by removing the charcoal or ſupplying

ing more, the heat in the cavity of the muffle may be ſomewhat diminiſhed or increaſed more ſpeedily than can be effected by ſuppreſſing or exciting the fire in the furnace on the outſide of the muffle. The renewal of the air alſo is neceſſary for promoting the ſcorification of the lead.

The cupel being of a full red heat, the lead caſt into a ſmooth bullet, that it may not ſcratch or injure the ſurface, is laid lightly in the cavity: it immediately melts; and then the gold or ſilver to be cupelled are cautiouſly introduced either by means of a ſmall iron ladle or by wrapping them in paper, and dropping them on the lead with a pair of tongs. The quantity of lead ſhould be at leaſt three or four times that of the fine metal: but when gold is very impure, it requires 10 or 12 times its quantity of lead for cupellation. It is reckoned that copper requires for its ſcorification about 10 times its weight of lead; that when copper and gold are mixed in equal quantities, the copper is ſo much defended by the gold as not to be ſeparable with leſs than 20 times its weight of lead; and that when copper is in very ſmall proportion, as a 20th or 30th part of the gold or ſilver, upwards of 60 parts of lead are neceſſary for one of the copper. The cupel muſt always weigh at leaſt half as much as the lead and copper; for otherwiſe it will not be ſufficient for receiving half the ſcoria: there is little danger, however, of cupels being made too ſmall for the quantity of a gold aſſay.

The mixture being brought into thin fuſion, the heat is to be regulated according to the appearances; and in this conſiſts the principal nicety in the operation. If a various coloured ſkin riſes to the top, which liquefying, runs off to the ſides, and is there abſorbed by the cupel, viſibly ſtaining the parts it enters; if a freſh ſcoria continually ſucceeds, and is abſorbed nearly as faſt as it is formed, only a fine circle of it remaining round the edge of the metal; if the lead appears in gentle motion, and throws up a fume a little way from its ſurface; the fire is of the proper degree, and the proceſs goes on ſucceſsfully.

Such a fiery brightneſs of the cupel as prevents its colour from being diſtinguiſhed, and the fumes of the lead riſing up almoſt to the arch of the muffle, are marks of too ſtrong a heat: though it muſt be obſerved, that the elevation of the fumes is not always in proportion to the degree of heat; for if the heat greatly exceeds the due limits, both the fumes and ebullition will entirely ceaſe. In theſe circumſtances the fire muſt neceſſarily be diminiſhed: for while the lead boils and ſmokes vehemently, its fumes are apt to carry off ſome part of the gold; the cupel is liable to crack from the haſty abſorption of the ſcoria, and part of the gold and ſilver is divided into globules, which lying diſcontinued on the cupel after the proceſs is finiſhed, cannot eaſily be collected: if there is no ebullution or fumes, the ſcorification does not appear to go on. Too weak a heat is known by the dull redneſs of the cupel; by the fume not riſing from the ſurface of the lead; and the ſcoria like bright drops in languid motion, or accumulated, or growing conſiſtent all over the metal. The form of the ſurface affords alſo an uſeful mark of the degree of heat; the ſtronger the fire, the more convex is the ſurface; and the weaker, the more flat: in this point, however, regard muſt be had to the quantity of metal; a large quantity being always flatter than a ſmall one in an equal fire.

Towards the end of the proceſs, the fire muſt be increaſed; for greateſt part of the fuſible metal lead being now worked off, the gold and ſilver will not continue melted in the heat that was ſufficient before. As the laſt remains of the lead are ſeparating, the rainbow colours on the ſurface become more vivid, and variouſly interſect one another with quick motions. Soon after, diſappearing all at once, a ſudden luminous brightneſs of the button of gold and ſilver ſhows the proceſs to be finiſhed. The cupel is then drawn forwards towards the mouth of the muffle; and the button, as ſoon as grown fully ſolid, taken out.

CUPELLING FURNACE. See *Cupelling-Furnace*.

CUPID, in pagan mythology, the god of love. There ſeem to have been two Cupids; one the ſon of Jupiter and Venus, whoſe delight it was to raiſe ſentiments of love and virtue; and the other the ſon of Mars and the ſame goddeſs, who inſpired baſe and impure deſires. The firſt of theſe, called Eros, or true love, bore golden arrows, which cauſed real joy, and a virtuous affection; the other, called Anteros, had leaden arrows that raiſed a paſſion founded only on deſire, which ended in ſatiety and diſguſt. Cupid was always drawn with wings, to repreſent his inconſtancy; and naked, to ſhow that he has nothing of his own. He was painted blind, to denote that love ſees no fault in the object beloved; and with a bow and quiver of arrows, to ſhow his power over the mind. Sometimes he is placed between Hercules and Mercury, to ſhow the prevalence of eloquence and valour in love; and at others is placed near Fortune, to ſignify that the ſucceſs of lovers depends on that inconſtant goddeſs. Sometimes he is repreſented with an helmet on his head and a ſpear on his ſhoulder, to ſignify that love diſarms the fierceſt men; he rides upon the backs of panthers and lions, and uſes their manes for a bridle, to denote that love tames the moſt ſavage beaſts. He is likewiſe pictured riding upon a dolphin, to ſignify that his empire extends over the ſea no leſs than the land.

CUPOLA, in architecture, a ſpherical vault, or the round top of a dome of a church, in the form of a cup inverted.

CUPPING, in ſurgery, the operation of applying cupping-glaſſes for the diſcharge of blood and other humours by the ſkin. See SURGERY.

CUPRESSUS, the CYPRESS-TREE: A genus of the monadelphia order, belonging to the monœcia claſs of plants; and in the natural method ranking under the 51ſt order, *Coniferæ*. The male calyx is a ſcale of the catkin; there is no corolla; the antheræ are four, ſeſſile, and without filaments. The calyx of the female is a ſcale of the ſtrobilus, and uniflorus; inſtead of ſtyles there are hollow dots; the fruit is an angulated nut. There are ſix ſpecies; the moſt remarkable are the following: 1. The ſempervirens, with an upright ſtraight ſtem, cloſely branching all around, almoſt from the bottom upwards, into numerous quadrangular branches; riſing in the different varieties from 15 to 40 or 50 feet in height, and very cloſely garniſhed with ſmall, narrow, erect evergreen leaves, placed imbricatim; and flowers and fruit from the ſides of the branches. 2. The thyoides, or evergreen American cypreſs, commonly called white cedar, hath an upright ſtem, branching out into numerous two edged branches, riſing 20 or 30 feet high, ornamented with flat ever-green leaves imbricated like arbor vitæ, and ſmall blue cones the ſize of juniper-berries. 3. The diſticha, or deciduous American cypreſs, hath an erect trunk, retaining a large bulk, branching wide and regular; grows 50 or 60 feet high, fully garniſhed with ſmall, ſpreading deciduous leaves, arranged diſtichous, or along two ſides of the branches. All theſe ſpecies are raiſed from ſeeds, and will ſometimes alſo grow from cuttings; but thoſe raiſed from ſeeds prove the handſomeſt plants. The ſeeds are procured in their cones from the ſeedſmen, and by expoſing them to a moderate heat, they readily open, and diſcharge the ſeeds freely. The ſeaſon for ſowing them is any time in March; and they grow freely on a bed or border of common light earth: eſpecially the firſt and third ſpecies. The ground muſt then be dug, well broken, and raked ſmooth, then drawing an inch of earth evenly from off the ſurface into the alley, ſow the ſeeds moderately thick, and directly ſift the earth over them, half an inch deep. If in April and May the weather proves warm and dry, a very moderate watering will now and then be neceſſary, and the plants will riſe in ſix or eight weeks. During the ſummer they muſt be kept clear from weeds, and in dry weather they muſt be gently watered twice a-week. In winter they muſt be occaſionally ſheltered with mats in the time of hard froſt. In two years they will be fit for tranſplanting from the ſeed-bed, when they may be ſet in nurſery-rows two feet aſunder; and in three or four years they will be fit for the ſhrubbery.

The wood of the firſt ſpecies is ſaid to reſiſt worms, moths, and putrefaction, and to laſt many centuries. The coffins in which the Athenians were wont to bury their heroes were made, ſays Thucydides, of this wood; as were likewiſe the cheſts containing the Egyptian mummies. The doors of St Peter's church at Rome were originally of the ſame materials. Theſe, after laſting upwards of 600 years, at the end of which they did not diſcover the ſmalleſt tendency to corruption, were removed by order of pope Eugenius IV. and gates of braſs ſubſtituted in their place. The ſame tree is by many eminent authors recommended as improving and meliorating the air by its balſamic and aromatic exhalations; upon which account many ancient phyſicians of the eaſtern countries uſed to ſend their patients who were troubled with weak lungs to the iſland of Candia, where theſe trees grew in great abundance; and where, from the ſalubrious air alone, very few failed of a perfect cure. In the ſame iſland, ſays Miller, the cypreſs trees were ſo lucrative a commodity, that the plantations were called *dos filiæ*; the felling of one of them being reckoned a daughter's portion. Cypreſs, ſays Mr Pococke, is the only tree that grows towards the top of mount Lebanon, and being nipped by the cold, grows like a ſmall oak. Noah's ark is commonly ſuppoſed to have been made of this kind of wood.

CUPRUM Ammoniacale. See Chemistry, N° 1034. This preparation is recommended in ſome kinds of ſpaſmodic diſeaſes, given in the doſe of one or two grains.

CUPRUM, or Copper. See Copper.

CURACOA, or Curassow, one of the larger Antilles iſlands, ſubject to the Dutch; ſituated in W. Long. 68. 30. N. Lat. 12. 30. This iſland is little elſe then a bare rock, about ten leagues long and five broad; lying three leagues off the coaſt of Venezuela. It has an excellent harbour, but the entrance is difficult. The baſon is extremely large, and convenient in every reſpect; and is defended by a fort ſkilfully conſtructed, and always kept in repair. The reaſon of forming a ſettlement on this barren ſpot was to carry on a contraband trade with the Spaniſh colonies on the continent; but after ſome time the method of managing this trade was changed. Curaſſow itſelf became an immenſe magazine, to which the Spaniards reſorted in their boats to exchange gold, ſilver, vanilla, cocoa, cochineal, bark, ſkins, and mules for negroes, linen, ſilks, India ſtuffs, laces, ſpices, ribbands, quick-ſilver, ſteel, and iron-ware. Theſe voyages, though continual, did not prevent a number of Dutch ſloops from paſſing from Curaſſow to the continent. But the modern ſubſtitution of regiſter-ſhips inſtead of galleons, has made this communication leſs frequent; but it will be revived whenever, by the intervention of war, the communication with the Spaniſh main ſhall be cut off. The diſputes between the courts of London and Verſailles alſo prove favourable to the trade of Curaſſow. At theſe times it furniſhes proviſions to the ſouthern parts of St Domingo, and takes off all its produce. Even the French privateers, from the windward iſlands, repair in great numbers to Curaſſow, notwithſtanding the diſtance. The reaſon is, that they find there all kinds of neceſſary ſtores for their veſſels; and frequently Spaniſh, but always European goods, which are univerſally uſed. Engliſh privateers ſeldom cruize in theſe parts. Every commodity without exception, that is landed at Curaſſow, pays one *per cent.* port-duty. Dutch goods are never taxed higher: but thoſe that are ſhipped from other European ports pay nine *per cent.* more. Foreign coffee is ſubject to the ſame tax, in order to promote the ſale of that of Surinam. Every other production of America is ſubject only to a payment of three *per cent.*; but with an expreſs ſtipulation that they are to be conveyed directly to ſome port belonging to the republic.

CURATE, the loweſt degree in the church of England; he who repreſents the incumbant of a church, parſon, or vicar, and officiates divine ſervice in his ſtead: and in caſe of pluralities of livings, or where a clergyman is old and infirm, it is requiſite there ſhould be a curate to perform the cure of the church. He is to be licenſed and admitted by the biſhop of the dioceſe, or by an ordinary having epiſcopal juriſdiction: and when a curate hath the approbation of the biſhop, he uſually appoints the ſalary too; and in ſuch caſe, if he be not paid, the curate hath a proper remedy in the eccleſiaſtical court, by a ſequeſtration of the profits of the benefice; but if the curate is not licenſed by the biſhop, he is put to his remedy at common law, where he muſt prove the agreement, &c. A curate having no fixed eſtate in his curacy, not being inſtituted and inducted, may be removed at pleaſure by the biſhop or incumbent. But there are perpetual curates as well as temporary, who are appointed where tithes are impropriate, and no vicarage endowed: theſe are not removeable, and the impropriators are obliged to find them; ſome whereof have certain portions of the tithes ſettled on them. Every clergyman that officiates in a church (whether incumbent or ſubſtitute) in the liturgy is called a *curate*. Curates muſt ſubſcribe the declaration according to the act of uniformity, or are liable to impriſonment, &c.

CURATELLA, in botany: A genus of the digynia order, belonging to the polyandria claſs of plants; and in the natural method ranking with thoſe of which the order is doubtful. The calyx is pentaphyllous; the petals four; the ſtyles two; the capſule bipartite, with the cells diſpermous.

CURATOR, among the Romans, an office under the emperors, who regulated the price of all kinds of merchandize and vendible commodities in the cities of the empire. They had likewiſe the ſuperintendence of the cuſtoms and tributes; whence alſo they were called *logiſtæ*.

Curator, among civilians, a truſtee or perſon nominated to take care of the affairs and intereſts of a perſon emancipated or interdicted. In countries where the Roman law prevails, between the age of 14 and 24 years, minors have curators aſſigned them; till 14, they have tutors.

Curator of an Univerſity, in the United Provinces, is an elective office, to which belongs the direction of the affairs of the univerſity; as, the adminiſtration of the revenues, the inſpection of the profeſſors, &c. The curators are choſen by the ſtates of each province: the univerſity of Leyden has three; the burghermaſters of the city have a fourth.

CURB, in the manege, a chain of iron made faſt to the upper part of the branches of the bridle in a hole called the *eye*, and running over the horſe's beard. It conſiſts of theſe three parts; the hook, fixed to the eye of the branch; the chain of SS's or links; and the two rings, or mailes. Large curbs, provided they be round, are always moſt gentle: but care is to be taken, that it reſt in its proper place, a little above the beard, otherwiſe the bit-mouth will not have the effect that may be expected from it.

Engliſh watering bits have no curbs; the Turkiſh bits, called *genettes*, have a ring that ſerves inſtead of a curb. See Genettes.

Curb, in farriery, is a hard and callous ſwelling on the hind part of the hock, attended with ſtiffneſs, and ſometimes with pain and lameneſs. See Spavin.

CURCAS, a name given in Egypt to an eſculent root, approaching to the taſte and virtues of the colocaſia. It is alſo a name uſed in Malabar for a ſmall fruit of the ſhape and ſize of an hazel nut. Both theſe things have the credit of being ſtrong provocatives; and it is very probable that the curcas of the Eaſt Indies may be the fruit called *bel* by Avicenna, and ſaid to poſſeſs the ſame virtues. Garcias has been led into a very great error by this ſimilarity of names and virtues; and ſuppoſes the curcas of Egypt the ſame with that of the Eaſt Indies.

Plate CLI. CURCULIO, in zoology, a genus of inſects belonging to the order of coleoptera. The feelers are ſubclavated, and reſt upon the ſnout, which is prominent and horny. Theſe inſects are divided into the following families. 1. Thoſe which have the roſtrum longer than the thorax, and whoſe thighs are ſimple. 2. Thoſe which have the roſtrum longer than the thorax, and the thighs thicker and made for leaping. 3. Thoſe which have the roſtrum longer than the thorax and the thighs dentated. 4. Thoſe which have dentated thighs, and a roſtrum ſhorter than the thorax. 5. Thoſe whoſe thighs are without teeth or ſpines, and the roſtrum ſhorter than the thorax. There are no leſs than 95 ſpecies, principally diſtinguiſhed by their colour.

The larvæ of the curculiones differ not from thoſe of moſt coleopterous inſects. They bear a reſemblance to oblong ſoft worms. They are provided anteriorly with ſix ſcaly legs, and their head is likewiſe ſcaly. But the places where thoſe larvæ dwell, and their tranſformations, afford ſome ſingularities. Some ſpecies of them, that are dreaded for the miſchief they do in granaries, find means to introduce themſelves, while yet ſmall, into grains of corn, and there make their abode. It is very difficult to diſcover them, as they lie concealed within the grain. There they grow at leiſure, enlarging their dwelling-place as they grow, at the expence of the interior meal of the grain on which they feed. Corn-lofts are often laid waſte by theſe inſects, whoſe numbers are ſometimes ſo great as to devour and deſtroy all the corn. When the inſect, after having eat up the meal, is come to its full ſize, it remains within the grain, hidden under the empty huſk, which ſubſiſts alone; and there transformed, it becomes a chryſalis, nor does it leave it till a perfect inſect, making its way through the huſk of the grain. It is no eaſy matter to diſcover by the eye the grains of corn thus attacked and hollowed out by theſe inſects, as they outwardly appear large and full: but the condition the curculio has reduced them to, renders them much lighter: and if you throw corn infeſted by theſe inſects into water, all the tainted grains will ſwim, and the reſt ſink to the bottom. Other larvæ of curculiones are not ſo fond of corn, but fix in the ſame manner on ſeveral other ſeeds. Beans, peaſe, and lentils, that are preſerved dry, are liable to be ſpoiled by theſe little animals, which prey upon the inward part of the grain, where they have taken up their habitation, and do not come forth till they have completed their transformation, by breaking through the outward huſk of the grain: this is diſcoverable by caſting thoſe grains into water; thoſe that ſwim are generally perforated by the curculiones. Other ſpecies are lodged in the inſide of plants. The heads of artichokes and thiſtles are often bored through and eaten away by the larvæ of large curculiones. Another ſpecies ſmaller, but ſingular, pierces and inwardly conſumes the leaves of elms. It frequently happens that almoſt all the leaves of an elm appear yellow, and as it were dead towards one of their edges, while the whole remainder of the leaf is green. Upon inſpecting thoſe leaves, the dead part appears to form a kind of bag or ſmall bladder. The two laminæ or outward pellicles of the leaf, as well above as below, are entire, but diſtant and ſeparated from each other, whilſt the parenchyma that lies between them has been conſumed by ſeveral ſmall larvæ of the curculio, that have made themſelves that dwelling, in which they may be met with. After their transformation they come forth, by piercing the kind of bladder, and give being to a curculio that is brown, ſmall, and hard to catch, by

Barbut on Inſects.

reaſon of the nimbleneſs with which it leaps. The property of leaping, allotted to this ſingle ſpecies, depends on the ſhape and length of its hinder legs.

CURCUMA, TURMERIC: A genus of the monogynia order, belonging to the monandria claſs of plants; and in the natural method ranking under the eighth order, *Scitamineæ*. It has four barren ſtamina, with a fifth fertile. The ſpecies are,

1. The rotunda, with a round root, hath a fleſhy-jointed root like that of ginger, but round; which ſends up ſeveral ſpear-ſhaped oval leaves, which riſe upwards of a foot high, and of a ſea green colour. From between theſe ariſes the flower-ſtalk, ſupporting a looſe ſpike of flowers of a pale-yellowiſh colour, incloſed in ſeveral different ſpathæ, or ſheaths, which drop off. The flowers are never ſucceeded by ſeeds in Britain. 2. The longa, hath long fleſhy roots of a deep yellow colour, which ſpread under the ſurface of the ground like thoſe of ginger; they are about the thickneſs of a man's finger, having many round knotty circles, from which ariſe four or five large ſpear-ſhaped leaves, ſtanding upon long foot-ſtalks. The flowers grow in looſe ſcaly ſpikes on the top of the foot-ſtalks, which ariſe from the larger knobs of the roots, and grow about a foot high; they are of a yellowiſh red colour, and ſhaped ſomewhat like thoſe of the Indian reed.

Theſe plants grow naturally in India, from whence the roots are brought to Europe for uſe. They are very tender; ſo will not live in Britain unleſs kept conſtantly in a ſtove. They are propagated by parting the roots. The root communicates a beautiful but periſhable yellow dye, with alum, to woollen, cotton, or linen. In medicine it is eſteemed aperient and emmenagogic; and of ſingular efficacy in the jaundice.

CURDISTAN, a country of Aſia, ſeated between the Turkiſh empire and Perſia, lying along the eaſtern coaſt of the river Tigris, and comprehends great part of the ancient Aſſyria. Some of the inhabitants live in towns and villages, and others rove from place to place, having tents like the wild Arabs, and are alſo robbers like them. Their religion is partly Chriſtian, and partly Mahometaniſm; but they are very looſe in regard to either.

CURDLING, the coagulating or fixing of any fluid body; particularly milk. See the article CHEESE.

Pauſanias ſays, that Ariſtæus ſon of Apollo, and Cyrene daughter of the river Peneus, were the firſt who found the ſecret of curdling milk.

At Florence they curdle their milk for the making of cheeſe with artichoke flowers; in lieu of the rennet uſed for the ſame purpoſe among us.

The Biſaltæ, a people of Macedonia, Rochfort obſerves, live wholly upon curdled milk, *i. e.* on curds. He adds, that curds are the whole food of the people of Upper Auvergne in France, and whey their only drink.

CURETES, in antiquity, a ſort of prieſts or people of the iſle of Crete, called alſo *Corybantes*. See CORYBANTES and CRETE. The Curetes are ſaid to have been originally of mount Ida in Phrygia; for which reaſon they were alſo called *Idæi Dactyli*. See DACTYLI

Lucian and Diodorus Siculus repreſent them as very expert in caſting of darts; though other authors give them no weapons but bucklers and pikes: but all agree in furniſhing them with tabors and caſtanettas; and relate that they uſed to dance much to the noiſe and claſhing thereof. By this noiſe, it is ſaid, they prevented Saturn from hearing the cries of young Jupiter, whereby he was ſaved from being deſtroyed.

Some authors, however, give a different account of the Curetes. According to Pezron and others, the Curetes were, in the times of Saturn, &c. and in the countries of Crete and Phrygia, what the druids were afterwards among the Gauls, &c. *i. e.* they were prieſts who had the care of what related to religion and the worſhip of the gods. Hence, as in thoſe days it was ſuppoſed there was no communication with the gods but by divinations, auguries, and the operations of magic; the Curetes paſſed for magicians and enchanters: to theſe they added the ſtudy of the ſtars, of nature, and poeſy; and ſo were philoſophers, aſtronomers, &c.

Voſſius, *de Idolat.* diſtinguiſhes three kinds of Curetes; thoſe of Ætolia, thoſe of Phrygia, and thoſe of Crete, who were originally derived from the Phrygians. The firſt, he ſays, took their name from κȣρα, *tonſure*; in regard, from the time of a combat wherein the enemy ſeized their long hair, they always kept it cut. Thoſe of Phrygia and Crete, he ſuppoſes, were ſo called from κȣρος, *young man*; in regard they were young, or becauſe they nurſed Jupiter when he was young.

CURFEW, or COURFEW, a ſignal given in cities taken in war, &c. to the inhabitants to go to bed. Paſquin ſays, it was ſo called, as being intended to advertiſe the people to ſecure themſelves from the robberies and debaucheries of the night.

The moſt eminent curfew in England was that eſtabliſhed by William the Conqueror, who appointed, under ſevere penalties, that at the ringing of a bell at eight o'clock in the evening, every one ſhould put out their lights and fires and go to bed: whence, to this day, a bell rung about that time is called a *curfew-bell*.

CURIA, in Roman antiquity, was uſed for the ſenate-houſe. There were ſeveral curiæ in Rome; as the *curia calabra*, ſaid to be built by Romulus; the *curia hoſtilia*, by Tullus Hoſtilius; and the *curia pompeia*, by Pompey the Great.

CURIA alſo denoted the places where the curiæ uſed to aſſemble. Each of the 30 curiæ of old Rome had a temple or chapel aſſigned to them for the common performance of their ſacrifices, and other offices of their religion; ſo that they were not unlike our pariſhes. Some remains of theſe little temples ſeem to have ſubſiſted many ages after on the Palatine-hill, where Romulus firſt built the city, and always reſided.

CURIA, among the Romans, alſo denoted a portion or diviſion of a tribe. In the time of Romulus, a tribe conſiſted of ten curiæ, or a thouſand men; each curia being one hundred. That legiſlator made the firſt diviſion of his people into thirty curiæ. Afterwards, *curia*, or *domus curialis*, became uſed for the place where each curia held its aſſemblies. Hence alſo curia paſſed to the ſenate-houſe; and it is from hence the moderns come to uſe the word *curia*, "court," for a place of juſtice, and for the judges, &c. there aſſembled.

Varro derives the word from *cura*, "care;" *q. d.* an aſſembly of people charged with the care of public affairs. Others deduce it from the Greeks; maintaining, that at Athens they called κυρια the place where the magiſtrate held his aſſizes, and the people uſed to aſſemble: κυρια, again, may come from κυρος, *authority, power;* becauſe it was here the laws were made.

CURIA, in ancient cuſtoms.—It was uſual for the kings of England to ſummon the biſhops, peers, and great men of the kingdom, to ſome particular place, at the chief feſtivals in the year: and this aſſembly is called by hiſtorians *curia;* becauſe there they conſulted about the weighty affairs of the nation: whence it was ſometimes alſo called *ſolemnis curia*, *generalis curia*, *auguſtalis curia*, and *curia publica*, &c. See *WITENA-Mot.*

CURIA Baronum. See *COURT-Baron.*

CURIA Claudenda, is a writ that lies againſt him who ſhould fence and incloſe the ground, but refuſes or defers to do it.

CURIATII, three brothers of Alba, maintained the intereſt of their country againſt the Romans who had declared war againſt thoſe of Alba. The two armies being equal, three brothers on each ſide were choſen to decide the conteſt: the Curiatii by thoſe of Alba, and the Horatii by the Romans. The three firſt were wounded, and two of the latter killed: but the third, joining policy to valour, ran away; and having thus tired the Curiatii, he took them one after another and killed them all three.

CURING, a term uſed for the preſerving fiſh, fleſh, and other animal ſubſtances, by means of certain additions of things, to prevent putrefaction. One great method of doing this, is by ſmoking the bodies with the ſmoke of wood, or rubbing them with ſalt, nitre, &c.

CURIO, the chief and prieſt of a curia.—Romulus, upon dividing the people into curiæ, gave each diviſion a chief, who was to be prieſt of that curia, under the title of *curio* and *flamen curialis*. His buſineſs was to provide and officiate at the ſacrifices of the curia, which were called *curionia;* the curia furniſhing him with a ſum of money on that conſideration, which penſion or appointment was called *curionium*. Each diviſion had the election of its curia; but all theſe particular curios were under the direction of a ſuperior or general, called *curio maximus;* who was the head of the body, and elected by all the curios aſſembled in the comitia curialis.

All theſe inſtitutions were introduced by Romulus, and confirmed by Numa, as Halicarnaſſeus relates it.

CURIOSUS, an officer of the Roman empire during the middle age, appointed to take care that no frauds and irregularities are committed; particularly no abuſes in what related to the poſts, the roads, &c. and to give intelligence to the court of what paſſed in the provinces. This made the curioſi people of importance, and put them in a condition of doing more harm than they prevented; on which account, Honorius caſhiered them, at leaſt in ſome parts of the empire, *anno* 415.

The curioſi came pretty near to what we call *controllers*. They had their name from *cura*, "care;" *quod curis agendis & evectionibus curſus publici inſpiciendis operam darent.*

CURLEW, in ornithology. See SCOLOPAX.

CURMI, a name given by the ancients to a ſort of malt liquor or ale. It was made of barley, and was drunk by the people of many nations inſtead of wine, according to Dioſcorides's account. He accuſes it of cauſing pains in the head, generating bad juices, and diſordering the nervous ſyſtem. He alſo ſays, that in the weſtern parts of Iberia, and in Britain, ſuch a ſort of liquor was in his time prepared from wheat inſtead of barley. See ALE.

CURNOCK, a meaſure of corn containing four buſhels or half a quarter.

CURRANS, or CURRANTS, the fruit of a ſpecies of groſſularia. See GROSSULARIA.

The white and red ſort are moſtly uſed; for the black, and chiefly the leaves, upon firſt coming out, are in uſe to flavour Engliſh ſpirits, and counterfeit French brandy. Currants greatly aſſuage drought, cool and fortify the ſtomach, and help digeſtion; and the jelly of black currants is ſaid to be very efficacious in curing inflammations of the throat.

CURRANTS alſo ſignify a ſmaller kind of grapes, brought principally from Zant and Cephalonia. They are gathered off the buſhes, and laid to dry in the ſun, and ſo put up in large butts. They are opening and pectoral; but are more uſed in the kitchen than in medicine.

CURRENT, or COURANT, a term uſed to expreſs the preſent time. Thus the year 1791 is the current year, the 20th current is the 20th day of the month now running.—With regard to commerce, the price-current of any merchandize is the known and ordinary price accuſtomed to be given for it. The term is alſo uſed for any thing that has courſe or is received in commerce; in which courſe we ſay, *current coin*, &c.

CURRENT, in navigation, a certain progreſſive movement of the water of the ſea, by which all bodies floating therein are compelled to alter their courſe or velocity, or both, and to ſubmit to the laws impoſed on them by the current.

In the ſea, currents are either natural and general, as ariſing from the diurnal rotation of the earth about its axis; or accidental and particular, cauſed by the waters being driven againſt promontories, or into gulphs and ſtraits, where wanting room to ſpread, they are driven back, and thus diſturb the ordinary flux of the ſea. Currents are various, and directed towards different parts of the ocean, of which ſome are conſtant, others periodical. The moſt extraordinary current of the ſea, is that by which part of the Atlantic or African Ocean moves about Guinea from Cape Verd towards the curvature or bay of Africa, which they call *Fernando Poo;* *viz.* from weſt to eaſt, contrary to the general motion. And ſuch is the force of the current, that when ſhips approach too near the ſhore, it carries them violently towards that bay, and deceives the mariners in their reckoning. There is a great variety of ſhifting currents which do not laſt, but return at certain periods; and theſe do, moſt of them, depend upon and follow the anniverſary winds or monſoons, which by blowing in one place may cauſe a current in another. Varenius informs us, that at

Java, in the ſtraits of Sunda, when the monſoons blow from the weſt, *viz.* in the month of May, the currents ſet to the eaſtward, contrary to the general motion. Between the iſland of Celebes and Madura, when the weſtern monſoons ſet in, *viz.* in December, January, and February, or when the winds blow from the north-weſt, or between the north and weſt, the currents ſet to the ſouth-eaſt, or between the ſouth and eaſt. At Ceylon, from the middle of March to October, the currents ſet to the ſouthward, and in the other parts of the year to the northward; becauſe at this time the ſouthern monſoons blow, and at the other the northern. Between Cochin-China and Malacca, when the weſtern monſoons blow, *viz.* from April to Auguſt, the currents ſet eaſtward againſt the general motion; but the reſt of the year they ſet weſtward, the monſoon conſpiring with the general motion. They run ſo ſtrongly in theſe ſeas, that unexperienced ſailors miſtake them for waves that beat upon the rocks, known uſually by the name of *breakers.* So for ſome months after the 15th of February, the currents ſet from the Maldives towards India on the eaſt, againſt the general motion of the ſea. On the ſhore of China and Cambodia, in the months of October, November, and December, the currents ſet to the north-weſt, and from January to the ſouth-weſt, when they run with ſuch rapidity about the ſhoals of Parcel, that they ſeem ſwifter than an arrow. At Pulo Condore, upon the coaſt of Cambodia, though the monſoons are ſhifting, yet the currents ſet ſtrongly towards the eaſt, even when they blow to a contrary point. Along the coaſts of the Bay of Bengal, as far as the Cape Romania, at the extreme point of Malacca, the current runs ſouthward in November and December. When the monſoons blow from China to Malacca, the ſea runs ſwiftly from Pulo Cambi to Pulo Condore on the coaſt of Cambodia. In the Bay of Sans Bras, not far from the Cape of Good Hope, there is a current particularly remarkable, where the ſea runs from eaſt to weſt to the landward; and this more vehemently as it is oppoſed by winds from a contrary direction. The cauſe is undoubtedly owing to ſome adjacent ſhore which is higher than this. In the ſtraits of Gibraltar, the currents almoſt conſtantly drive to the eaſtward, and carry ſhips into the Mediterranean: they are alſo found to drive the ſame way into St George's channel.

The ſetting or progreſſive motion of the current may be either quite down to the bottom, or to a certain determinate depth. As the knowledge of the direction and velocity of currents is a very material article in navigation, it is highly neceſſary to diſcover both, in order to aſcertain the ſhip's ſituation and courſe with as much accuracy as poſſible. The moſt ſucceſsful method which has been hitherto practiſed by mariners for this purpoſe is as follows. A common iron pot, which may contain four or five gallons, is ſuſpended by a ſmall rope faſtened to its ears or handles, ſo as to hang directly upright, as when placed upon the fire. This rope, which may be from 70 to 100 fathoms in length, being prepared for the experiment, is coiled in the boat, which is hoiſted out of the ſhip at a proper opportunity, when there is little or no wind to ruffle the ſurface of the ſea. The pot being then thrown overboard into the water, and immediately ſinking, the line is ſlackened till about 70 or 80 fathoms of the line run out; after which the line is faſtened to the boat's ſtern, by which ſhe is accordingly reſtrained, and rides as at an anchor. The velocity of the current is then eaſily tried by the log and half-minute glaſs, the uſual method of diſcovering the rate of a ſhip's ſailing at ſea. The courſe of the ſtream is next obtained by the compaſs provided for this operation. Having thus found the ſetting and drift of the current, it next remains to apply this experiment to the purpoſes of NAVIGATION; for which ſee that article.

*Under-*CURRENTS are diſtinct from the upper or apparent, and in different places ſet or drive a contrary way. Dr Smith makes it highly probable, that in the Downs, in the ſtraits of Gibraltar, &c. there is an under-current, whereby as much water is carried out as is brought in by the upper-currents. This he argues from the offing between the north and ſouth Foreland, where it runs tide and half-tide, *i. e.* it is either ebb or flood in that part of the Downs three hours before it is ſo off at ſea: a certain ſign, that though the tide of flood runs aloft, yet the tide of ebb runs under-foot, *i. e.* cloſe by the ground; and ſo at the tide of ebb it will flow under-foot. This he confirms by an experiment in the Baltic Sound, communicated to him by an able ſeaman preſent at the making it. Being there then with one of the king's frigates, they went with their pinnace into the mid-ſtream, and were carried violently by the current. Soon after that, they ſunk a baſket with a large cannon bullet to a certain depth of water, which gave check to the boats motion; and ſinking it ſtill lower and lower, the boat was driven a-head to the windward againſt the upper current, the current aloft not being above four or five fathom deep. He added, that the lower the baſket was let down, the ſtronger the under-current was found.

From this principle, it is eaſy to account for that continual in-draught of water out of the Atlantic into the Mediterranean through the ſtraits of Gibraltar, a paſſage about 20 miles broad; yet without any ſenſible riſing of the water along the coaſts of Barbary, &c. or any overflowing of the lands, which there lie very low.—Dr Halley, however, ſolves the currents ſetting in at the ſtraits without overflowing the banks by the great evaporation, without ſuppoſing any under-current.

CURRICULUS, in our ancient writers, denotes the year or courſe of a year. *Actum eſt hoc annorum Dominicæ incarnationis quater quinquagenis & quinquies, quinis luſtris, & tribus curriculus; i.e.* in the year 1028: for four times fifty makes two hundred, and five times two hundred makes one thouſand; five luſtres are twenty-five years, and three curriculi are three years.

CURRIERS, thoſe who dreſs and colour leather after it comes from the tan-yard, See TANNING.

CURRODREPANUS (formed of *currus,* "chariot," and δρεπανον, "ſcythe" or "ſickle"), in antiquity, a kind of chariot armed with ſcythes. The driver of theſe chariots was obliged to ride on one of the horſes, as there was no other ſeat for him; the uſual place for him being all armed with knives, as was likewiſe the hinder part of the chariot. There were no ſcythes pointing down to the earth either from the beam or axle-tree; but theſe were fixed at the head of the axle-tree in ſuch a manner as to be moveable by means of a rope, and thereby could be raiſed or let down, and drawn forward or let fall backward, by relaxing the rope.

CURRYING, the method of preparing leather with oil, tallow, &c.

The chief buſineſs is to ſoften and ſupple cow and calve-ſkins, which make the upper-leathers and quarters of ſhoes, covering of ſaddles, coaches, and other things which muſt keep out water. 1. Theſe ſkins, after coming from the tanner's yard, having many fleſhy fibres on them, the currier ſoaks them ſome time in common water. 2. He takes them out and ſtretches them on a very even wooden horſe; then with a paring-knife he ſcrapes off all the ſuperfluous fleſh, and puts them in to ſoak again. 3. He puts them wet on a hurdle, and tramples them with his heels till they begin to grow ſoft and pliant. 4. He ſoaks thereon train-oil, which by its unctuous quality is the beſt liquor for this purpoſe. 5. He ſpreads them on large tables, and faſtens them at the ends. There, with the help of an inſtrument called a *pummel*, which is a thick piece of wood, the under ſide of which is full of furrows croſſing each other, he folds, ſquares, and moves them forwards and backwards ſeveral times, under the teeth of this inſtrument, which breaks their too great ſtiffneſs. This is what is properly called *currying*. The order and number of theſe operations is varied by different curriers, but the material part is always the ſame. 6. After the ſkins are curried, there may be occaſion to colour them. The colours are black, white, red, yellow, green, &c. the other colours are given by the ſkinners, who differ from curriers in this, that they apply their colours on the fleſh ſide; the curriers on the hair ſide. In order to whiten ſkins, they are rubbed with lumps of chalk or white-lead, and afterwards with pumice-ſtone. 7. When a ſkin is to be made black, after having oiled and dried it, he paſſes over it a puff dipt in water impregnated with iron; and after his firſt wetting, he gives it another in a water prepared with ſoot, vinegar, and gum-arabic. Theſe different dyes gradually turn the ſkin black, and the operations are repeated till it be of a ſhining black. The grain and wrinkles, which contribute to the ſuppleneſs of calves and cows leather, are made by the reiterated folds given to the ſkin in every direction, and by the care taken to ſcrape off all hard parts on the colour ſide.

CURSING AND SWEARING, an offence againſt God and religion, and a ſin of all others the moſt extravagant and unaccountable, as having no benefit or advantage attending it. By the laſt ſtatute againſt this crime, 19 Geo. II. which repeals all former ones, every labourer, ſailor, or ſoldier, profanely curſing or ſwearing, ſhall forfeit 1 s.; every other perſon under the rank of a gentleman, 2 s.; and every gentleman or perſon of ſuperior rank, 5 s. to the poor of the pariſh; and, on a ſecond conviction, double; and, for every ſubſequent offence, treble the ſum firſt forfeited, with all charges of conviction: and, in default of payment, ſhall be ſent to the houſe of correction for 10 days. Any juſtice of the peace may convict upon his own hearing, or the teſtimony of one witneſs; and any conſtable or peace officer, upon his own hearing, may ſecure any offender and carry him before a juſtice, and there convict him. If the juſtice omits his duty, he forfeits 5 l. and the conſtable 40 s. And the act is to be read in all pariſh churches and public chapels the Sunday after every quarter-day, on pain of 5 l. to be levied by warrant from any juſtice. Beſides this puniſhment for taking God's name in vain in common diſcourſe, it is enacted by ſtat. 3. Jac. I. c. 21. that if in any ſtage-play, interlude, or ſhow, the name of the Holy Trinity, or any of the perſons therein, be jeſtingly or profanely uſed, the offender ſhall forfeit 10l.; one moiety to the king, and the other to the informer.

CURSITOR, a clerk belonging to the court of chancery in England, whoſe buſineſs it is to make out original writs. In the ſtatute 18 Edw. III. they are called *clerks of courſe*, and are 24 in number, making a corporation of themſelves. To each of them is allowed a diviſion of certain counties, into which they iſſue out the original writs required by the ſubject.

CURTATE DISTANCE, in aſtronomy, the diſtance of a planet from the ſun to that point, where a perpendicular let fall from the planet meets with the ecliptic.

CURTATION, in aſtronomy, is the interval between a planet's diſtance from the ſun and the curtate diſtance.

CURTEYN, CURTANA, was the name of Edward the Confeſſor's ſword, which is the firſt ſword carried before the kings of England at their coronation; and it is ſaid the point of it is broken as an emblem of mercy.

CURTIN, CURTAIN, or *Courtin*, in fortification, is that part of the rampart of a place which is betwixt the flanks of two baſtions, bordered with a parapet five feet high, behind which the ſoldiers ſtand to fire upon the covered way and into the moat.

CURTIUS (Marcus), a Roman youth, who devoted himſelf to the gods manes for the ſafety of his country, about 360 years before the Auguſtan age. A wide gap had ſuddenly opened in the forum, and the oracle had ſaid that it never would cloſe before Rome threw into it whatever it had moſt precious. Curtius immediately perceived that no leſs than an human ſacrifice was required. He armed himſelf, mounted his horſe, and ſolemnly threw himſelf into the gulf, which inſtantly cloſed over his head.

CURTIUS (Quintus), a Latin hiſtorian who wrote the life of Alexander the Great in 10 books, of which the two firſt are not indeed extant, but are ſo well ſupplied by Freinſhemius, that the loſs is ſcarcely regretted. Where this writer was born, or even when he lived, are points no one pretends to know. By his ſtyle he is ſuppoſed to have lived in or near the Auguſtan age; while ſome are not wanting, who imagine the work to have been compoſed in Italy about 300 years ago, and the name of *Quintus Curtius* to be fictitiouſly added to it. Cardinal du Perron was ſo great an admirer of this work, as to declare one page of it to be worth 20 of Tacitus; yet M. le Clerc, at the end of his Art of Criticiſm, has charged the writer with great ignorance and many contradictions. He has nevertheleſs many qualities as a writer, which will always make him admired and applauded.

CURVATURE of a Line, is the peculiar manner of its bending or flexure, by which it becomes a curve of ſuch and ſuch peculiar properties.

CURVE, in geometry, a line which running on continually in all directions, may be cut by one right line in more points than one. See Conic Sections and Fluctions.

CURVET, or Corvet, in the manege, an air in which the horſe's legs are raiſed higher than in the demi volt: being a kind of leap up, and a little forwards, wherein the horſe raiſes both his fore-legs at once, equally advanced, (when he is going ſtraight forward, and not in a circle), and as his fore-legs are falling, he immediately raiſes his hind legs, equally advanced, and not one before the other: ſo that all his four legs are in the air at once: and as he ſets them down, he marks but twice with them.

CURVILINEAR, or Curvilineal, is ſaid of figures bounded by curves or crooked lines.

CURVIROSTRA, in ornithology. See Loxia.

CURULE chair, in Roman antiquity, a chair adorned with ivory, wherein the great magiſtrates of Rome had a right to ſit and be carried.

The curule magiſtrates were the ædiles, the prætors, cenſors, and conſuls. This chair was fitted in a kind of chariot, whence it had its name. The ſenators who had borne the offices of ædiles, prætors, &c. were carried to the ſenate-houſe in this chair, as were alſo thoſe who triumphed, and ſuch as went to adminiſter juſtice, &c. See Ædile, &c.

CURZOLA, an iſland in the gulf of Venice, lying on the coaſt of Dalmatia. It is about 20 miles long, and has a ſmall town of the ſame name, with a biſhop's ſee. It belongs to the Venetians. E. Long. 17. 15. N. Lat. 43. 6.

CUSA (Nicholas de), a learned cardinal, born of mean parentage, and named from Cuſa, the place of his birth. He was made a cardinal in 1448; and being appointed governor of Rome by Pope Pius II. during his abſence at Mantua, he was the chief concerter and manager of the war againſt the Turks. He founded a church, and a noble library of Greek and Latin authors, at Cuſa; and left many excellent works behind him, which were collected and publiſhed in three volumes at Baſil in 1565. In theſe he has made no ſcruple to detect the lying traditions and ſophiſtries of the Roman church.

CUSCO, a large and handſome town of South America in Peru, formerly the reſidence of the Incas. It is ſeated at the foot of a mountain, and is built in a ſquare form, in the middle of which there is the beſt market in all America. Four large ſtreets terminate in this ſquare, which are all as ſtraight as a line, and regard the four quarters of the world. The Spaniards tell us wonderful things of the richneſs of the Inca's palace, and of the temple of the ſun; but more ſober travellers judging from what remains, think moſt of them to be fabulous. At preſent it contains eight large pariſhes, and five religious houſes, the beſt of which belongs to the Jeſuits; and the number of the inhabitants may be about 50,000, of which three-fourths are the original natives, Americans. From this town there is a very long road, which runs along the Cordeleim; and, at certain diſtances, there are ſmall houſes for reſting places, ſome parts of which are ſo artificially wrought, that it is ſurpriſing how a people who had no iron tools could perform ſuch workmanſhip. There are ſtreams of water run through the town, which are a great convenience in ſo hot a country where it never rains. It is 375 miles eaſt of Lima. W. Long. 74. 37. S. Lat. 13. 0.

CUSCUTA, dodder: a genus of the digynia order, belonging to the tetrandria claſs of plants; and in the natural method ranking under thoſe of which the order is doubtful. The calyx is quadrifid; the corolla monopetalous; the capſule bilocular. There are two ſpecies; one of which is a native of Britain, viz. the Europæa, dodder, hell-weed, or devil's guts. This is a very ſingular plant, almoſt deſtitute of leaves, paraſitical, creeping, fixing itſelf to whatever is next to it. It decays, at the root, and afterwards is nouriſhed by the plant which ſupports it. Hops, flax, and nettles, are its common ſupport; but principally the common nettle. Its bloſſoms are white. As ſoon as the ſhoots have twined about an adjacent plant, they ſend out from their inner ſurface a number of little veſicles or papillæ, which attach themſelves to the bark or rind of the plant. By degrees the longitudinal veſſels of the ſtalk, which appear to have accompanied the veſicles, ſhoot from their extremities, and make their way into the ſofter plant, by dividing the veſſels and inſinuating themſelves into the tendereſt part of the ſtalk; and ſo intimately are they united with it, that it is eaſier to break than to diſengage them from it. The whole plant is bitter. It affords a pale reddiſh colour. Cows, ſheep, and ſwine, eat it; horſes refuſe it; goats are not fond of it.

CUSH, the eldeſt ſon of Ham, and father of Nimrod; the other ſons of Cuſh were Seba, Havilah, Sabtah, Raamah, and Sabtecha. Gen. x. 6—8. Though we know of no other perſon of ſcripture that is called by this name, yet there are ſeveral countries, that are called by it; whether the ſame man may have dwelt in them all at different times, or that there were ſome other men of this name, we are ignorant.

The Vulgate, Septuagint, and other interpreters, both ancient and modern, generally tranſlate Cuſh, *Ethiopia*: but there are many paſſages wherein this tranſlation cannot take place.

Cuſh is the name of the country watered by the Araxes. They who in tranſlating the ſituation of Eden, have made *Cuſh* Ethiopia, gave riſe to that unwarrantable opinion which Joſephus and ſeveral others have entertained of the river Gihon's being the Nile. In this place (Gen. ii. 13.) the LXX tranſlation renders the word *Cuſh* by the name of Ethiopia; and in this miſtake is not only here followed by our Engliſh verſion, but in the ſame particular in ſeveral other places.

Cuth is the ſame as Cuſh. The Chaldees generally put the *tau* where the Hebrews uſe the *ſchin*; they ſay *cuth*, inſtead of *cuſh*. See Cuth.

But Ethiopia is frequently in the Hebrew called *Cuſh*; and Joſephus ſays, that they called themſelves by this name, and that the ſame name was given them by all Aſia. St Jerom tells us, that the Hebrews call the Ethiopians by the ſame name, and the Septuagint give them no other. Jeremiah (xiii. 23.) ſays, "Can the Cuſhæan, or Ethiopian, change his colour." In Ezekiel (xxix. 10.) the Lord threatens to reduce

“ Egypt to a deſart, from the tower of Syene even unto the border of Cuſh, or Ethiopia ;” and in Iſaiah, (xi. 11.) he ſays, “ he will recover the remnant of his people, which ſhall be left from Aſſyria, and from Egypt, and Pathros, and from Cuſh.” All theſe marks agree with Ethiopia properly ſo called, which lies to the ſouth of Egypt.

Bochart has ſhown very clearly that there was a country called “ the land of *Cuſh*” in Arabia Petræa, bordering upon Egypt; that this country extended itſelf principally upon the eaſtern ſhore of the Red-Sea, and, at its extremity, to the point of this ſea, inclining towards Egypt and Paleſtine.

Thus there are three countries of the name of Cuſh, deſcribed in ſcripture, and all confounded by interpreters under the general name of Ethiopia.

CUSHION, in engraving, is a bag of leather filled with ſand, commonly about nine inches ſquare, and three or four thick, uſed for ſupporting the plate to be engraved.

Cushion, in gilding, is made of leather, faſtened to a ſquare board, from 14 inches ſquare to 10, with a handle. The vacuity between the leather and board is ſtuffed with fine tow or wool, ſo that the outer ſurface may be flat and even. It is uſed for receiving the leaves of gold from the paper, in order to its being cut into proper ſizes and figures.

CUSI, in natural hiſtory, a name given by the people of the Philippine iſlands to a very ſmall and very beautiful ſpecies of parrot.

CUSP, *cuſpis*, properly denotes the point of a ſpear or ſword; but is uſed in aſtronomy to expreſs the points or horns of the moon, or any other luminary.

Cusp, in aſtrology, is uſed for the firſt point of each of the 12 houſes, in a figure or ſcheme of the heavens. See House.

CUSPIDATED, in botany, are ſuch plants whoſe leaves are pointed like a ſpear.

CUSPINIAN (John), a German, was born at Sweinfurt in 1473 ; and died at Vienna in 1529. He was firſt phyſician to the emperor Maximilian I. and employed by that prince in ſeveral delicate negotiations. We have of his in Latin, 1. A hiſtory of the Roman emperors from Julius Cæſar to the death of Maximilian I. Degory Wheare, in his *Methodus Legendæ Hiſtoriæ*, calls this “ *luculentum ſane opus, & omnium lectione digniſſimum.*” 2. An hiſtory of Auſtria ; being a kind of continuation of the preceding. 3. An hiſtory of the origin of the Turks, and of their cruelties towards Chriſtians. Gerard Voſſius calls Cuſpinian *magnum ſuo ævo hiſtoriæ lumen.*

CUSTOM, a very comprehenſive term, denoting the manners, ceremonies, and faſhions, of a people, which having turned into a habit, and paſſed into uſe, obtain the force of laws; in which ſenſe it implies ſuch uſages, as, though voluntary at firſt, are yet by practice become neceſſary.

Cuſtom is hence, both by lawyers and civilians, defined *lex non ſcripta*, “ a law or right not written,” eſtabliſhed by long uſage, and the conſent of our anceſtors: in which ſenſe it ſtands oppoſed to the *lex ſcripta*, or “ the written law.” See Law, Part II. n° 38—41.

Custom and Habit, in the human economy. The former is often confounded with the latter. By *cuſtom* we mean a frequent reiteration of the ſame act; and by *habit*, the effect that cuſtom has on the mind or body. This curious ſubject falls to be conſidered firſt in a moral, and ſecondly in a phyſical, light.

I. *Influence of Cuſtom and Habit, on the Mind*, &c. Cuſtom hath ſuch influence upon many of our feelings, by warping and varying them, that its operations demand the attention of all who would be acquainted with human nature. The ſubject, however, is intricate. Some pleaſures are fortified by cuſtom: and yet cuſtom begets familiarity, and conſequently indifference :

Kaimes's Elements of Criticiſm.

> If all the year were playing holidays,
> To ſport would be as tedious as to work :
> But when they ſeldom come, they wiſh'd for come,
> And nothing pleaſeth but rare accidents. *Shakeſp.*

In many inſtances, ſatiety and diſguſt are the conſequences of reiteration: again, though cuſtom blunts the edge of diſtreſs and of pain ; yet the want of any thing to which we have been long accuſtomed is a ſort of torture. A clue to guide us through all the intricacies of this labyrinth, would be an acceptable preſent.

Whatever be the cauſe, it is certain that we are much influenced by cuſtom : it hath an effect upon our pleaſures, upon our actions, and even upon our thoughts and ſentiments. Habit makes no figure during the vivacity of youth : in middle age it gains ground ; and in old age governs without controul. In that period of life, generally ſpeaking, we eat at a certain hour, take exerciſe at a certain hour, go to reſt at a certain hour, all by the direction of habit : nay, a particular ſeat, table, bed, comes to be eſſential ; and a habit in any of theſe cannot be controlled without uneaſineſs.

Any ſlight or moderate pleaſure, frequently reiterated for a long time, forms a peculiar connection between us and the thing that cauſes the pleaſure. This connection, termed *habit*, has the effect to awaken our deſire or appetite, for that thing when it returns not as uſual. During the courſe of enjoyment, the pleaſure riſes inſenſibly higher and higher till a habit be eſtabliſhed ; at which time the pleaſure is at its height. It continues not, however, ſtationary : the ſame cuſtomary reiteration which carried it to its height, brings it down again by inſenſible degrees, even lower than it was at firſt ; but of that circumſtance afterward. What at preſent we have in view is to prove by experiments, that thoſe things which at firſt are but moderately agreeable, are the apteſt to become habitual. Spirituous liquors, at firſt ſcarce agreeable, readily produce an habitual appetite : and cuſtom prevails ſo far, as even to make us fond of things originally diſagreeable, ſuch as coffee, aſſafœtida, and tobacco.

A walk upon the quarter-deck, though intolerably confined, becomes however ſo agreeable by cuſtom, that a ſailor in his walk on ſhore confines himſelf commonly within the ſame bounds. The author knew a man who had relinquiſhed the ſea for a country-life : in the corner of his garden he reared an artificial mount with a level ſummit, reſembling moſt accurately a quarter-deck, not only in ſhape but in ſize ; and here he generally walked. In Minorca governor Kane made an excellent road the whole length of the iſland; and yet the inhabitants adhere to the old road, though not only longer, but extremely bad. Play or gaming, at firſt barely amuſing by the occupation it affords, becomes in time extremely agreeable; and is frequently proſecuted with avidity, as if it were the chief buſineſs of life. The ſame obſervation is applicable to the pleaſures of the internal ſenſes, thoſe of knowledge and virtue in particular: children have ſcarce any ſenſe of theſe pleaſures; and men very little who are in the ſtate of nature without culture: our taſte for virtue and knowledge improves ſlowly: but is capable of growing ſtronger than any other appetite in human nature.

To introduce an active habit, frequency of acts is not ſufficient without length of time: the quickeſt ſucceſſion of acts in a ſhort time is not ſufficient; nor a ſlow ſucceſſion in the longeſt time. The effect muſt be produced by a moderate ſoft action, and a long ſeries of eaſy touches, removed from each other by ſhort intervals. Nor are theſe ſufficient without regularity in the time, place, and other circumſtances of the action: the more uniform any operation is, the ſooner it becomes habitual. And this holds equally in a paſſive habit; variety in any remarkable degree, prevents the effect: thus any particular food will ſcarce ever become habitual where the manner of dreſſing is varied. The circumſtances then requiſite to augment a moderate pleaſure, and at the long-run to form a habit, are weak uniform acts, reiterated during a long courſe of time, without any conſiderable interruption: every agreeable cauſe that operates in this manner will grow habitual.

Affection and averſion, as diſtinguiſhed from paſſion on the one hand, and on the other from original diſpoſition, are in reality habits reſpecting particular objects, acquired in the manner above ſet forth. The pleaſure of ſocial intercourſe with any perſon, muſt originally be faint, and frequently reiterated, in order to eſtabliſh the habit of affection. Affection thus generated, whether it be friendſhip or love, ſeldom ſwells into any tumultuous or vigorous paſſion; but is however the ſtrongeſt cement that can bind together two individuals of the human ſpecies. In like manner, a ſlight degree of diſguſt often reiterated with regularity, grows into the habit of averſion, which commonly ſubſiſts for life.

Objects of taſte that are delicious, far from tending to become habitual, are apt by indulgence to produce ſatiety and diſguſt: no man contracts a habit of ſugar, honey, or ſweet-meats, as he doth of tobacco.

> Theſe violent delights have violent ends,
> And in their triumphs die. The ſweeteſt honey
> Is loathſome in its own deliciouſneſs,
> And in the taſte confounds the appetite;
> Therefore love mod'rately, long love doth ſo;
> Too ſwift arrives as tardy as too ſlow.
>
> *Romeo and Juliet, act 2. ſc. 6.*

The ſame obſervation holds with reſpect to all objects that being extremely agreeable raiſe violent paſſions: ſuch paſſions are incompatible with a habit of any ſort; and in particular they never produce affection or averſion: a man who at firſt ſight falls violently in love, has a ſtrong deſire of enjoyment, but no affection for the woman (A): a man who is ſurpriſed with an unexpected favour, burns for an opportunity to exert his gratitude, without having any affection for his benefactor: neither does deſire of vengeance for an atrocious injury involve averſion.

It is perhaps not eaſy to ſay why moderate pleaſures gather ſtrength by cuſtom: but two cauſes concur to prevent that effect in the more intenſe pleaſures. Theſe, by an original law in our nature, increaſe quickly to their full growth, and decay with no leſs precipitation: and cuſtom is too ſlow in its operation to overcome that law. The other cauſe is not leſs powerful: exquiſite pleaſure is extremely fatiguing; occaſioning, as a naturaliſt would ſay, great expence of animal ſpirits; and of ſuch the mind cannot bear ſo frequent gratification, as to ſuperinduce a habit: if the thing that raiſes the pleaſure return before the mind have recovered its tone and reliſh, diſguſt enſues inſtead of pleaſure.

A habit never fails to admoniſh us of the wonted time of gratification, by raiſing a pain for want of the object, and a deſire to have it. The pain of want is always firſt felt: the deſire naturally follows; and upon preſenting the object, both vaniſh inſtantaneouſly. Thus a man accuſtomed to tobacco, feels, at the end

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(A) Violent love, without affection, is finely exemplified in the following ſtory. When Conſtantinople was taken by the Turks, Irene, a young Greek of an illuſtrious family, fell into the hands of Mahomet II. who was at that time in the prime of youth and glory. His ſavage heart being ſubdued by her charms, he ſhut himſelf up with her, denying acceſs even to his miniſters. Love obtained ſuch aſcendent as to make him frequently abandon the army, and fly to his Irene. War relaxed, for victory was no longer the monarch's favourite paſſion. The ſoldiers, accuſtomed to booty, began to murmur, and the infection ſpread even among the commanders. The Baſha Muſtapha, conſulting the fidelity he owed his maſter, was the firſt who durſt acquaint him of the diſcourſes held publicly to the prejudice of his glory. The ſultan, after a gloomy ſilence, formed his reſolution. He ordered Muſtapha to aſſemble the troops next morning; and then with precipitation retired to Irene's apartment. Never before did that princeſs appear ſo charming; never before did the prince beſtow ſo many warm careſſes. To give a new luſtre to her beauty, he exhorted her women next morning to beſtow their utmoſt art and care on her dreſs. He took her by the hand, led her into the middle of the army, and pulling off her vail, demanded of the baſhas with a fierce look, whether they had ever beheld ſuch a beauty? After an awful pauſe, Mahomet with one hand laying hold of the young Greek by her beautiful locks, and with the other pulling out his ſcimitar, ſevered the head from the body at one ſtroke. Then turning to his grandees, with eyes wild and furious, "This ſword (ſays he), when it is my will, knows to cut the bands of love." However ſtrange it may appear, we learn from experience, that deſire of enjoyment may conſiſt with the moſt brutal averſion, directed both to the ſame woman. Of this we have a noted example in the firſt book of Sully's Memoirs; to which we chooſe to refer the reader, for it is too groſs to be tranſcribed.

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of the uſual interval, a confuſed pain of want; which at firſt points at nothing in particular, though it ſoon ſettles upon its accuſtomed object: and the ſame may be obſerved in perſons addicted to drinking, who are often in an uneaſy reſtleſs ſtate before they think of the bottle. In pleaſures indulged regularly, and at equal intervals, the appetite, remarkably obſequious to cuſtom, returns regularly with the uſual time of gratification; not ſooner, even though the object be preſented. This pain of want ariſing from habit, ſeems directly oppoſite to that of ſatiety; and it muſt appear ſingular, that frequency of gratification ſhould produce effects ſo oppoſite, as are the pains of exceſs and of want.

The appetites that reſpect the preſervation and propagation of our ſpecies, are attended with a pain of want ſimilar to that occaſioned by habit: hunger and thirſt are uneaſy ſenſations of want, which always precede the deſire of eating or drinking; and a pain for want of carnal enjoyment, precedes the deſire of an object. The pain being thus felt independent of an object, cannot be cured but by gratification. Very different is an ordinary paſſion, in which deſire precedes the pain of want; ſuch a paſſion cannot exiſt but while the object is in view; and therefore, by removing the object out of thought, it vaniſheth with its deſire and pain of want.

The natural appetites abovementioned, differ from habit in the following particular: they have an undetermined direction toward all objects of gratification in general; whereas an habitual appetite is directed to a particular object: the attachment we have by habit to a particular woman, differs widely from the natural paſſion which comprehends the whole ſex; and the habitual reliſh for a particular diſh, is far from being the ſame with a vague appetite for food. That difference notwithſtanding, it is ſtill remarkable, that nature hath enforced the gratification of certain natural appetites eſſential to the ſpecies, by a pain of the ſame ſort with that which habit produceth.

The pain of habit is leſs under our power than any other pain that ariſes from want of gratification: hunger and thirſt are more eaſily endured, eſpecially at firſt, than an uſual intermiſſion of any habitual pleaſure: perſons are often heard declaring, they would forego ſleep or food, rather than tobacco. We muſt not however conclude, that the gratification of an habitual appetite affords the ſame delight with the gratification of one that is natural: far from it; the pain of want only is greater.

The ſlow and reiterated acts that produce a habit, ſtrengthen the mind to enjoy the habitual pleaſure in greater quantity and more frequency than originally; and by that means a habit of intemperate gratification is often formed: after unbounded acts of intemperance, the habitual reliſh is ſoon reſtored, and the pain for want of enjoyment returns with freſh vigour.

The cauſes of the preſent emotions hitherto in view, are either an individual, ſuch as a companion, a certain dwelling-place, a certain amuſement; or a particular ſpecies, ſuch as coffee, mutton, or any other food. But habit is not confined to ſuch. A conſtant train of trifling diverſions may form ſuch a habit in the mind, that it cannot be eaſy a moment without amuſement; a variety in the objects prevents a habit as to any one in particular; but as the train is uniform with reſpect to amuſement, the habit is formed accordingly; and that ſort of habit may be denominated *a generic habit*, in oppoſition to the former, which is *a ſpecific habit*. A habit of a town-life, of country-ſports, of ſolitude, of reading, or of buſineſs, where ſufficiently varied, are inſtances of generic habits. Every ſpecific habit hath a mixture of the generic; for the habit of any one ſort of food makes the taſte agreeable, and we are fond of that taſte wherever found. Thus a man deprived of an habitual object, takes up with what moſt reſembles it; deprived of tobacco, any bitter herb will do rather than want: a habit of punch makes wine a good reſource: accuſtomed to the ſweet ſociety and comforts of matrimony, the man unhappily deprived of his beloved object, inclines the ſooner to a ſecond. In general, when we are deprived of a habitual object, we are fond of its qualities in any other object.

The reaſons are aſſigned above, why the cauſes of intenſe pleaſure become not readily habitual: but now we diſcover, that theſe reaſons conclude only againſt ſpecific habits. In the caſe of a weak pleaſure, a habit is formed by frequency and uniformity of reiteration, which, in the caſe of an intenſe pleaſure, produceth ſatiety and diſguſt. But it is remarkable, that ſatiety and diſguſt have no effect, except as to that thing ſingly which occaſions them: a ſurfeit of honey produceth not a loathing of ſugar; and intemperance with one woman produceth no diſreliſh of the ſame pleaſure with others. Hence it is eaſy to account for a generic habit in any intenſe pleaſure: the delight we had in the gratification of the appetite, inflames the imagination, and makes us, with avidity, ſearch for the ſame gratification in whatever other object it can be found. And thus uniform frequency in gratifying the ſame paſſion upon different objects, produceth at length a generic habit. In this manner one acquires an habitual delight in high and poignant ſauces, rich dreſs, fine equipages, crowds of company, and in whatever is commonly termed *pleaſure*. There concurs at the ſame time, to introduce this habit, a peculiarity obſerved above, that reiteration of acts enlarges the capacity of the mind, to admit a more plentiful gratification than originally, with regard to frequency as well as quantity.

Hence it appears, that though a ſpecific habit cannot be formed but upon a moderate pleaſure, a generic habit may be formed upon any ſort of pleaſure, moderate or immoderate, that hath variety of objects. The only difference is, that a weak pleaſure runs naturally into a ſpecific habit; whereas an intenſe pleaſure is altogether averſe to ſuch a habit. In a word, it is only in ſingular caſes that a moderate pleaſure produces a generic habit; but an intenſe pleaſure cannot produce any other habit.

The appetites that reſpect the preſervation and propagation of the ſpecies, are formed into habit in a peculiar manner; the time as well as meaſure of their gratification are much under the power of cuſtom; which, introducing a change upon the body, occaſions a proportional change in the appetites. Thus, if the body be gradually formed to a certain quantity of food at ſtated times, the appetite is regulated accordingly; and the appetite is again changed, when a different habit

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habit of body is introduced by a different practice. Here it would ſeem, that the change is not made upon the mind, which is commonly the caſe in paſſive habits, but upon the body.

When rich food is brought down by ingredients of a plainer taſte, the compoſition is ſuſceptible of a ſpecific habit. Thus the ſweet taſte of ſugar, rendered leſs poignant in a mixture, may, in courſe of time, produce a ſpecific habit for ſuch mixture. As moderate pleaſures, by becoming more intenſe, tend to generic habits; ſo intenſe pleaſures, by becoming more moderate, tend to ſpecific habits.

The beauty of the human figure, by a ſpecial recommendation of nature, appears to us ſupreme, amid the great variety of beauteous forms beſtowed upon animals. The various degrees in which individuals enjoy that property, render it an object ſometimes of a moderate, ſometimes of an intenſe, paſſion. The moderate paſſion, admitting frequent reiteration without diminution, and occupying the mind without exhauſting it, turns gradually ſtronger till it becomes a habit. Nay, inſtances are not wanting, of a face at firſt diſagreeable, afterward rendered indifferent by familiarity, and at length agreeable by cuſtom. On the other hand, conſummate beauty, at the very firſt glance, fills the mind ſo as to admit no increaſe. Enjoyment leſſons the pleaſure; and if often repeated, ends commonly in ſatiety and diſguſt. The impreſſions made by conſummate beauty, in a gradual ſucceſſion from lively to faint, conſtitute a ſeries oppoſite to that of faint impreſſions waxing gradually more lively, till they produce a ſpecific habit. But the mind when accuſtomed to beauty contracts a reliſh for it in general, though often repelled from particular objects by the pain of ſatiety; and thus a generic habit is formed, of which inconſtancy in love is the neceſſary conſequence; for a generic habit, comprehending every beautiful object, is an invincible obſtruction to a ſpecific habit, which is confined to one.

But a matter which is of great importance to the youth of both ſexes, deſerves more than a curſory view. Though the pleaſant emotion of beauty differs widely from the corporeal appetite, yet when both are directed to the ſame object, they produce a very ſtrong complex paſſion: enjoyment in that caſe muſt be exquiſite; and therefore more apt to produce ſatiety than in any other caſe whatever. This is a never-failing effect, where conſummate beauty in the one party, meets with a warm imagination and great ſenſibility in the other. What we are here explaining, is true without exaggeration; and they muſt be inſenſible upon whom it makes no impreſſion: it deſerves well to be pondered by the young and the amorous, who, in forming the matrimonial ſociety, are too often blindly impelled by the animal pleaſure merely, inflamed by beauty. It may indeed happen after the pleaſure is gone, and go it muſt with a ſwift pace, that a new connection is formed upon more dignified and more laſting principles: but this is a dangerous experiment; for even ſuppoſing good ſenſe, good temper, and internal merit of every ſort, yet a new connection upon ſuch qualifications is rarely formed: it commonly, or rather always happens, that ſuch qualifications, the only ſolid foundation of an indiſſoluble connection, are rendered altogether inviſible by ſatiety of enjoyment creating diſguſt.

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One effect of cuſtom, different from any that have been explained, muſt not be omitted, becauſe it makes a great figure in human nature: though cuſtom augments moderate pleaſures, and leſſens thoſe that are intenſe, it has a different effect with reſpect to pain; for it blunts the edge of every ſort of pain and diſtreſs, faint or acute. Uninterrupted miſery, therefore, is attended with one good effect: if its torments be inceſſant, cuſtom hardens us to bear them.

The changes made in forming habits are curious. Moderate pleaſures are augmented gradually by reiteration, till they become habitual; and then are at their height: but they are not long ſtationary; for from that point they gradually decay, till they vaniſh altogether. The pain occaſioned by want of gratification, runs a different courſe: it increaſes uniformly; and at laſt becomes extreme, when the pleaſure of gratification is reduced to nothing.

> ——————It ſo falls out,
> That what we have we prize not to the worth,
> While we enjoy it; but being lack'd and loſt,
> Why then we rack the value; then we find
> The virtue that poſſeſſion would not ſhow us
> Whilſt it was ours.
>
> *Much ado about Nothing, act 4 ſc. 2.*

The effect of cuſtom with relation to a ſpecific habit, is diſplayed through all its varieties in the uſe of tobacco. The taſte of that plant is at firſt extremely unpleaſant: our diſguſt leſſens gradually, till it vaniſh altogether; at which period the taſte is neither agreeable nor diſagreeable: continuing the uſe of the plant, we begin to reliſh it; and our reliſh improves by uſe, till it arrive at perfection: from that period it gradually decays, while the habit is in a ſtate of increment, and conſequently the pain of want. The reſult is, that when the habit has acquired its greateſt vigour, the reliſh is gone; and accordingly we often ſmoke and take ſnuff habitually, without ſo much as being conſcious of the operation. We muſt except gratification after the pain of want; the pleaſure of which gratification is the greateſt when the habit is the moſt vigorous: it is of the ſame kind with the pleaſure one feels upon being delivered from the rack. This pleaſure however is but occaſionally the effect of habit; and however exquiſite, is avoided as much as poſſible becauſe of the pain that precedes it.

With regard to the pain of want, we can diſcover no difference between a generic and a ſpecific habit; but theſe habits differ widely with reſpect to the poſitive pleaſure. We have had occaſion to obſerve, that the pleaſure of a ſpecific habit decays gradually till it turn imperceptible: the pleaſure of a generic habit, on the contrary, being ſupported by variety of gratification, ſuffers little or no decay after it comes to its height. However it may be with other generic habits, the obſervation certainly holds with reſpect to the pleaſures of virtue and of knowledge: the pleaſure of doing good has an unbounded ſcope, and may be ſo variouſly gratified that it can never decay; ſcience is equally unbounded; our appetite for knowledge having an ample range of gratification, where diſcoveries are recommended by novelty, by variety, by utility, or by all of them.

In this intricate inquiry, we have endeavoured, but without ſucceſs, to diſcover by what particular means it is that cuſtom hath influence upon us: and now nothing ſeems left, but to hold our nature to be ſo framed as to be ſuſceptible of ſuch influence. And ſuppoſing it purpoſely ſo framed, it will not be difficult to find out ſeveral important final cauſes. That the power of cuſtom is a happy contrivance for our good, cannot have eſcaped any one who reflects, that buſineſs is our province, and pleaſure our relaxation only. Now ſatiety is neceſſary to check exquiſite pleaſures, which otherwiſe would engroſs the mind and unqualify us for buſineſs. On the other hand, as buſineſs is ſometimes painful, and is never pleaſant beyond moderation, the habitual increaſe of moderate pleaſure, and the converſion of pain into pleaſure, are admirably contrived for diſappointing the malice of fortune, and for reconciling us to whatever courſe of life may be our lot:

> How uſe doth breed a habit in a man!
> This ſhadowy deſert, unfrequented woods,
> I better brook than flouriſhing peopled towns.
> Here I can ſit alone, unſeen of any,
> And to the nightingale's complaining notes
> Tune my diſtreſſes, and record my woes.
> *Two Gentlemen of Verona, act 5. ſc. 4.*

As the foregoing diſtinction between intenſe and moderate, holds in pleaſure only, every degree of pain being ſoftened by time, cuſtom is a catholicon for pain and diſtreſs of every ſort; and of that regulation the final cauſe requires no illuſtration.

Another final cauſe of cuſtom will be highly reliſhed by every perſon of humanity, and yet has in a great meaſure been overlooked; which is, that cuſtom hath a greater influence than any other known cauſe, to put the rich and the poor upon a level: weak pleaſures, the ſhare of the latter, become fortunately ſtronger by cuſtom; while voluptuous pleaſures, the ſhare of the former, are continually loſing ground by ſatiety. Men of fortune, who poſſeſs palaces, ſumptuous gardens, rich fields, enjoy them leſs than paſſengers do. The goods of Fortune are not unequally diſtributed; the opulent poſſeſs what others enjoy.

And indeed, if it be the effect of habit, to produce the pain of want in a high degree while there is little pleaſure in enjoyment, a voluptuous life is of all the leaſt to be envied. Thoſe who are habituated to high feeding, eaſy vehicles, rich furniture, a crowd of valets, much deference and flattery, enjoy but a ſmall ſhare of happineſs, while they are expoſed to manifold diſtreſſes. To ſuch a man, enſlaved by eaſe and luxury, even the petty inconveniences in travelling, of a rough road, bad weather, or homely fare, are ſerious evils: he loſes his tone of mind, turns peeviſh, and would wreak his reſentment even upon the common accidents of life. Better far to uſe the goods of Fortune with moderation: a man who by temperance and activity hath acquired a hardy conſtitution, is, on the one hand, guarded againſt external accidents; and, on the other, is provided with great variety of enjoyment ever at command.

We ſhall cloſe this branch of the ſubject with an article more delicate than abſtruſe, *viz.* what authority cuſtom ought to have over our taſte in the fine arts. One particular is certain, that we cheerfully abandon to the authority of cuſtom things that nature hath left indifferent. It is cuſtom, not nature, that hath eſtabliſhed a difference between the right hand and the left, ſo as to make it aukward and diſagreeable to uſe the left where the right is commonly uſed. The various colours, though they affect us differently, are all of them agreeable in their purity: but cuſtom has regulated that matter in another manner; a black ſkin upon a human being, is to us diſagreeable; and a white ſkin probably not leſs ſo to a negro. Thus things, originally indifferent, become agreeable or diſagreeable by the force of cuſtom. Nor will this be ſurprizing after the diſcovery made above, that the original agreeableneſs or diſagreeableneſs of an object, is, by the influence of cuſtom, often converted into the oppoſite quality.

Proceeding to matters of taſte, where there is naturally a preference of one thing before another; it is certain, in the firſt place, that our faint and more delicate feelings are readily ſuſceptible of a bias from cuſtom; and therefore that it is no proof of a defective taſte, to find theſe in ſome meaſure influenced by cuſtom: dreſs and the modes of external behaviour, are regulated by cuſtom in every country: the deep red or vermilion with which the ladies in France cover their cheeks, appears to them beautiful in ſpite of nature; and ſtrangers cannot altogether be juſtified in condemning that practice, conſidering the lawful authority of cuſtom, or of the *faſhion* as it is called: it is told of the people who inhabit the ſkirts of the Alps facing the north, that the ſwelling they univerſally have in the neck is to them agreeable. So far has cuſtom power to change the nature of things, and to make an object originally diſagreeable take on an oppoſite appearance.

But as to every particular that can be denominated proper or improper, right or wrong, cuſtom has little authority, and ought to have none. The principle of duty takes naturally place in every other; and it argues a ſhameful weakneſs or degeneracy of mind, to find it in any caſe ſo far ſubdued as to ſubmit to cuſtom.

II. *Effects of Cuſtom and Habit in the Animal Economy.* Theſe may be reduced to five heads. 1. On the ſimple ſolids. 2. On the organs of ſenſe. 3. On the moving power. 4. On the whole nervous power. 5. On the ſyſtem of blood-veſſels.

1. *Effects on the Simple Solids.* Cuſtom determines the degree of flexibility of which they are capable. By frequently repeated flexion, the ſeveral particles of which theſe ſolids conſiſt are rendered more ſupple and moveable on each other. A piece of catgut, *e. g.* when on the ſtretch, and having a weight appended to its middle, will be bended thereby perhaps half an inch; afterwards, by frequent repetitions of the ſame weight, or by increaſing the weight, the flexibility will be rendered double. The degree of flexibility has a great effect in determining the degree of oſcillation, provided that elaſticity is not affected; if it go beyond this, it produces flaccidity. Again, cuſtom determines the degree of tenſion; for the ſame elaſtic chord that now oſcillates in a certain degree of tenſion, will, by frequent repetition of theſe oſcillations, be ſo far relaxed, that the extenſion muſt be renewed in order to produce the ſame tenſion, and conſequently the ſame vibra-

Cullen's Lectures on the Mat. Med. 1ſt edit.

vibrations, as at firſt. This appears in many inſtances in the animal economy, as when different muſcles concur to give a fixed point or tenſion to each other: and thus a weakly child totters as it walks; but by giving it a weight to carry, and by thus increaſing the tenſion of the ſyſtem, it walks more ſteadily. In like manner the fulneſs of the ſyſtem gives ſtrength, by diſtending the veſſels every where, and ſo giving tenſion: hence a man, by good nouriſhment, from being weak, acquires a great increaſe of ſtrength in a few days: and on the other hand, evacuations weaken by taking off the tenſion.

2. *Effects on the Organs of Senſe.* Repetition gives a greater degree of ſenſibility, in ſo far only as it renders perception more accurate. Repetition alone gives laſting impreſſion, and thus lays the foundation of memory; for ſingle impreſſions are but retained for a ſhort time, and are ſoon forgot. Thus a perſon, who at preſent has little knowledge of cloths, will, by frequently handling them, acquire a ſkill of diſcerning them, which to others ſeems almoſt impoſſible. Many are apt to miſtake this for a nicer ſenſibility, but they are much miſtaken; for it is an univerſal law, that the repetition of impreſſion renders us leſs acute. This is well illuſtrated by the operation of medicines; for all medicines which act on the organs of ſenſe muſt, after ſome time, be increaſed in their doſe to produce the ſame effects as at firſt. This affords a rule in practice with regard to theſe medicines; it becoming neceſſary, after a certain time, to change one medicine even for a weaker of the ſame nature. Thus medicines, which even have no great apparent force, are found, by long uſe, to deſtroy the ſenſibility of the ſyſtem to other impreſſions. But to this general rule, that, by repetition, the force of impreſſions is more and more diminiſhed, there are ſome exceptions. Thus perſons, by a ſtrong emetic, have had their ſtomachs rendered ſo irritable, that 1-20th of the firſt doſe was ſufficient to produce the ſame effect. This, however, oftener takes place when the vomit is repeated every day; for if the ſame vomit be given at pretty conſiderable intervals the general rule is obſerved to hold good. Thus two contrary effects of habit are to be noted; and it is proper to obſerve, that the greater irritability is more readily produced when the firſt impreſſion is great, as in the caſe firſt given of the ſtrong emetic. This may be farther illuſtrated by the effect of fear, which is commonly obſerved to be diminiſhed on repetition; which can only be attributed to cuſtom: while, on the other hand, there are inſtances of perſons, who having once got a great fright, have for ever after continued ſlaves to fears excited by impreſſions of the like kind, however ſlight, which muſt be imputed entirely to exceſs of the firſt impreſſion, as has been already obſerved. To this head alſo belongs the aſſociation of ideas, which is the foundation of memory and all our intellectual faculties, and is entirely the effect of cuſtom; with regard to the body alſo, theſe aſſociations often take place. And ſometimes, in producing effects on the body, aſſociations ſeemingly oppoſite are formed, which, through cuſtom, become abſolutely neceſſary; *e. g.* a perſon long accuſtomed to ſleep in the neighbourhood of a great noiſe, is ſo far from being incommoded on that account, that afterwards ſuch noiſe becomes neceſſary to produce ſleep. It will be of uſe to attend to this in medical practice; for we ought to allow for, however oppoſite it may ſeem at the time, whatever uſually attended the purpoſe we deſign to effect. Thus, in the inſtance of ſleep, we muſt not exculde noiſe when we want to procure reſt, or any cauſes which may ſeem oppoſite to ſuch an effect, provided cuſtom has rendered them neceſſary.

3. *Effects on the Moving Fibres.* A certain degree of tenſion is neceſſary to motion, which is to be determined by cuſtom; *e. g.* a fencer, accuſtomed to one foil, cannot have the ſame ſteadineſs or activity with one heavier or lighter. It is neceſſary alſo that every motion ſhould be performed in the ſame ſituation, or poſture of the body, as the perſon has been accuſtomed to employ in that motion. Thus, in any chirurgical operation, a certain poſture is recommended; but if the operator has been accuſtomed to another, ſuch a one, however aukward, becomes neceſſary afterwards to his right performance of that operation.

Cuſtom alſo determines the degree of oſcillation of which the moving fibres are capable. A perſon accuſtomed to ſtrong muſcular exertions is quite incapable of the more delicate. Thus writing is performed by ſmall muſcular contractions; but if a perſon has been accuſtomed to ſtronger motions with theſe muſcles, he will write with much leſs ſteadineſs.

This ſubject of tenſion, formerly attributed to the *ſimple fibres*, is probably more ſtrictly applicable to the moving: for beſides a tenſion from flexion, there is alſo a tenſion from irritation and ſympathy; *e. g.* the tenſion of the ſtomach from food, gives tenſion to the whole body. Wine and ſpirituous liquors give tenſion *e. g.* a perſon that is ſo affected with tremor as ſcarcely to hold a glaſs of any of theſe liquors to his head, has no ſooner ſwallowed it, than his whole body becomes ſteady; and after the ſyſtem has been accuſtomed to ſuch ſtimuli, if they are not applied at the uſual time, the whole body becomes flaccid, and of conſequence unſteady in its motions.

Again, cuſtom gives facility of motion. This ſeems to proceed from the diſtenſion which the nervous power gives to the moving fibres themſelves. But in whatever manner it is occaſioned, the effect is obvious; for any new or unuſual motion is performed with great difficulty.

It is ſuppoſed that ſenſation depends on a communication with the ſenſorium commune, by means of organs ſufficiently diſtended with nervous influence. We have found, that ſenſibility is diminiſhed by repetition. And we have now to obſerve, that in ſome caſes it may be increaſed by repetition, owing to the nervous power itſelf flowing more eaſily into the part on account of cuſtom. Attention to a particular object may alſo determine a geater influx into any particular part, and thus the ſenſibility and irritability of that particular part may be increaſed.

But with regard to facility of motion, the nervous power, no doubt, flows moſt eaſily into theſe parts to which it has been accuſtomed: yet facility of motion does not entirely depend on this, but in part alſo on the concurrence of the action of a great many muſcles; *e. g.* Winſlow has obſerved, that in performing any motion, a number of muſcles concur to give a fixed point to thoſe intended chiefly to act, as well as to others that are to vary and modify their action. This, however, is aſſiſted by repetition and the freer influx; as by experience we know the proper attitude for giving a fixed point in order to perform any action with facility and ſteadineſs.

Cuſtom gives a ſpontaneous motion alſo which ſeems to recur at ſtated periods, even when the exciting cauſes are removed. Thus, if the ſtomach has been accuſtomed to vomit from a particular medicine, it will require a much ſmaller doſe than at firſt, nay, even the very ſight or remembrance of it will be ſufficient to produce the effect; and there are not wanting inſtances of habitual vomiting, from the injudicious adminiſtration of emetics. It is on this account that all ſpaſmodic affections ſo eaſily become habitual, and are ſo difficult of cure: as we muſt not only avoid all the exciting cauſes, even in the ſmalleſt degree, but alſo their aſſociations.

Cuſtom alſo gives ſtrength of motion; ſtrength depends on ſtrong oſcillations, a free and copious influx of the nervous power, and on denſe ſolids. But in what manner all theſe circumſtances have been brought about by repetition, has been already explained. The effect of cuſtom, in producing ſtrength, may be thus illuſtrated: a man that begins with lifting a calf, by continuing the ſame practice every day, will be able to lift it when grown to the full ſize of a bull.

All this is of conſiderable importance in the practice of phyſic, though but too little regarded; for the recovery of weak people, in great meaſure, depends on the uſe of exerciſe, ſuited to their ſtrength, or rather within it, frequently repeated and gradually increaſed. Farther, it is neceſſary to obſerve, that cuſtom regulates the particular celerity with which each motion is to be performed: for a perſon accuſtomed, for a conſiderable time to one degree of celerity, becomes incapable of a greater; *e. g.* a man accuſtomed to ſlow-walking will be out of breath before he can run 20 paces. The train, or order, in which our motions are to be performed, is alſo eſtabliſhed by cuſtom; for if a man hath repeated motions, for a certain time in any particular order, he cannot afterwards perform them in any other. Cuſtom alſo very frequently aſſociates motions and ſenſations: thus, if a perſon has been in uſe of aſſociating certain ideas with the ordinary ſtimulus which in health excites urine, without theſe ideas the uſual inclination will ſcarce excite that excretion; and when theſe occur, will require it even in the abſence of the primary exciting cauſe; *e. g.* it is very ordinary for a perſon to make urine when going to bed; and if he has been, for any length of time, accuſtomed to do ſo, he will ever afterwards make urine at that time, though otherwiſe he would often have no ſuch inclination: by this means ſome ſecretions become, in a manner, ſubject to the will. The ſame may be ſaid of going to ſtool: and thus affords us a good rule in the caſe of coſtiveneſs; for by endeavouring to fix a ſtated time for this evacuation, it will afterwards, at ſuch time, more readily return. It is farther remarkable, that motions are inſeparably aſſociated with other motions: this, perhaps, very often proceeds from the neceſſary degree of tenſion; but it alſo often depends merely on cuſtom, an inſtance of which we have in the uniform motions of our eyes.

4. *Effects on the whole Nervous Power.* We have found, that, by cuſtom, the nervous influence may be determined more eaſily into one part than another; and therefore, as all the parts of the ſyſtem are ſtrongly connected, the ſenſibility, irritability, and ſtrength of any particular part, may be thus increaſed. Cuſtom alſo has the power of altering the natural temperament, and of inducing a new one. It is alſo in the power of cuſtom to render motions periodical, and periodically ſpontaneous. An inſtance of this we have in ſleep, which is commonly ſaid to be owing to the nervous power being exhauſted, the neceſſary conſequence of which is ſleep, *e. g.* a reſt of the voluntary motions to favour the recruit of that power: but if this were the caſe, the return of ſleep ſhould be at different times, according as the cauſes which diminiſh the nervous influence operate more or leſs powerfully; whereas the caſe is quite otherwiſe, theſe returns of ſleep being quite regular. This is no leſs remarkable in the appetites, that return at particular periods, independent of every cauſe but cuſtom. Hunger, *e. g.* is an extremely uneaſy ſenſation; but goes off of itſelf, if the perſon does not take food at the uſual time. The excretions are farther proofs of this, *e. g.* going to ſtool, which, if it depended on any particular irritation, ſhould be at longer or ſhorter intervals according to the nature of the aliment. There are many other inſtances of this diſpoſition of the nervous influence to periodical motions, as the ſtory of the idiot of Stafford, recorded by Dr Plot (Spectator, n° 447.), who, being accuſtomed to tell the hours of the church-clock as it ſtruck, told them as exactly when it did not ſtrike by its being out of order. Montaigne tells us of ſome oxen that were employed in a machine for drawing water, who, after making 300 turns, which was the uſual number, could be ſtimulated by no whip or goad to proceed farther. Infants, alſo, cry for and expect the breaſt at thoſe times in which the nurſe has been accuſtomed to give it.

Hence it would appear, that the human economy is ſubject to periodical revolutions, and that theſe happen not oftener may be imputed to variety: and this ſeems to be the reaſon why they happen oftener in the body than mind, becauſe that is ſubject to greater variety. We ſee frequent inſtances of this in diſeaſes, and in their criſes; intermitting fevers, epilepſies, aſthmas, &c. are examples of periodical affections: and that critical days are not ſo ſtrongly marked in this country as in Greece, and ſome others, may be imputed to the variety and inſtability of our climate; but perhaps ſtill more to the leſs ſenſibility and irritability of our ſyſtem; for the exhibition of medicine has little effect in diſturbing the criſes, though it be commonly aſſigned as a cauſe.

We are likewiſe ſubject to many habits independent of ourſelves, as from the revolutions of the celeſtial bodies, particularly the ſun, which determines the body, perhaps, to other daily revolutions beſides ſleeping and waking. There are alſo certain habits depending on the ſeaſons. Our connections, likewiſe, with reſpect to mankind, are means of inducing habits. Thus regularity from aſſociating in buſineſs, induces regular habits both of mind and body.

There are many diſeaſes which, though they aroſe at firſt from particular cauſes, at laſt continue merely through cuſtom or habit. Theſe are chiefly of the nervous

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nervous ſyſtem. We ſhould therefore ſtudy to counteract ſuch habits; and accordingly Hippocrates, among other things for the cure of epilepſy, orders an entire change of the manner or life. We likewiſe imitate this in the chincough; which often reſiſts all remedies till the air, diet, and ordinary train of life, are changed.

5. *Effects on the Blood-veſſels.* From what has been ſaid on the nervous power, the diſtribution of the fluids muſt neceſſarily be variouſly affected by cuſtom, and with that the diſtribution of the different excretions; for though we make an eſtimate of the proportion of the excretions to one another, according to the climate and ſeaſons, they muſt certainly be very much varied by cuſtom.

On this head we may obſerve, that blood-letting has a manifeſt tendency to increaſe the quantity of the blood; and if this evacuation be repeated at ſtated times, ſuch ſymptoms of repletion, and ſuch motions are excited at the returning periods, as render the operation neceſſary. The ſame has been obſerved in ſome ſpontaneous hemorrhagies. Theſe, indeed, at firſt, may have ſome exciting cauſes, but afterwards they ſeem to depend chiefly on cuſtom. The beſt proof of this is with regard to the menſtrual evacuation. There is certainly ſomething originally in females, that determines that evacuation to the monthly periods. Conſtant repetition of this comes to fix it, independent of ſtrong cauſes, either favouring or preventing repletion; *e. g.* blood-letting will not impede it, nor filling the body induce it: and indeed, ſo much is this evacuation connected with periodical motions, that it is little in our power to produce any effect by medicines but at thoſe particular times. Thus if we would relax the uterine ſyſtem, and bring back this evacuation when ſuppreſſed, our attempts would be vain and fruitleſs, unleſs given at that time when the menſes ſhould have naturally returned.

CUSTOMS, in political economy, or the duties, toll, tribute, or tariff, payable to a king or ſtate upon merchandize exported and imported, form a branch of the perpetual taxes. See TAX.

"The conſiderations upon which this revenue (or the more ancient part of it, which aroſe only from exports) was inveſted in the king, were ſaid to be two: 1. Becauſe he gave the ſubject leave to depart the kingdom, and to carry his goods along with him. 2. Becauſe the king was bound of common right to maintain and keep up the ports and havens, and to protect the merchant from pirates. Some have imagined they are called with us *cuſtoms*, becauſe they were the inheritance of the king by immemorial uſage and the common law, and not granted him by any ſtatute: but Sir Edward Coke hath clearly ſhown, that the king's firſt claim to them was by grant of parliament 3 Edw. I. though the record thereof is not now extant. And indeed this is in expreſs words confeſſed by ſtatute 25 Edw. I. c. 7. wherein the king promiſes to take no cuſtoms from merchants, without the common aſſent of the realm, "ſaving to us and our heirs the cuſtoms on wool, ſkins, and leather, formerly granted to us by the commonalty aforeſaid." Theſe were formerly called *hereditary cuſtoms* of the crown; and were due on the exportation only of the ſaid three commodities, and of none other: which were ſtyled the *ſtaple* commodities of the kingdom, becauſe they were obliged to be brought to thoſe ports where the king's ſtaple was eſtabliſhed, in order to be there firſt rated, and then exported. They were denominated in the barbarous Latin of our ancient records, *cuſtuma*, (an appellation which ſeems to be derived from the French word *couſtum*, or *coûtum*, which ſignifies toll or tribute, and owes its own etymology to the word *couſt*, which ſignifies price, charge, or, as we have adopted it in Engliſh, *coſt*); not *conſuetudines*, which is the language of our law whenever it means merely uſages. The duties on wool, ſheep-ſkins or woolfells, and leather exported, were called *cuſtuma antiqua ſive magna*: and were payable by every merchant, as well native as ſtranger; with this difference, that merchant-ſtrangers paid an additional toll, viz. half as much again as was paid by natives. The *cuſtuma parva et nova* were an impoſt of 3 d. in the pound due from merchant-ſtrangers only, for all commodities as well imported as exported; which was uſually called the *alien's* duty, and was firſt granted in 31 Edw. I. But theſe ancient hereditary cuſtoms, eſpecially thoſe on wool and woolfells, came to be of little account when the nation became ſenſible of the advantages of a home manufacture, and prohibited the exportation of wool by ſtatute 11 Edw. III. c. 1.

Cuſtoms.

"Other cuſtoms payable upon exports and imports were diſtinguiſhed into ſubſidies, tonnage, poundage, and other impoſts. Subſidies were ſuch as were impoſed by parliament upon any of the ſtaple commodities before mentioned, over and above the *cuſtuma antiqua et magna*: tonnage was a duty upon all wines imported, over and above the priſage and butlerage aforeſaid: poundage was a duty impoſed *ad valorem*, at the rate of 12 d. in the pound, on all other merchandize whatſoever: and the other impoſts were ſuch as were occaſionally laid on by parliament, as circumſtances and times required. Theſe diſtinctions are now in a manner forgotten, except by the officers immediately concerned in this department; their produce being in effect all blended together, under the one denomination of the *cuſtoms*."

Blackſt. Comment.

By theſe we underſtand, at preſent, a duty or ſubſidy paid by the merchant at the quay upon all imported as well as exported commodities, by authority of parliament; unleſs where, for particular national reaſons, certain rewards, bounties, or drawbacks, are allowed for particular exports or imports. The cuſtoms thus impoſed by parliament are chiefly contained in two books of rates, ſet forth by parliamentary authority; one ſigned by Sir Harbottle Grimeſton, ſpeaker of the houſe of commons in Charles II.'s time; and the other an additional one ſigned by Sir Spenſer Compton, ſpeaker in the reign of George I. to which alſo ſubſequent additions have been made. Aliens pay a larger proportion than natural ſubjects, which is what is now generally underſtood by the aliens duty; to be exempted from which is one principal cauſe of the frequent applications to parliament for acts of naturalization.

Theſe cuſtoms are then, we ſee, a tax immediately paid by the merchant, although ultimately by the conſumer. And yet theſe are duties felt leaſt by the people; and, if prudently managed, the people hardly conſider that they pay them at all. For the merchant is eaſy, being ſenſible he does not pay them for himſelf; and the conſumer, who really pays them, confounds them with the price of the commodity: in the ſame manner as Tacitus obſerves, that the emperor Nero gained the reputation of aboliſhing the tax of the ſale of ſlaves, though he only transferred it from the buyer to the ſeller; ſo that it was, as he expreſſes it, *remiſſum magis ſpecie, quam vi: quia, cum venditor pendere juberetur, in partem pretii emptoribus accreſcebat.* But this inconvenience attends it on the other hand, that theſe impoſts, if too heavy, are a check and cramp upon trade; and eſpecially when the value of the commodity bears little or no proportion to the quantity of the duty impoſed. This in conſequence gives riſe alſo to ſmuggling, which then becomes a very lucrative employment: and its natural and moſt reaſonable puniſhment, viz. confiſcation of the commodity, is in ſuch caſes quite ineffectual; the intrinſic value of the goods, which is all that the ſmuggler has paid, and therefore all that he can loſe, being very inconſiderable when compared with his proſpect of advantage in evading the duty. Recourſe muſt therefore be had to extraordinary puniſhments to prevent it; perhaps even to capital ones: which deſtroys all proportion of puniſhment, and puts murderers upon an equal footing with ſuch as are really guilty of no natural, but merely a poſitive, offence.

There is alſo another ill conſequence attending high impoſts on merchandize, not frequently conſidered, but indiſputably certain; that the earlier any tax is laid on a commodity, the heavier it falls upon the conſumer in the end; for every trader through whoſe hands it paſſes muſt have a profit not only upon the raw material and his own labour and time in preparing it, but alſo upon the very tax itſelf, which he advances to the government; otherwiſe he loſes the uſe and intereſt of the money which he ſo advances. To inſtance in the article of foreign paper. The merchant pays a duty upon importation, which he does not receive again till he ſells the commodity, perhaps at the end of three months. He is therefore equally intitled to a profit upon that duty which he pays at the cuſtom houſe, as to a profit upon the original price which he pays to the manufacturer abroad; and conſiders it accordingly in the price he demands of the ſtationer. When the ſtationer ſells it again, he requires a profit of the printer or bookſeller upon the whole ſum advanced by him to the merchants: and the bookſeller does not forget to charge the full proportion to the ſtudent or ultimate conſumer; who therefore does not only pay the original duty, but the profits of theſe three intermediate traders, who have ſucceſſively advanced it for him. This might be carried much farther in any mechanical, or more complicated, branch of trade.

Custom-Houſe, an office eſtabliſhed in the maritime cities, or port-towns for the receipt and management of the cuſtoms and duties of importation, and exportation, impoſed on merchandiſes, and regulated by books of rates.

CUSTOS BREVIUM, the principal clerk belonging to the court of common pleas, whoſe buſineſs it is to receive and keep all the writs made returnable in that court, filing every return by itſelf; and, at the end of each term, to receive of the prothonotaries all the records of the niſi prius, called the *poſteas*.

Custos Rotulorum, an officer who has the cuſtody of the rolls and records of the ſeſſions of peace, and alſo of the commiſſion of the peace itſelf.

He uſually is ſome perſon of quality, and always a juſtice of the peace, of the quorum, in the county where he is appointed.

Custos Spiritualium, he that exerciſes the ſpiritual juriſdiction of a dioceſe, during the vacancy of any ſee, which, by the canon-law, belongs to the dean and chapter; but at preſent, in England, to the archbiſhop of the province, by preſcription.

Custos Temporalium, was the perſon to whom a vacant ſee or abbey was given by the king, as ſupreme lord. His office was, as ſteward of the goods and profits, to give an account to the eſcheator, who did the like to the exchequer.

CUT-A-FEATHER, in the ſea-language. If a ſhip has too broad a bow, it is common to ſay, *ſhe will not cut a feather*; that is, ſhe will not paſs through the water ſo ſwift as to make it foam or froth.

Cut Purſe, in law; if any perſon *clam & ſecrete*, and without the knowledge of another, cut his purſe or pick his pocket, and ſteal from thence above the value of twelve pence, it is felony excluded clergy.

Cut-purſes or *ſaccularii*, were more ſeverely puniſhed than common thieves by the Roman and Athenian laws.

Cut Water, the ſharp part of the head of a ſhip below the beak. It is ſo called becauſe it cuts or divides the water before it comes to the bow, that it may not come too ſuddenly to the breadth of the ſhip, which would retard her.

CUTANEOUS, in general, an appellation given to whatever belongs to the cutis or ſkin. Thus, we ſay *cutaneous* eruptions; the itch is a *cutaneous* diſeaſe.

CUTH, or CUTHAH (anc. geog.), a province of Aſſyria, which, as ſome ſay, lies upon the Araxes, and is the ſame with Cuſh: but others take it to be the ſame with the country which the Greeks call *Suſiana*, and which to this very day, ſays Dr Wells, is by the inhabitants called *Chuſeſtan*. F. Calmet is of opinion that Cuthah and Scythia are the ſame place, and that the Cuthites who were removed into Samaria by Salmaneſer (2 Kings xvii. 24.) came from Cuſh or Cuth, mentioned in Gen. ii. 13. See the article CUSH.—The Cuthites worſhipped the idol Nergal. id. ibid. 30. Theſe people were tranſplanted into Samaria in the room of the Iſraelites, who before inhabited it. Calmet is of opinion, that they came from the land of Cuſh, or Cuthah upon the Araxes; and that their firſt ſettlement was in the cities of the Medes, ſubdued by Salmaneſer and the kings of Syria his predeceſſors. The ſcripture obſerves, that the Cuthites, upon their arrival in this new country, continued to worſhip the gods formerly adored by them beyond the Euphrates. Eſarhaddon king of Aſſyria, who ſucceeded Sennacherib, appointed an Iſraelitiſh prieſt to go thither, and inſtruct them in the religion of the Hebrews. But theſe people thought they might reconcile their old ſuperſtition with the worſhip of the true God. They therefore framed particular gods for themſelves, which they placed in the ſeveral cities where they dwelt. The Cuthites then worſhipped both the Lord and their falſe gods together, and choſe the loweſt of the people to make prieſts of them in the high places; and they continued this practice for a long time. But afterwards they forſook the worſhip of idols, and adhered only to the law of Moſes, as the Samaritans who are deſcended from the Cuthites do at this day.

CUTICLE, the ſcarf-ſkin. See ANATOMY, n° 74.

CUTICULAR, the ſame with CUTANEOUS.

CUTIS, the ſkin. See ANATOMY, n° 76.

CUTTER, a ſmall veſſel, commonly navigated in the channel of England. It is furniſhed with one maſt, and rigged as a ſloop. Many of theſe veſſels are uſed in an illicit trade, and others are employed by government to take them; the latter of which are either under the direction of the admiralty or cuſtom-houſe. See a repreſentation of a cutter of this ſort in the plate referred to from the article VESSEL.

CUTTER, is alſo a ſmall boat uſed by ſhips of war.

CUTTER of the Tallies, an officer of the exchequer, whoſe buſineſs is to provide wood for the tallies, to cut or notch the ſum paid upon them; and then to caſt them into court, to be written upon. See TALLY.

CUTTING, a term uſed in various ſenſes and various arts; in the general, it implies a diviſion or ſeparation.

CUTTING is particularly uſed in heraldry, where the ſhield is divided into two equal parts, from right to left, parallel to the horizon, or in the feſſe-way.

The word alſo is applied to the honourable ordinaries, and even to animals and moveables, when they are divided equally the ſame way; ſo, however, as that one moiety is colour, the other metal. The ordinaries are ſaid to be cut, couped, when they do not come full to the extremities of the ſhield.

CUTTING, in chirurgery, denotes the operation of extracting the ſtone out of the bladder by ſection. See LITHOTOMY.

CUTTING in coinage. When the laminæ or plates of the metal, be it gold, ſilver, or copper, are brought to the thickneſs of the ſpecies to be coined, pieces are cut out, of thickneſs, and nearly of the weight, of the intended coin; which are now called *planchets*, till the king's image hath been ſtamped on them. The inſtrument wherewith they cut, conſiſts of two pieces of ſteel, very ſharp, and placed over one another; the lower a little hollow, repreſenting a mortar, the other a peſtle. The metal put between the two, is cut out in the manner deſcribed under COINAGE.

Note. Medallions, where the relievo is to be great, are not cut, but caſt or moulded.

CUTTING, in the manege, is when the horſe's feet interfere; or when with the ſhoe of one foot he beats off the ſkin from the paſtern joint of another foot. This is more frequent in the hind foot than the fore: the cauſes are either wearineſs, weakneſs in the reins, not knowing how to go, or ill ſhoeing.

CUTTING, in painting, the laying one ſtrong lively colour over another, without any ſhade or ſoftening. The cutting of colours has always a diſagreeable effect.

CUTTING in wood, a particular kind of ſculpture or engraving; denominated from the matter wherein it is employed.

It is uſed for various purpoſes; as for figured letters, head and tail-pieces of books; and even for ſchemes and other figures, to ſave the expence of engraving on copper: and for prints and ſtamps for paper, callicoes, linens, &c.

The invention of cutting in wood, as well as that in copper, is aſcribed to a gold ſmith of Florence; but it is to Albert Durer and Lucas they are both indebted for their perfection. See ENGRAVING, and PRINTING.

One Hugo de Carpi invented a manner of cutting in wood, by means whereof the prints appeared as if painted in clear-obſcure. In order to this, he made three kinds of ſtamps for the ſame deſign; which were drawn, after one another, though the preſs for the ſame print: they were ſo conducted, as that one ſerved for the grand lights, a ſecond for the demi-teints, and a third for the outlines and the deep ſhadows.

The art of cutting in wood was certainly carried to a very great pitch above two hundred years ago; and might even vie, for beauty and juſtneſs, with that of engraving in copper. At preſent it is in a low condition, as having been long neglected, and the application of artiſts wholly employed on copper, as the more eaſy and promiſing province: not but that wooden cuts have the advantage of thoſe in copper on many accounts; chiefly for figures and devices in books; as being printed at the ſame time and in the ſame preſs as the letters: whereas for the other, there is required a particular impreſſion. In the repreſentation of plants and flowers, and in deſigns for paper-hangings, where the outline only is wanted to be printed, in a bold full manner, this method will be found cheaper and more effectual than the uſe of copper-plates.

The cutters in wood begin with preparing a plank or block of the ſize and thickneſs required, and very even and ſmooth on the ſide to be cut: for this, they uſually take beech, pear-tree, or box; though the latter is the beſt, as being the cloſeſt, and leaſt liable to be worm eat. The wood being cut into a proper form and ſize, ſhould be plained as even and truly as poſſible: it is then fit to receive the drawing or chalking of the deſign to be engraved. But the effect may be made more apparent, and the ink, if any be uſed in drawing, be prevented from running, by ſpreading thinly on the ſurface of the wood white lead tempered with water, by grinding with a bruſh pencil, and afterwards rubbing it well with a fine linen rag whilſt it is wet: and when it is dry, bruſhing off any looſe or powdery part with a ſoft pencil.

On this block they draw their deſign with a pen or pencil, juſt as they would have it printed. Thoſe who cannot draw their own deſign, as there are many who cannot, make uſe of a deſign furniſhed them by another; faſtening it upon the block with paſte made of flour and water, with a little vinegar or gum tragacanth; the ſtrokes or lines turned towards the wood.

When the paper is dry, they waſh it gently over with a ſponge dipped in water; which done, they take off the paper by little and little, ſtill rubbing it a little firſt with the tip of the finger; till at length there be nothing left on the block but the ſtrokes of ink that form the deſign, which mark out ſo much of the block as is to be ſpared or left ſtanding. Figures are ſometimes cut out of prints, by taking away all the white part or blank paper, and cemented with gum-water to the ſurface of the wood. The reſt they cut off, and take away very curiouſly with the points of very ſharp knives, or little chiſſels or gravers, according to the bigneſs or delicacy of the work; for they need no other inſtruments.

It differs from engraving in copper, becauſe in the former, the impreſſion comes from the prominent parts or ſtrokes left uncut; whereas in the latter, it comes from the channels cut in the metal.

The manner of printing with wooden prints is much more expeditious and eaſy than that of copper-plate; becauſe they require only to be dipt in the printing-ink, and impreſſed on the object in the ſame manner and with the ſame apparatus as the letter-printing is managed; and for purpoſes that do not require great correctneſs, the impreſſion is made by the hand only, a proper handle being fixed to the middle of the print, by which it is firſt dipped in the ink, ſpread by means of a bruſh on a block of proportionable ſize covered with leather; and then lifted up inſtantly, and dropped with ſome little force on the paper which is to receive the impreſſion.

Cuttings, or ſlips, in gardening, the branches or ſprigs of trees or plants, cut or ſlipped off to ſet again; which is done in any moiſt fine earth.

The beſt ſeaſon is from Auguſt to April; but care is to be taken when it is done, the ſap be not too much in the top, leaſt the cut die before that part in the earth have root enough to ſupport it: nor yet muſt it be too dry or ſcanty; the ſap in the branches aſſiſting it to take root.

In providing the cuttings, ſuch branches as have joints, knots, or burrs, are to be cut off two or three inches beneath them, and the leaves to be ſtripped off ſo far as they are ſet in the earth. Small top-branches, of two or three years growth, are fitteſt for this operation.

CUTTLE-fish. See Sepia. The bone of the cuttle-fiſh is hard on one ſide, but ſoft and yielding on the other; ſo as readily to receive pretty neat impreſſions from medals, &c. and afterwards to ſerve as a mould for caſting metals, which thus take the figure of the original: the bone is likewiſe frequently employed for cleaning or poliſhing ſilver. This fiſh contains in a certain diſtinct veſſel a fluid as black as ink: which it is ſaid to ſhed when purſued, and thus to conceal itſelf by diſcolouring the water. The particular qualities of this liquor are not yet determined. Dr Leigh ſays, he ſaw a letter which had been written with it ten years before, and which ſtill continued. Some report that the ancients made their ink from it; and others, that it is the baſis of China, or India-ink: but both theſe accounts appear to have little foundation. Pliny, ſpeaking of the inks made uſe of in his time, after obſerving that the cuttle-fiſh is in this reſpect of a wonderful nature, adds expreſsly, that ink was not made from it.

CUTTS (John lord), a ſoldier of moſt hardy bravery in king William's wars, was ſon of Richard Cutts, Eſq; of Matching in Eſſex; where the family were ſettled about the time of Henry VI. and had a great eſtate. He entered early into the ſervice of the duke of Monmouth, was aid-de-camp to the duke of Lorrain in Hungary, and ſignalized himſelf in a very extraordinary manner at the taking of Buda by the Imperialiſts in 1686; which important place had been for near a century and a half in the hands of the Turks. Mr Addiſon, in a Latin poem worthy of the Auguſtan age, plainly hints at Mr Cutt's diſtinguiſhed bravery at that ſiege. Returning to England at the revolution, he had a regiment of foot; was created baron of Gowran in Ireland, Dec. 6. 1690; appointed governor of the iſle of Wight, April 14. 1693; was made a major general; and, when the aſſaſſination project was diſcovered, 1695-6, was captain of the king's guard. In 1698 he was complimented by Mr John Hopkins, as one to whom "a double crown was due," as a hero and a poet. He was colonel of the Coldſtream, or ſecond regiment of guards, in 1701; when Mr Steele, who was indebted to his intereſt for a military commiſſion, inſcribed to him his firſt work, "The Chriſtian Hero." On the acceſſion of queen Anne he was made a lieutenant-general of the forces in Holland; commander in chief of the forces in Ireland, under the duke of Ormond, March 23. 1704-5; and afterwards one of the lords juſtices of that kingdom, to keep him out of the way of action; a circumſtance which broke his heart. He died at Dublin, Jan. 26. 1706-7, and is buried there in the cathedral of Chriſt church. He wrote a poem on the death of queen Mary; and publiſhed, in 1687, "Poetical exerciſes, written upon ſeveral occaſions, and dedicated to her royal Highneſs Mary princeſs of Orange." It contains, beſides the dedication ſigned J. Cutts, verſes to that princeſs; a poem on Wiſdom; another to Mr Waller on his commending it; ſeven more copies of verſes (one of them called *La Muſe Cavalier*, which had been aſcribed to lord Peterborough, and as ſuch mentioned by Mr Walpole in the liſt of that nobleman's writings), and 11 ſongs; the whole compoſing but a very thin volume; which is by no means ſo ſcarce as Mr Walpole ſuppoſes it to be. A ſpecimen of his poetry (of which the five firſt lines are quoted by Steele in his fifth Tatler) is here added:

> Only tell her that I love,
>   Leave the reſt to her and fate;
> Some kind planet from above
> May perhaps her pity move;
>   Lovers on their ſtars muſt wait,
> Only tell her that I love.
> Why, oh, why ſhould I deſpair?
>   Mercy's pictur'd in her eye:
> If ſhe once vouchſafe to hear,
> Welcome hope, and welcome fear.
>   She's too good to let me die;
> Why, oh, why ſhould I deſpair?

CYATHUS, κυαθος (from the verb χυειν, *to pour out)*, was a common meaſure among the Greeks and Romans, both of the liquid and dry kind. It was equal to an ounce, or the twelfth part of a pint. The cyathus was made with an handle like our punch-ladle. The Roman topers were uſed to drink as many *cyathi* as there were muſes, i. e. nine; alſo as many as there were letters in the patron's name. Thus, they had modes of drinking ſimilar to the modern health-drinking or toaſting. They ſay, that the cyathus of the Greeks weighed 10 drachms; and Galen ſays the ſame; though elſewhere he ſays, that a cyathus contains 12 drachms of oil, 13 drachms and one ſcruple of wine, water, or vinegar, and 18 drachms of honey. Galen ſays, that among the Veterinarii the cyathus contained two ounces.

CYAXARES, ſon of Phraortes, was king of Media and Perſia. He bravely defended his kingdom, which the Scythians had invaded. He made war againſt Alyattes king of Lydia; and ſubjected to his power all Aſia beyond the river Halys. He died after a reign of 40 years, in the year of Rome 160.

Cyaxares II. is ſuppoſed by ſome to be the ſame as Darius the Mede. He was ſon of Aſtyages king of Media. He added ſeven provinces to his father's dominions, and made war againſt the Aſſyrians, whom Cyrus favoured.

CYBEBE, a name of Cybele, from κυβηβειν, becauſe in the celebration of her feſtivals men were driven to madneſs.

CYBELE, in Pagan mythology, the daughter of Cœlus and Terra, and wife of Saturn. She is ſuppoſed to be the ſame as Ceres, Rhea, Ops, Veſta, Bona Mater, Magna Mater, Berecynthia, Dindymene, &c. According to Diodorus, ſhe was the daughter of a Lydian prince, and as ſoon as ſhe was born ſhe was expoſed on a mountain. She was preſerved by ſucking ſome of the wild beaſts of the foreſt, and received the Name of Cybele from the mountain where her life had been preſerved. When ſhe returned to her father's court, ſhe had an intrigue with Atys, a beautiful youth whom her father mutilated, &c. All the mythologiſts are unanimous in mentioning the amours of Atys and Cybele. In Phrygia the feſtivals of Cybele were obſeved with the greateſt ſolemnity. Her prieſts called *Corybantes, Galli,* &c. were not admitted in the ſervice of the goddeſs without a previous mutilation. In the celebration of the feſtivals, they imitated the manners of madmen, and filled the air with ſhrieks and howlings mixed with the confuſed noiſe of drums, tabrets, bucklers, and ſpears. This was in commemoration of the ſorrow of Cybele for the loſs of her favourite Atys. Cybele was generally repreſented as a robuſt woman far advanced in her pregnancy, to intimate the fecundity of the earth. She held keys in her hand, and her head was crowned with riſing turrets, and ſometimes with the leaves of an oak. She ſometimes appears riding in a chariot drawn by two tame lions: Atys follows by her ſide, carrying a ball in his hand, and ſupporting himſelf upon a fir tree which is ſacred to the goddeſs. Sometimes ſhe is repreſented with a ſceptre in her hand, with her head covered with a tower. She is alſo ſeen with many breaſts, to ſhow that the earth gives aliments to all living creatures; and ſhe generally carries two lions under her arms. From Phrygia the worſhip of Cybele paſſed into Greece, and was ſolemnly eſtabliſhed at Eleuſis under the name of the *Eleuſinian myſteries of Ceres.* The Romans, by order of the Sibylline books, brought the ſtatue of the goddeſs from Peſſinus into Italy; and when the ſhip which carried it had run on a ſhallow bank of the Tiber, the virtue and innocence of Claudia was vindicated in removing it with her girdle. It is ſuppoſed that the myſteries of Cybele were firſt known about 257 years before the Trojan war, or 1580 years before the Auguſtan age. The Romans were particularly ſuperſtitious in waſhing every year, on the 6th of the kalends of April, the ſhrine of this goddeſs in the waters of the river Almon. There prevailed many obſcenities in the obſervation of the feſtivals; and the prieſts themſelves were the moſt eager to uſe indecent expreſſions, and to ſhow their unbounded licentiouſneſs by the impurity of their actions.

CYBELICUM MARMOR, a name given by the ancients to a ſpecies of marble dug in a mountain of that name in Phrygia. It was of an extremely bright white, with broad veins of bluiſh black.

CYCAS, in botany: A genus of plants belonging to the firſt natural order, *Palmæ.* The fruit is a dry plum with a bivalved kernel. There is but one ſpecies deſcribed by Linnæus, viz. the circinalis, or ſago-tree, which grows ſpontaneouſly in the Eaſt Indies, and particularly on the coaſt of Malabar. It runs up with a ſtraight trunk to 40 feet or more, having many circles the whole length, occaſioned by the old leaves falling off; for they ſtanding in a circular order round the ſtem, and embracing it with their baſe, whenever they drop, they leave the marks of their adheſion behind. The leaves are pinnated, and grow to the length of ſeven or eight feet. The pinnæ or lobes are long, narrow, entire, of a ſhining green, all the way of a breadth, lance-ſhaped at the point, are cloſely crouded together, and ſtand at right angles on each ſide the midrib, like the teeth of a comb. The flowers are produced in long bunches at the footſtalks of the leaves, and are ſucceeded by oval fruit, about the ſize of large plums, of a red colour when ripe, and a ſweet flavour. Each contains a hard brown nut, encloſing a white meat, which taſtes like a cheſnut.

This is a valuable tree to the inhabitants of India, as it not only furniſhes a conſiderable part of their conſtant bread, but alſo ſupplies them with a large article of trade. The body contains a farinaceous ſubſtance, which they extract from it and make into bread in this manner: they ſaw the body into ſmall pieces, and after beating them in a mortar, pour water upon the maſs: this is left for ſome hours to ſettle. When fit, it is ſtrained through a cloth, and the finer particles of the mealy ſubſtance running through with the water, the groſs ones are left behind and thrown away. After the farinaceous part is ſufficiently ſubſided, the water is poured off, and the meal being properly dried, is occaſionally made into cakes and baked. Theſe cakes are ſaid to eat nearly as well as wheaten bread, and are the ſupport of the inhabitants for three or four months in the year.

The ſame meal more finely pulverized, and reduced into granules, is what is called *Sago,* which is ſent into all parts of Europe, and ſold in the ſhops for a great ſtrengthener and reſtorative.

There is a ſort of ſago made in the Weſt Indies, and is ſent to Europe in the ſame manner as that from the Eaſt; but the Weſt India ſago is far inferior in quality to the other. It is ſuppoſed to be made from the pith of the areca oleracea. See Areca.

The *brood boom* (or bread-tree) of the Hottentots, a plant lately diſcovered by profeſſor Thunberg, is deſcribed as a new ſpecies of this genus, by the name of *cycas Caffra,* in the *Nova Acta Reg. Soc. Scient. Upſ.* vol. ii. p. 283. tab. V. The pith, or *medulla,* which abounds in the trunk of this little palm, Mr Sparman informs us, is collected and tied up in dreſſed calf or ſheep-ſkins, and then buried in the earth for the ſpace of ſeveral weeks, till it becomes ſufficiently mellow and tender to be kneaded up with water into a paſte, of which they afterwards make ſmall loaves or cakes, and bake them under the aſhes. Other Hottentots, not quite ſo nice, nor endued with patience enough to wait this tedious method of preparing it, are ſaid to dry and roaſt the pith or marrow, and afterwards make a kind of brown frumenty of it.

CYCEON, from κυκαειν, "to mix;" a name given by the ancient poets and phyſicians to a mixture of meal and water, and ſometimes of other ingredients. Theſe conſtituted the two kinds of cyceon; the coarſer being of the water and meal alone; the richer and more delicate compoſed of wine, honey, flour, water, and cheeſe. Homer, in the 11th Iliad, talks of cyceon made with cheeſe and the meal of barley mixed with wine, but without any mention either of honey or water; and Ovid, deſcribing the draught of cyceon given by the old woman of Athens to Ceres, mentions only flour and water. Dioſcorides underſtood the word in both theſe ſenſes; but extolled it moſt in the coarſe and ſimple kind: he ſays, when prepared with water alone, it refrigerates and nouriſhes greatly.

CYCINNIS, a Grecian dance, ſo called from the name of its inventor, one of the ſatyrs belonging to Bacchus. It conſiſted of a combination of grave and gay movements.

CYCLADES INSULAE; iſlands anciently ſo called, as Pliny informs us, from the Cyclus or orb in which they lie; beginning from the promontory Geraeſtum of Eubœa, and lying round the iſland Delos, (Pliny).

Where they are, and what their number, is not ſo generally agreed. Strabo ſays, they were at firſt reckoned 12, but that many others were added: yet moſt of them lie to the ſouth of Delos, and but few to the north, ſo that the middle or centre, aſcribed to Delos, is to be taken in a looſe, not a geometrical ſenſe. Strabo recites them after Artemidorus, as follows: Helena, Ceos, Cynthus, Seriphus, Melus, Siphus, Cimolus, Prepeſinthus, Olearus, Naxus, Parus, Syrus, Myconus, Tenus, Andrus, Gyarus; but he excludes from the number, Prepeſinthus, Olearus, and Gyarus.

CYCLAMEN, SOWBREAD: A genus of the monogynia order, belonging to the pentandria claſs of plants; and in the natural method ranking under the 21ſt order, *Preciæ*. The corolla is verticillated, with the tube very ſhort, and the throat prominent; the berry is covered with the capſule. There are but two ſpecies: which, however, produce many beautiful varieties. They are low, herbaceous, flowery perennials of the tuberous rooted kind, with numerous, angular, heart-ſhaped, ſpotted, marbled leaves; with many fleſhy foot-ſtalks ſix inches high, carrying monopetalous, five-parted reflexed flowers of various colours. All the varieties are extremely ornamental, and ſome of the flowers very fragrant. They may be planted in any of the common borders, but require to be ſheltered from hard froſts by being covered with mats. They ſhould alſo have a light dry ſoil, otherwiſe their roots are apt to rot. The ſpecies are propagated by ſeeds, and the particular varieties by dividing their roots.

The root of the cyclamen has, when freſh, an extremely acrimonious burning taſte, which it loſes almoſt entirely on being dried. It is recommended as an errhine; in cataplaſms for ſchirrous any cancerous tumors; and internally as a cathartic, detergent, and aperient. It operates very ſlowly, but with great virulence and inflaming the fauces and inteſtines.

CYCLE, in chronology, a certain period or ſeries of numbers which regularly proceed from the firſt to the laſt, and then returnagain to the firſt, and ſo circulate perpetually. See CHRONOLOGY, n° 26.

CYCLE *of Indiction*, a period of 15 years in uſe among the Romans. It has no connection with the celeſtial motion, but was inſtituted, according to Baronius, by Conſtantine; who having reduced the time which the Romans were obliged to ſerve to 15 years, he was conſequently obliged every 15 years to impoſe, or *indicere* according to the Latin expreſſion, an extraordinary tax for the payment of thoſe who were diſcharged; and hence aroſe this cycle, which from the Latin word *indicere*, was ſtyled *indiction*.

CYCLE *of the Moon*, called alſo the *golden number*, and the *Metonic* cycle from its inventor Meton the Athenian, is a period of 19 years, which when they are completed, the new moons and full moons return on the ſame days of the month, ſo that on whatever days the new and full moons fall this year, 19 years hence they will happen on the very ſame days of the month, though not at the ſame hour, as Meton and the fathers of the primitive church thought; and therefore at the time of the council of Nice, when the method of finding the time for obſerving the feaſt of Eaſter was eſtabliſhed, the numbers of the lunar cycle were inſerted into the kalender, which upon the account of their excellent uſe, were ſet in golden letters, and the year of the cycle called the *golden number* of that year.

CYCLE *of the Sun*, a revolution of 28 years, which being elapſed, the dominical or Sunday letters return to their former place, and proceed in the ſame order as before, according to the Julian kalendar.

CYCLISUS, in ſurgery, an inſtrument in the form of a half moon, uſed in ſcraping the ſkull, in caſe of fractures of that part.

CYCLOID, a curve on which the doctrines of pendulums, and time meaſuring inſtruments, in a great meaſure depend; Mr Huygens demonſtrated, that from whatever point or height a heavy body, oſcillating on a fixed centre, begins to deſcend, while it continues to move in a cycloid, the time of its falls or oſcillations will be equal to each other. It is likewiſe demonſtrable, that it is the curve of quickeſt deſcent, *i. e.* a body falling in it, from any given point above, to another, not exactly under it, will come to this point in a leſs time than in any other curve paſſing through thoſe two points.

CYCLOPÆDIA, or ENCYCLOPÆDIA, denotes the circle or compaſs of arts and ſciences. A cyclopædia, ſay the authors of the French Encyclopèdie, ought to explain as much as poſſible the order and connection of human knowledge.

CYCLOPS, in fabulous hiſtory, the ſons of Neptune and Amphitrite; the principal of whom were Brontes Steropes, and Peracmon; but their whole number amounted to above an hundred. Jupiter threw them into Tartarus as ſoon as they were born; but they were delivered at the interceſſion of Tellus, and became

came the aſſiſtants of Vulcan. They were of prodigious ſtature, and had each only one eye, which was placed in the middle of their foreheads.

Some mythologiſts ſay, that the Cyclops ſignify the vapours raiſed in the air, which occaſion thunder and lightning; on which account they are repreſented as forging the thunderbolts of Jupiter. Others repreſent them as the firſt inhabitants of Sicily, who were cruel, of a gigantic form, and dwelt round mount Ætna.

CYCLOPTERUS, the SUCKER, in ichthyology, a genus belonging to the order of amphibia nantes. The head is obtuſe, and furniſhed with jaw-teeth: there are four rays in the gills; and the belly-fins are connected together in an orbicular form. The ſpecies are,

1. The lumpus, or lump-fiſh, grows to the length of 19 inches, and weighs ſeven pounds. The ſhape of the body is like that of the bream, deep and very thick, and it ſwims edge-ways. The back is ſharp and elevated; the belly flat, of a bright crimſon colour. Along the body there run ſeveral rows of ſharp bony tubercles, and the whole ſkin is covered with ſmall ones. The pectoral fins are large and broad, almoſt uniting at their baſe. Beneath theſe is the part by which it adheres to the rocks, &c. It conſiſts of an oval aperture, ſurrounded with a fleſhy, muſcular, and obtuſe ſoft ſubſtance; edged with many ſmall threaded appendages, which concur as ſo many claſpers. The tail and vent-fins are purple. By means of this part it adheres with vaſt force to any thing it pleaſes. As a proof of its tenacity, it hath been known, that in flinging a fiſh of this ſpecies juſt caught into a pail of water, it fixed itſelf ſo firmly to the bottom, that on taking the fiſh by the tail, the whole pail by that means was lifted, though it held ſome gallons, without once making the fiſh quit its hold. Theſe fiſh reſort in multitudes during ſpring to the coaſt of Sutherland near the Ord of Caithneſs. The ſeals which ſwarm beneath, prey greatly upon them, leaving the ſkins; numbers of which, thus emptied, float aſhore at that ſeaſon. It is eaſy to diſtinguiſh the place where the ſeals are devouring this or any other unctuous fiſh, by a ſmoothneſs of the water immediately above the ſpot. This fact is now eſtabliſhed; it being a tried property of oil to ſtill the agitation of the waves and render them ſmooth. Great numbers of lump-fiſh are found in the Greenland ſeas during the months of April and May, when they reſort near the ſhore to ſpawn. Their roe is remarkably large, which the Greenlanders boil to a pulp and eat. They are extremely fat, which recommends them the more to the natives, who admire all oily food. They call them *nipiſcts* or *cat-fiſh*, and take quantities of them during the ſeaſon. The fiſh is ſometimes eaten in England, being ſtewed like carp; but is both flabby and inſipid.

2. The liparis takes the name of *ſea-ſnail* from the ſoft and unctuous texture of its body, reſembling that of the land-ſnail. It is almoſt tranſparent, and ſoon diſſolves and melts away. It is found in the ſea near the mouths of great rivers, and hath been ſeen full of ſpawn in January. The length is five inches; the colour a pale brown, ſometimes finely ſtreaked with a darker. Beneath the throat is a round depreſſion of a whitiſh colour like the impreſſion of a ſeal, ſurrounded by twelve ſmall pale yellow tubera, by which probably it adheres to the ſtones like the other ſpecies.

3. The leſſer ſucking-fiſh is found in different parts of the Britiſh ſeas. It is about four inches in length; the ſkin without ſcales, ſlippery, and of a duſky colour. It hath alſo an apparatus for adhering to ſtones and rocks ſimilar to the others.

CYDER, or CIDER, an excellent drink made of the juice of apples, eſpecially of the more curious table kinds; the juice of theſe being eſteemed more cordial and pleaſant than that of the wild or harſh kinds. In making this drink it hath long been thought neceſſary, in every part of England, to lay the harder cyder-fruits in heaps for ſome time before breaking their pulps; but the Devonſhire people have much improved this practice. In other counties the method is to make theſe heaps of apples in a houſe, or under ſome covering incloſed on every ſide. This method hath been found defective, becauſe, by excluding the free air, the heat ſoon became too violent, and a great perſpiration enſued, by which in a ſhort time the loſs of juices was ſo great, as to reduce the fruit to half their former weight, attended with a general rottenneſs, rancid ſmell, and diſagreeable taſte. In the South-hams, a middle way has been purſued, to avoid the inconveniences and loſs attending the above. They make their heaps of apples in an open part of an orchard, where, by the means of a free air and leſs perſpiration, the deſired maturity is brought about, with an inconſiderable waſte of the juices and decay of the fruit, entirely free of rankneſs; and though ſome apples rot even in this manner, they are very few, and are ſtill fit for uſe; all continue plump and full of juices, and very much heighten the colour of cyders, without ill taſte or ſmell.

In purſuing the Devonſhire method, it is to be obſerved, 1. That all the promiſcuous kinds of apples that have dropped from the trees, from time to time, are to be gathered up and laid in a heap by themſelves, and to be made into cyder after having ſo lain about ten days. 2. Such apples as are gathered from the trees, having already acquired ſome degree of maturity, are likewiſe to be laid in a heap by themſelves for about a fortnight. 3. The later hard fruits, which are to be left on the trees till the approach of froſt is apprehended, are to be laid in a ſeparate heap, where they are to remain a month or ſix weeks, by which, notwithſtanding froſt, rain, &c. their juices will receive ſuch a maturation, as will prepare them for a kindly fermentation, and which they could not have attained on the trees by means of the coldneſs of the ſeaſon.

It is obſervable, that the riper and mellower the fruits are at the time of collecting them into heaps, the ſhorter ſhould be their continuance there; and on the contrary, the harſher, immaturer, and harder they are, the longer they ſhould reſt.

Theſe heaps ſhould be made in an even and open part of an orchard, without an regard to covering from rain, dews, or what elſe may happen during the apples ſtaying there; and whether they be carried in and broken in wet or dry weather, the thing is all the ſame. If it may be objected that during their having lain together in the heap, they may have imbibed great humidity, as well from the air as from the ground, rain, dews, &c. which are mixed with their juices; the anſwer is, this will have no other effect than a kindly diluting, natural to the fruit, by which means a ſpeedier fermentation enſues, and all heterogeneous humid particles are thrown off.

The apples are then ground, and the pummice is received in a large open-mouthed veſſel, capable of containing as much thereof as is ſufficient for one making, or one cheeſe. Though it has been a cuſtom to let the pummice remain ſome hours in the veſſel appropriated to contain it, yet that practice is by no means commendable; for if the fruits did not come ripe from the trees, or otherwiſe matured, the pummice, remaining in the vat too long, will acquire ſuch harſhneſs and coarſeneſs from the ſkins as is never to be got rid of; and if the pummice is of well ripened fruit the continuing too long there will occaſion it to contract a ſharpneſs that very often is followed with want of ſpirit and pricking; nay, ſometimes it even becomes vinegar, or always continues of a wheyiſh colour; all which proceeds from the heat of fermentation that it almoſt inſtantly falls into on lying together; the pummice therefore ſhould remain no longer in the vat than until there may be enough broke for one preſſing, or that all be made into a cheeſe, and preſſed the ſame day it is broken.

In Plate CLIV. is a perſpective view of the cyder-preſs and apple-mill.

A, B, the bottom or lower beam; C, D, the upper beam; 5, 6, 7, 8, 9, the uprights; 4, 4, *e*, *e*, ſpurs; Z, 2, 12, braces, or croſs-pieces; *a*, *b*, capitals; X, blocks; *g*, the ſcrew; E. the back or receiver; F, the cheeſe or cake of pummice, placed on the ſtage or baſon; G, the ſtage or baſon; 10, 10, beams that ſupport the pieces of which the baſon is compoſed; 11, perpendicular pieces for ſupporting theſe beams; H, the buckler; R, S, Q, a circular trough of the apple-mill; T, L, V, compartments or diviſions, for different ſorts of apples; M, the mill-ſtone; L, M, axis of the mill ſtone; N, the ſpring-tree bar.

Cyder-Spirit, a ſpirituous liquor drawn from cyder by diſtillation, in the ſame manner as brandy from wine. The particular flavour of this ſpirit is not the moſt agreeable, but it may with care be diveſted wholly of it, and rendered a perfectly pure and inſipid ſpirit upon rectification. The traders in ſpirituous liquors are well enough acquainted with the value of ſuch a ſpirit as this: they can give it the flavours of ſome other kinds, and ſell it under their names, or mix it in large proportion with the foreign brandy, rum, and arrack, in the ſale, without any danger of a diſcovery of the cheat.

CYDIAS, a painter who made a painting of the Argonauts in the 11th Olympaid. This celebrated piece was bought by the orator Hortenſius for 164 talents.

CYDNUS (anc. geog.), a river of Cilicia; riſing in mount Taurus, to the north of Tarſus, through whoſe middle it ran, in a very clear and cold ſtream, which had almoſt proved fatal to Alexander on bathing in it; falling into the ſea at a place called Rhegma, a breach, the ſea breaking in there, and affording the people of Tarſus a ſtation or port for their ſhips. The water of the Cydnus is commended by Strabo, as of ſervice in nervous diſorders and the gout.

CYDONIA (anc. geog.), one of the three moſt illuſtrious cities of Crete, ſituated in the north-weſt of the iſland, with a locked port, or walled round. The circumſtances of the founding of Cydon are uncertain. Stephen of Byzantium ſays, that it was at firſt named Apollonia from Cydon the ſon of Apollo. Pauſanias aſcribes the founding of it to Cydon the ſon of Tegetus, who travelled into Crete. Herodotus affirms, that it was founded by the Samians, and that its temples were erected by them. Alexander, in the firſt book of the Cretans, informs us, that it received its name from Cydon the ſon of Mercury. Cydon was the largeſt city in the iſland; and was enabled to hold the balance between her contending neighbours. She ſuſtained ſome famous ſieges. Phaleucus, general of the Phoceans, making an expedition into Crete with a fleet and a numerous army, inveſted Canea both by ſea and land; but loſt his army and his life before its walls. In ſucceeding times, when Metellus ſubdued the iſland, he aſſailed Cydon with all his forces; and after combating an obſtinate reſiſtance, ſubjected it to the power of Rome. Cydon occupied the preſent ſituation of Canea; only extending half a league farther towards St Odero; where on the ſea ſhore the remains are ſtill to be ſeen of ſome ancient walls which appear to have been of a very ſolid conſtruction. See Canea.

CYDONIA, the quince; ſo called from Cydon, a town of Crete, famous for its abounding with this fruit. Linnæus has joined this genus to the apple and pear; but as there is ſuch a remarkable difference between the fruits, we follow Mr Miller, who treats the quince as a genus by itſelf.

Species. 1. The oblonga, with an oblong fruit, lengthened at the baſe. 2. The maliforma, with oval leaves woolly on their under ſide, and lengthened at their baſe. 3. The luſitanica, with obverſe oval leaves, woolly on their under ſide. There are ſome other varieties of this fruit propagated in fruit-gardens, and in the nurſeries for ſale; one of which is a ſoft eatable fruit, another very aſtringent, and a third with a very ſmall fruit cottony all over, which is ſcarce worth keeping. Theſe Mr Miller ſuppoſed to be ſeminal variations, but the three others to be diſtinct ſpecies. The Portugal quince is the moſt valuable: its pulp turns to a fine purple when ſtewed or baked, and becomes much ſofter and leſs auſtere than the others; ſo is much fitter for making marmalade. The trees are all eaſily propagated, either by layers, ſuckers, or cuttings; which muſt be planted in a moiſt ſoil. Thoſe raiſed from ſuckers are ſeldom ſo well rooted as thoſe which are obtained from cuttings or layers, and are ſubject to produce ſuckers again in greater plenty: which is not ſo proper for fruit-bearing trees. Theſe trees require very little pruning; the chief thing to be obſerved is, to keep their ſtems clear from ſuckers, and cut off ſuch branches as croſs each other: likewiſe all upright luxuriant ſhoots from the middle of the tree ſhould be taken off, that the head may not be too much crowded with wood, which is of ill conſequence to all fruit-trees. Theſe ſorts may alſo be propagated by budding or grafting upon ſtocks raiſed by cuttings; ſo that the beſt ſorts may be cultivated this way in greater plenty than by any other method. Theſe are alſo in great eſteem to bud or graft pears upon; which for ſummer or autumn fruits are a great improvement to them, eſpecially thoſe deſigned for walls and eſpaliers; for the trees upon theſe ſtocks, do not ſhoot ſo vigorouſly as thoſe upon free-ſtocks, and therefore may be kept in leſs compaſs, and ſooner produce fruit: but hard winter-fruits do not ſucceed ſo well upon theſe ſtocks, their fruit being ſubject to crack, and are commonly ſtony, eſpecially all the breaking pears: therefore theſe ſtocks are only fit for melting pears and a moiſt ſoil.

CYGNUS, or SWAN, in ornithology. See ANAS.

CYGNUS, the SWAN, in aſtronomy, a conſtellation of the northern hemiſphere, between Lyra and Cepheus. The ſtars in the conſtellation Cygnus, in Ptolemy's catalogue, are 19; in Tycho's 18; in Hevelius's 47; in the Britannic catalogue 81.

CYLINDER, in geometry, a ſolid body ſuppoſed to be generated by the rotation of a parallelogram.

Rolling, or *Loaded* CYLINDER, a cylinder which rolls up an inclined plane; the phenomena of which are explained under MECHANICS.

CYLINDROID, in geometry, a ſolid body, approaching to the figure of a cylinder, but differing from it in ſome reſpects, as having the baſes elliptical, but parallel and equal.

CYLINDRUS, in natural hiſtory, the name of a genus of ſhell-fiſh, of which there are many elegant and precious ſpecies.

CYMA, in botany, the tender ſtalks which herbs ſend forth in the beginning of the ſpring, particularly thoſe of the cabbage kind.

CYMA, or CYMATIUM, in architecture, a member or moulding of the corniche, the profile of which is waved, that is, concave at top, and convex at bottom.

CYMBAL, *κυμϐαλον*, a muſical inſtrument in uſe among the ancients. The cymbal was made of braſs, like our kettle drums, and, as ſome think, in their form, but ſmaller, and of different uſe. Ovid gives cymbals the epithet of *genialia*, becauſe they were uſed at weddings and other diverſions.

Caſſiodorus and Iſidore call this inſtrument *acetabulum*, the name of a cup or cavity of a bone wherein another is articulated; and Xenophon compares it to a horſe's hoof; whence it muſt have been hollow: which appears, too, from the figure of ſeveral other things denominated from it: as a baſin, caldron, goblet, caſk, and even a ſhoe, ſuch as thoſe of Empedocles, which were of braſs.

In reality, the ancient cymbals appear to have been very different from our kettle drums, and their uſe of another kind: to their exterior cavity was faſtened a handle; whence Pliny compares them to the upper part of the thigh, and Rabanus to phials.

They were ſtruck againſt one another, in cadence, and made a very acute ſound. Their invention was attributed to Cybele; whence their uſe in feaſts and ſacrifices: ſetting aſide this occaſion, they were ſeldom uſed but by diſſolute and effeminate people. M. Lampe, who has written expreſsly on the ſubject, attributes the invention to the Curetes, or inhabitants of mount Ida in Crete; it is certain theſe, as well as the Corybantes or guards of the kings of Crete, and thoſe of Rhodes and Samothracia, were reputed to excel in the muſic of the cymbal.

The Jews had their cymbals, or at leaſt inſtruments which tranſlators render cymbals; but as to their matter and form, critics are ſtill in the dark. The modern cymbal is a mean inſtrument, chiefly in uſe among vagrants, gypſies, &c. It conſiſts of ſteel wire, in a triangular form, whereon are paſſed five rings, which are touched and ſhifted along the triangle with an iron rod held in the left hand, while it is ſupported in the right by a ring, to give it the freer motion. Durandus ſays, that the monks uſed the word *cymbal* for the cloiſter-bell uſed to call them to the refectory.

CYME (anc. geog.), a city built by Pelops on his return from Greece. Cyme the Amazon gave its name, on expelling the inhabitants, according to Mela. Latin authors, as Nepos, Livy, Mela, Pliny, Tacitus, retain the appellation *Cyme*, after the Greek manner. It ſtood in Aeolia, between Myrina and Phocæa (Ptolemy); and long after, in Peutinger's map, is ſet down nine miles diſtant from Myrina.—From this place was the Sybilla Cumæa, called *Erythræa*, from *Erythræ*, "a neighbouring place." It was the country of Ephorus. Heſiod was a Cumean originally (Stephanus); his father coming to ſettle at Aſcra in Bœotia.

CYMENE, in botany, a name given by the ancient Greeks to a plant with which they uſed to dye woollen things yellow, and with which the women of thoſe times uſed alſo to tinge the hair yellow, that being the favourite colour in thoſe ages. The *cymene* of the Greeks is evidently the ſame plant with the *lutea herba* of the Latins; or what we call *dyer's weed*. See RESEDA.

CYNÆGIRUS, an Athenian, celebrated for his extraordinary courage. He was brother to the poet Æſchylus. After the battle of Marathon, he purſued the flying Perſians to their ſhips, and ſeized one of their veſſels with his right hand, which was immediately ſevered by the enemy. Upon this he ſeized the veſſel with his left hand, and when he had loſt that alſo, he *ſtill* kept his hold with his teeth.

CYNANCHE, a ſpecies of quinzy, in which the tongue is inflamed and ſwelled, ſo that it hangs out beyond the teeth.

CYNANCHUN, BASTARD DOGSBANE: A genus of the digynia order, belonging to the pentandria claſs of plants; and in the natural method ranking under the 30th order, *Contortæ*. The nectarium is cylindrical and quinquedentated. There are ſix ſpecies; of which the following are the moſt remarkable. 1. The acutum, commonly called *Montpelier ſcammony*; and, 2. The monſpeliacum, or round-leaved Montpelier ſcammony. They abound with a milky juice like the ſpurge, which iſſues out wherever they are broken; and this milky juice when concreted has frequently been ſold for ſcammony. Theſe plants propagate ſo faſt by their creeping roots, that few people care to admit them into gardens.

CYNARA, the ARTICHOKE: A genus of the polygamia æqualis order, belonging to the ſyngeneſia claſs of plants. The calyx is dilated, imbricated with cornous ſquamæ, and emarginated with a ſharp point.

Of this genus there are four ſpecies, but only two are cultivated for uſe.

1. The ſcolymus, or garden artichoke, hath large, thick, perennial roots, crowned by a conſiderable cluſter of large pennatifid, erect leaves, two or three feet long. In the middle are upright ſtalks riſing a yard high, on the top of which is a large rough ſcaly head, compoſed of numerous, oval, calycinal ſcales incloſing the florets, ſitting on a broad fleſhy receptacle, which, with the fleſhy baſe of the ſcales, is the only eatable part of the plant. The varieties of this ſpecies are, (1.) The conical green-headed French artichoke, having the ſmall leaves terminated by ſpines, a tall ſtalk, the head ſomewhat conical, and of a light green colour, with the ſcales pointed at top, opening and turning outward. (2.) The globular-headed red Dutch artichoke, having leaves without ſpines, a ſtrong ſtalk, the head large, globular, a little compreſſed at top, and of a reddiſh-green colour; broad obtuſe ſcales emarginated at top, growing cloſe, and turning inward. Of theſe varieties the laſt is deſervedly the moſt eſteemed, both on account of its ſuperiority in ſize and the agreeableneſs of its flavour. Both varieties are perennial in their root: but the leaves and fruit-ſtem die to the ground in winter; and their roots remaining, ſend up freſh leaves and ſtems every ſummer, producing a ſupply of artichokes for 20 years if required. The flowers and ſeed of all the plants of this genus are produced in the centre of the head; the ſcales of which are the proper calyx of the flower, which conſiſts of numerous ſmall bluiſh florets, ſucceeded by downy ſeeds ſitting naked on the receptacle.

2. The cardunculus, or cardoon, greatly reſembles the artichoke, but is of larger and more regular growth; the leaves being more upright, taller, broader, and more regularly divided; and the ſtalks of the leaves blanched are the only eatable parts of the plant.

Culture. Both the varieties of the artichoke are propagated by ſlips or ſuckers, ariſing annually from the ſtool or root of the old plants in ſpring, which are to be taken from good plants of any preſent plantation in March or the beginning or April, and planted in the open quarter of the kitchen-garden, in rows five feet aſunder; and they will produce artichokes the ſame year in autumn. It ſhould, however, be remarked, that though artichokes are of many years duration, the annual produce of their fruit will gradually leſſen in the ſize of the eatable parts after the third or fourth year, ſo that a freſh plantation ſhould be made every three or four years. The cardoon is a very hardy plant, and proſpers in the open quarters of the kitchen-garden. It is propagated by ſeed ſowed annually in the full ground in March; either in a bed for traſplantation, or in the place where they are deſigned to remain. The plants are very large, ſo muſt ſtand at conſiderable diſtances from one another. By this means you may have ſome ſmall temporary crops between the rows, as of lettuce, ſpinach, endive, cabbage, ſavoy, or broccoli plants. In the latter end of September, or in October, the cardoons will be grown very large, and their footſtalks have acquired a thick ſubſtance; you muſt then tie up the leaves of each plant, to admit of earthing them cloſely all round for blanching, which will take up ſix or eight weeks; and thus the plants will come in for uſe in November and December, and continue all winter.

CYNÆUS of Theſſaly, the ſcholar of Demoſthenes, flouriſhed 275 years before Chriſt. Pyrrhus had ſo high an eſteem for him, that he ſent him to Rome to ſolicit a peace, and ſo vaſt was his memory, that the day after his arrival he ſaluted all the ſenators and knights by name. Pyrrhus and he wrote a Treatiſe of War, quoted by Tully.

CYNICS, a ſect of ancient philoſophers, who valued themſelves upon their contempt of riches and ſtate, arts and ſciences, and every thing, in ſhort, except virtue or morality.

The cynic philoſophers owe their origin and inſtitution to Antiſthenes of Athens, a diſciple of Socrates; who being aſked of what uſe his philoſophy had been to him, replied, "It enables me to live with myſelf." Diogenes was the moſt famous of his diſciples, in whoſe life the ſyſtem of his philoſophy appears in its greateſt perfection. He led a moſt wretched life, a tub having ſerved him for a lodging, which he rolled before him wherever he went. Yet he was nevertheleſs not the more humble on account of his ragged cloak, bag, and tub; for one day entering Plato's houſe, at a time when there was a ſplendid entertainment there for ſeveral perſons of diſtinction, he jumped up upon a very rich couch in all his dirt, ſaying, "I trample on the pride of Plato." "Yes (replied Plato), but with great pride, Diogenes." He had the utmoſt contempt for all the human race: for he walked the ſtreets of Athens at noon day with a lighted lanthorn in his hand, telling the people, "He was in ſearch of a man." Amongſt many excellent maxims of morality, he held ſome very pernicious opinions; for he uſed to ſay, that the uninterrupted good fortune of Harpalus, who generally paſſed for a thief and a robber, was a teſtimony againſt the gods. He regarded chaſtity and modeſty as weakneſſes: hence Laertius obſerves of him, that he did every thing openly, whether it belonged to Ceres or Venus; though he adds, that Diogenes only ran to an exceſs of impudence to put others out of conceit with it. But impudence was the characteriſtic of theſe philoſophers; who argued, that what was right to be done, might be done at all times and in all places. The chief principle of this ſect, in common with the ſtoics, was, that we ſhould follow nature. But they differed from the ſtoics in their explanation of that maxim; the cynics being of opinion, that a man followed nature that gratified his natural motions and appetites: while the ſtoics underſtood right reaſon by the word nature.

Cynic Spaſm, a kind of convulſion, wherein the patient imitates the howlings of dogs.

CYNIPS, in zoology, a genus of inſects belonging to the hymenoptera order. The mouth is armed with jaws, but has no proboſcis: the ſting is ſpiral, and moſtly concealed within the body. The quercus folii, or oak-leaf cynips, is of a burniſhed ſhining brown colour. The antennæ are black; the legs and feet of a cheſnut-brown; and the wings white, but void of marginal ſpots. It is in the little ſmooth, round, hard galls, found under the oak-leaves, generally faſtened to the fibres, that this inſect is produced, a ſingle one in each gall. Theſe latter are ligneous, of a hard compact ſubſtance, formed like the reſt, by the extravaſation of the ſap of the leaf, occaſioned by the puncture of the gall-fly when it depoſits its eggs. Sometimes inſtead of the cynips, there is ſeen to proceed from the gall a larger inſect of a brown colour, which is an ichneumon. This ichneumon is not the real inmate of the gall, or he that formed it. He is a paraſite, whoſe mother depoſited her egg in the yet tender gall; which, when hatched, brings forth a larva that deſtroys the larva of the cynips, and then comes out when it has undergone its metamorphoſis and acquired its wings.

The quercus gemmæ, or oak-bud cynips, is of a very dark green, ſlightly gilded: its antennæ and feet are of a dun colour, rather deep. It depoſits its eggs in the oak buds, which produces one of the fineſt galls, leafed like a roſe-bud beginning to blow. When the gall is ſmall, that great quantity of leaves is compreſſed, and they are ſet one upon another like the tiles of a roof. In the centre of the gall there is a kind of ligneous kernel, in the middle of which is a cavity; and in that is found the little larva, who feeds there, takes its growth, undergoes its metamorphoſis, and breaks through the incloſure of that kind of cod in order to get out. The whole gall is often near an inch in diameter, ſometimes more when dried and diſplayed; and it holds to a branch by a pedicle.

There are a great number of other ſpecies.

CYNOCEPHALUS, in zoology, the trival name of a ſpecies of SIMIA.

CYNOGLOSSUM, HOUND'S TONGUE: A genus of the monogynia, order, belonging to the pentandria claſs of plants; and in the natural method ranking under the 41ſt order, *Aſperifoliæ*. The corolla is funnel-ſhaped, with its throat cloſed up by little arches formed in it; the ſeeds depreſſed, and affixed to the ſtyle or receptacle only on their inner ſide. There are eight ſpecies, none of them remarkable for their beauty. The root of one of them, *viz.* the officinale, or common greater hound's tongue, was formerly uſed in medicine, and ſuppoſed to poſſeſs narcotic virtues; but it is diſcharged from the preſent practice. The ſmell of the whole plant is very diſagreeable. Goats eat it; ſheep, horſes, and ſwine refuſe it.

CYNOMETRA, in botany: A genus of the monogynia order, belonging to the decandria claſs of plants; and in the natural method ranking with thoſe of which the order is doubtful. The calyx is tetraphyllous; the antheræ bifid at top; the legumen carnous, creſcent-ſhaped, and monoſpermous.

CYNOMORIUM, in botany: A genus of the monandria order, belonging to the monœcia claſs of plants; and in the natural method ranking under the 50th order, *Amentaceæ*. The male calyx is an imbricated catkin; there is no corolla: the calyx of the female is in the ſame catkin; no corolla; one ſtyle; and one roundiſh ſeed.

CYNOPHONTIS, in antiquity, a feſtival obſerved in the dog-days at Argos, and ſo called *απο τȣς κυνας φονειν*, *i. e.* from killing dogs; becauſe it was uſual on this day to kill all the dogs they met with.

CYNOREXY, an immoderate appetite, to the degree of a diſeaſe; called alſo *fames canina* and *bulimy*.

CYNOSARGES, a place in the ſuburbs of Athens, named from a white or ſwift dog, who ſnatched away part of the ſacrifice offering to Hercules. It had a gymnaſium, in which ſtrangers or thoſe of the half-blood performed their exerciſes; the caſe of Hercules, to whom the place was conſecrated. It had alſo a court of judicature, to try illegitimacy, and to examine whether perſons were Athenians of the whole or half blood. Here Antiſthenes ſet up a new ſect of philoſophers called *Cynics*, either from the place, or from the ſnarling or the impudent diſpoſition of that ſect.

CYNOSCEPHALÆ (anc. geog.), a place in Theſſaly near Scotuſſa; where the Romans, under Q. Flaminius, gained a great victory over Philip, ſon of Demetrius king of Macedon. Theſe Cynoſcephalæ are ſmall tops of ſeveral equal eminences; named from their reſemblance to dogs heads, according to Plutarch.

CYNOSSEMA, the tomb of Hecuba, on the promontory Maſtuſia, over againſt Sigeum, in the ſouth of the Cherſoneſus Thracia; named either from the figure of a dog, to which ſhe was changed, or from her ſad reverſe of fortune (Pliny, Mela).

CYNOSURA, in aſtronomy, a denomination given by the Greeks to *urſa minor*, or "the little bear," by which ſailors ſteer their courſe. The word is formed of *κυνοσȣρα*, q. d. *the dog's tail*. This is the conſtellation next our pole, conſiſting of ſeven ſtars, four whereof are diſpoſed like the four wheels of a chariot, and three lengthwiſe repreſenting the beam; whence ſome give it the name of the *chariot*, or *Charles's wain*.

CYNOSURA, *Cynoſuræ*, or *Cynoſuris*, (anc. geog.), a place in Laconica; but whether maritime or inland, uncertain. Here Æſculapius, being thunderſtruck, was buried (Cicero).

CYNOSURA was alſo the name of the promontory of Marathon in Attica, obverted to Eubœa.

CYNOSURA, in mythology, a nymph of Ida in Crete. She nurſed Jupiter, who changed her into a ſtar which bears the ſame name. It is the ſame as the urſa minor.

CYNOSURUS, in botany: A genus of the digynia order, belonging to the triandria claſs of plants; and in the natural method ranking under the 4th order, *Gramina*. The calyx is bivalved and multiflorous; the receptacle proper, unilateral, and foliaceous. There are ten ſpecies, four of which are natives of Britain, *viz.* the criſtatus, or creſted dog-tail graſs; the echinatus, or rough dog-tail-graſs; the cæruleus, or blue dog-tail graſs; and the paniceus, or bearded dog-tail graſs.

CYNTHIUS and CYNTHIA, in mythology, ſurnames of Appollo and Diana, derived from *Cynthia* the name of a mountain in the middle of the iſland of Delos.

CYNTHIUS (anc. geog.), a mountain of the iſland Delos, ſo high as to overſhadow the whole iſland. On this mountain Latona brought forth Apollo and Diana: hence the epithet *Cynthius* (Virgil), and *Cynthia* (Lucan, Statius).

CYNURIA, or *CYNURIUS Ager*, (anc. geog), a diſtrict of Laconica, on the confines of Argolis. A territory that proved a perpetual bone of contention between the Argives and Spartans (Thucydides). For the manner of deciding the diſpute, ſee THYREA.

CYPERUS, in botany: A genus of the monogynia order, belonging to the triandria claſs of plants;

and in the natural method ranking under the 3d order, *Calamariæ*. The glumes are paleaceous, and imbricated towards each ſide ; the corolla is wanting, and there is one naked ſeed. There are 20 ſpecies ; the only remarkable are the round and the long ſweet cyperus. The former is a native of the Eaſt Indies, and grows by the ſides of rivulets, ditches, and the like. The root is knotty, wrapped round with fibrous ſtrings not eaſy to break, of a brown colour without and grey within ; of a pleaſant ſcent, eſpecially when freſh and well dried ; the leaves are green, and reſemble thoſe of the reed and leek. The latter, commonly called *Engliſh* or *Flemiſh cyperus*, grows in the water, and along banks and river ſides. Its root is as thick as an olive, full of little knots or ſpecks, of an oblong figure, grey colour, ſweet and ſomewhat ſharp taſte, and almoſt without ſmell when it is newly taken out of the ground. The roots of both plants are eſteemed cordial, diuretic, and cephalic, reſiſters of poiſons, and expellers of wind. Long cyperus is much uſed by perfumers and glovers.

CYPHON, in antiquity, a kind of puniſhment uſed by the Athenians. It was a coller made of wood ; ſo called becauſe it conſtrained the criminal who had this puniſhment inflicted on him to bow down his head.

CYPHONISM, Cyphonismus, from χυφων, which has various ſignifications ; derived from κυφος, *crooked*: a kind of torture or puniſhment in uſe among the ancients.

The learned are at a loſs to determine what it was. Some will have it to be that mentioned by St Jerom in his Life of Paul the Hermit, chap. 2. which conſiſted in ſmearing the body over with honey, and thus expoſing the perſon, with his hands tied, to the warm ſun, to invite the flies and other vermin to perſecute him.

CYPRÆA, or Gowrie, in zoology, a genus of inſects belonging to the order of vermes teſtacea. It is an animal of the limax or ſnail kind ; the ſhell is one involuted, ſubovated, obtuſe, ſmooth valve. The aperture on each ſide is linear, longitudinal, and teethed. There are 44 ſpecies, diſtinguiſhed by the form of their ſhells. The pediculus, or common gowrie, is repreſented on Plate CLIV.

This genus is called *cypræa venerea* from its being peculiarly dedicated to Venus ; who is ſaid to have endowed a ſhell of this genus with the powers of a *remora*, ſo as to impede the courſe of the ſhip which was ſent by Periander tyrant of Corinth with orders to caſtrate the young nobility of Corcyra.

CYPRESS. See Cupressus

CYPRIANUS (Thaſcius-Cæcilius), a principal father of the Chriſtian church, was born at Carthage in Africa, at the latter end of the ſecond or begining of the third century. We know nothing more of his parents than that they were heathens ; and he himſelf continued ſuch till the laſt 12 years of his life. He applied himſelf early to the ſtudy of oratory ; and ſome of the ancients, particularly Lactantius, inform us, that he taught rhetoric in Carthage with the higheſt applauſe. Cyprian's converſion is fixed by Pearſon to the year 246 ; and was at Carthage, where, as St Jerome obſerves, he had often employed his rhetoric in the defence of paganiſm. It was brought about by one Cæcilius, a prieſt of the Church of Carthage, whoſe name Cyprian afterwards took ; and between whom there ever after ſubſiſted ſo cloſe a friendſhip, that Cæcilius at his death committed to Cyprian the care of his family. Cyprian was alſo a married man himſelf ; but as ſoon as he was converted to the faith, he reſolved upon a ſtate of continence which was thought a high degree of piety, as not being yet become general. Being now a Chriſtian, he was to give the uſual proof of the ſincerity of his converſion ; and that was by writing againſt paganiſm and in defence of Chriſtianity. With this view he compoſed his piece *De Gratia Dei*, " or concerning the grace of God," which he addreſſed to Donatus. It is a work of the ſame nature with the Apologetic of Tertulian, and the Octavius of Minutius Felix. He next compoſed a piece *De Idolorum Vanitate*, or " upon the vanity of idols." Cyprian's behaviour, both before and after his baptiſm, was ſo highly pleaſing to the biſhop of Carthage, that he ordained him a prieſt a few months after. It was rather irregular to ordain a man thus in his very noviciate ; but Cyprian was ſo extraordinary a perſon, and thought capable of doing ſuch ſingular ſervice to the church, that it ſeemed allowable in this caſe to diſpenſe a little with the form and diſcipline of it. For beſides his known talents as a ſecular man, he had acquired a high reputation of ſanctity ſince his converſion ; having not only ſeparated himſelf from his wiſe, as we have obſerved before, which in thoſe days was thought an extraordinary act of piety, but alſo conſigned over all his goods to the poor, and given himſelf up entirely to the things of God. It was on this account no doubt, too, that when the biſhop of Carthage died the year after, that is in the year 248, none was judged ſo proper to ſucceed him as Cyprian. The quiet and repoſe which the Chriſtians had enjoyed during the laſt 40 years, had, it ſeems, greatly corrupted their manners ; and therefore Cyprian's firſt care, after his advancement to the biſhopric, was to correct diſorders and reform abuſes. Luxury was prevalent among them ; and many of their women were not ſo ſtrict as they ſhould be, eſpecially in the article of dreſs. This occaſioned him to draw up his piece *De habitu virginum*, or " concerning the dreſs of young women ;" in which, beſides what he ſays on that particular head, he inculcates many leſſons of modeſty and ſobriety. In the year 249, the emperor Decius began to iſſue out very ſevere edicts againſt the Chriſtians, which particularly affected thoſe upon the coaſt of Africa ; and in the beginning of 250, the heathens in the circus and amphitheatre of Carthage, inſiſted loudly upon Cyprian's being thrown to the lions : a common method of deſtroying the primitive Chriſtians. Cyprian upon this withdrew from his church at Carthage, and fled into retirement, to avoid the fury of the perſecutions. He wrote in the place of his retreat, pious and inſtructive letters to thoſe who had been his hearers ; and alſo to the *libellatici*, a name by which thoſe puſillanimous Chriſtians were called, who procured certificates of the heathen magiſtrates, to ſhow that they had complied with the emperor's orders in ſacrificing to idols. At his return to Carthage he had ſeveral councils on the repentance of thoſe who had fallen during this perſecution, and other points of diſcipline ; he oppoſed the ſchemes of Navatus and

Novatianus; and contended for the rebaptiſing of thoſe who had been baptiſed by heretics. At laſt he died a martyr in the preſecution of Valerian and Gallienus, in 258. Cyprian wrote 81 letters, and ſeveral treatiſes. The beſt edition of his works are thoſe of Pamelius in 1568; of Rigaltius in 1648; and of Oxford in 1682. His works have alſo been tranſlated into Engliſh by Dr Marſhall.

CYPRINUS, in ichthyology; a genus of fiſhes, belonging to the order of abdominales. The mouth is toothleſs; there are three rays in the gill: the body is ſmooth and white; and the belly-fins have frequently nine rays. There are 31 ſpecies, principally diſtinguiſhed by the number of rays in the vent-fin. The moſt remarkable are.

1. The carpio, or carp. This was introduced into England about the year 1514, by Leonard Maſchal, to whom we are alſo indebted for that excellent apple the *pepin*. Ruſſia wants theſe fiſh at this day. Sweden has them only in the ponds of people of faſhion. They chiefly abound in rivers and lakes of Poliſh Pruſſia, where they are ſometimes taken of a vaſt ſize. They are there a great article of commerce, and ſent in well-boats to Sweden and Ruſſia. The merchants purchaſe them out of the waters, of the nobleſſe of the country, who draw a good revenue from this article. The ancients do not ſeparate the carp from the ſea-fiſh. They are ſometimes found in the harbour of Dantzic between the town and a place called *Hela*.

Carp are very long-lived. Geſner brings an inſtance of one that was near 100 years old. They grow alſo to a very great ſize; ſome authors ſpeak of carp weighing 200 pounds weight, and five feet in length. The carp is a prodigious breeder: its quantity of roe has been ſometimes found ſo great, that when taken out and weighed againſt the fiſh itſelf, the former has been found to preponderate. From the ſpawn of this fiſh, caviare is made for the Jews, who hold the ſturgeon in abhorrence. The carp is extremely cunning, and on that account is ſometimes ſtyled the *river-fox*. They will ſometimes leap over the nets and eſcape that way; at other times they will immerſe themſelves ſo deep in the mud as to let the net paſs over them. They are alſo very ſhy in taking a bait; yet at the ſpawning-time they are ſo ſimple as to ſuffer themſelves to be tickled, handled, and caught by any body that will attempt it. This fiſh is apt to mix its milt with the roe of other fiſh; from which is produced a ſpurious breed, as has been obſerved in the offſpring of the carp and tench, which bore the greateſt reſemblance to the firſt. The ſame has alſo been obſerved of the carp and bream.

In Poliſh Pruſſia, and many other parts of Germany, the ſale of carp conſtitutes a part of the revenue of the nobility and gentry: ſo that the proper management of that fiſh is reduced to a kind of ſyſtem, founded on the experience of ſeveral generations. Of the methods there practiſed, we have an account in the Philoſophical Tranſactions for 1771, art. 37. communicated by Mr J. Reinhold-Forſter: who ſays, he has ſeen carp treated and maintained according to thoſe methods, "above a yard long, and of 25 pounds weight;" but had no opportunity of aſcertaining their age. "In the pond, however, at Charlottenburg (he adds), a palace belonging to the king of Pruſſia, I ſaw more than two or three hundred carp, between two and three feet long; and I was told by the keeper they were between 50 and 60 years ſtanding. They were tame, and came to the ſhore in order to be fed; they ſwallowed with eaſe a piece of white bread of the ſize of half a halfpenny roll."—Mr Forſter, in this paper, alſo vouches a moſt extraordinary circumſtance, namely, the poſſibility of the carp's not only living for a conſiderable time out of water, but of its growing fat in its new element. The author has ſeen the experiment ſucceſsfully tried, and attended to the whole proceſs, in a nobleman's houſe where he then reſided, in the principality of Anhalt-Deſſau. The fiſh being taken out of the water, is wrapped up in a large quantity of wet moſs, ſpread on a piece of net, which is then gathered into a purſe; in ſuch a manner, however, as to allow him room to breathe. The net is then plunged into water, and hung up to the cieling of a cellar. At firſt the dipping muſt be repeated every three or four hours; but afterwards the carp need only to be plunged into the water once in about ſix or ſeven hours. Bread ſoaked in milk is firſt given him in ſmall quantities. In a ſhort time, the fiſh will bear more, and grow fat under this ſeemingly unnatural treatment. Mr Daines Barrington, in a note, confirms a part of the preceding account, by mentioning the practice of a certain fiſhmonger near Claremarket, who, in the winter, frequently expoſes a buſhel at leaſt of carp and tench, for ſale, in the ſame dry veſſel, for ſix or ſeven hours; many of which are not ſold, and yet continue in health, though breathing nothing but air, during the time abovementioned, for ſeveral days ſucceſſively.

2. The barbus, or barbel, is ſo extremely coarſe as to be overlooked by the ancients till the time of the poet Auſonius, who gives it no great character. They frequent the ſtill and deep parts of rivers, and live in ſociety, rooting like ſwine with their noſes in the ſoft banks. It is ſo tame as to ſuffer itſelf to be taken by the hand; and people have been known to take numbers by diving for them. In ſummer they move about during night in ſearch of food; but towards autumn, and during winter, confine themſelves to the deepeſt holes. The barbel is about the length of three feet, and will weigh 18 pounds; the belly white; the dorſal fin is armed with a remarkable ſtrong ſpine, ſharply ſerrated, with which it can inflict a very ſevere and dangerous wound on the incautious handler, and even do much damage to nets. They are the worſt and coarſeſt of freſh-water fiſh, and ſeldom eaten but by the poorer ſort of people, who ſometimes boil them with a bit of bacon to give them a reliſh. Their roe is very noxious, affecting thoſe who unwarily eat of it with a nauſea, vomiting, purging, and a ſlight ſwelling.

3. The tinca, or tench, was treated with the ſame diſreſpect by the ancients as the barbel; but is now in much more repute. It has by ſome been called the *phyſician* of the fiſh; and its ſlime has been ſaid to be of ſo healing a nature, that the wounded fiſhes apply it as a ſtyptic. In Britain it is reckoned a wholeſome and delicious food; but the Germans are of a different opinion. By way of contempt they call it the *ſhoemaker*. Geſner even ſays, that it is inſipid and unwholeſome. It does not commonly exceed four or five

pounds in weight, though ſome have been known to weigh ten or twenty. They love ſtill waters, and are rarely found in rivers: they are very fooliſh and eaſily caught. The tench is thick and ſhort in proportion to its length. The colour of the back is duſky; the dorſal and ventral fins of the ſame colour; the head, ſides, and belly, of a greeniſh caſt, moſt beautifully mixed with gold, which is in its greateſt ſplendor when the fiſh is in the higheſt ſeaſon.

4. The gudgeon is generally found in gentle ſtreams, and is of a ſmall ſize, the largeſt not exceeding half a pound weight. They bite eagerly; and are aſſembled by raking the bed of the river: to this ſpot they immediately crowd in ſhoals, in expectation of food.

5. The brama, or bream, is an inhabitant of lakes, or the deep parts of ſtill rivers. It is a fiſh that is very little eſteemed, being extremely inſipid.

6. The rutilus, or roach, is a common fiſh, found in many of the deep ſtill rivers of England. They are gregarious, keeping in large ſhoals. It has never been known to exceed five pounds in weight.

7. The leuciſcus, or dace, like the roach is gregarious, haunts the ſame places, is a great breeder, very lively, and during ſummer is very fond of frolicking near the ſurface of the water. It never exceeds the weight of a pound and an half: the ſcales are ſmaller than thoſe of the roach.

8. The cephalus, or chub, is a very coarſe fiſh and full of bones. It frequents the deep holes of rivers; and in ſummer commonly lies on the ſurface beneath the ſhade of ſome tree or buſh. It is very timid, ſinking to the bottom on the leaſt alarm, even at the paſſing of a ſhadow; but they will ſoon reſume their former ſituation. It feeds on worms, caterpillars, graſhoppers, and other coleopterous inſects that happen to fall into the water: and it will even feed on cray-fiſh. It will riſe to a fly. Some of this kind have been known to weigh eight or nine pounds.

9. The alburnus, or bleak. Theſe fiſh are very common in many of the rivers in England, and keep together in large ſhoals. At certain ſeaſons they ſeem to be in great agonies: they tumble about near the ſurface of the water, and are incapable of ſwimming far from the place: but in about two hours they recover and diſappear. Fiſh thus affected, the Thames fiſhermen call *mad* bleaks. They ſeem to be troubled with a ſpecies of *gordius*, or hair-worm, which torments them ſo, that they riſe to the ſurface and then die. The bleak ſeldom exceeds five or ſix inches in length. Artificial pearls are made with the ſcals of this fiſh, and probably alſo with thoſe of the dace. They are beat into a fine powder, then diluted with water, and introduced into a thin glaſs bubble, which is afterwards filled with wax. The French were the inventors of this art. During the month of July there appear in the Thames, near Blackwall and Greenwich, innumerable multitudes of ſmall fiſh, known to the Londoners by the name of *white bait*. They are eſteemed very delicious when fried with fine flour, and occaſion, during the ſeaſon, a vaſt reſort of the lower order of epicures to the taverns at the places where they are taken at. There are various ſuppoſitions concerning theſe fiſhes, all of which terminate in reckoning them the fry of ſome other fiſh. Mr Pennant thinks they are of the carp kind, though he cannot determine the ſpecies to which they belong. They have a greater ſimilarity to the bleak than to any other, but he thinks they cannot be the young fry of this ſpecies; becauſe the bleak is found in many of the Britiſh ſtreams, but the white bait only in the Thames. The uſual length of this fiſh is only two inches.

10. The auratus, or golden fiſh, a ſmall fiſh domeſticated by the Chineſe, and generally kept for ornament by great people in their courts and gardens. They breed them in ſmall ponds made for the purpoſe, in baſons, and even in porcelain veſſels. This fiſh is no larger than our pilchard. The male is of a bright red colour from the top of the head to the middle of the body: the reſt is of a gold-colour; but it is ſo bright and ſplendid, that the fineſt gilding, according to F. le Comte, cannot approach it. The female is white: but its tail and half of its body reſemble the luſtre of ſilver. F. du Halde, however, obſerves, that a red and white colour are not always the diſtinguiſhing marks of the male and female; but that the females are known by ſeveral white ſpots which are ſeen round the orifices that ſerve them as organs of hearing, and the males, by having theſe ſpots much brighter. Gold-fiſh are light and lively; they love to ſport on the ſurface of the water, ſoon become familiariſed, and may even be accuſtomed to come and receive their food on ſounding a ſmall rattle. Great care is neceſſary to preſerve them; for they are extremely delicate, and ſenſible of the leaſt injuries of the air: a loud noiſe, ſuch as that of thunder or cannons; a ſtrong ſmell, a violent ſhaking of the veſſel, or a ſingle touch, will oft-times deſtroy them. Theſe fiſh live with little nouriſhment: thoſe ſmall worms which are engendered in the water, or the earthy particles that are mixed with it, are ſufficient for their food. The Chineſe, however, take care, from time to time, to throw into the baſons and reſervoirs where they are kept ſmall balls of paſte, which they are very fond of when diſſolved; they give them alſo lean pork dried in the ſun and reduced to a fine and delicate powder, and ſometimes ſnails: the ſlime which theſe inſects leave at the bottom of the veſſel is a great delicacey for them, and they eagerly haſten to feed on it. In winter they are removed from the court to a warm chamber, where they are kept generally ſhut up in a porcelain veſſel. During that ſeaſon they receive no nouriſhment; however, in ſpring, when they are carried back to their former baſon, they ſport and play with the ſame ſtrength and livelineſs as they did the preceding year.

Groſier's Deſcription of China.

In warm countries theſe fiſh multiply faſt, provided care be taken to collect their ſpawn, which floats on the water, and which they almoſt entirely devour. This ſpawn is put into a particular veſſel expoſed to the ſun, and preſerved there until vivified by the heat: gold-fiſh, however, ſeldom multiply when they are kept in cloſe vaſes, becauſe they are then too much confined. In order to render them fruitful, they muſt be put into reſervoirs of conſiderable depth in ſome places at leaſt, and which are conſtantly ſupplied with freſh water. At a certain time of the year, a prodigious number of barks may be ſeen in the great river *Yang-tſe-kiang*, which go thither to purchaſe the ſpawn of theſe fiſh. Towards the month of May, the neighbouring inhabitants ſhut up the river in ſeveral places with mats and hurdles, which occupy an extent of almoſt nine or ten leagues; and they leave only a ſpace in the middle ſufficient for the paſſage of barks. The ſpawn of the fiſh, which the Chineſe can diſtinguiſh at firſt ſight, although a ſtranger could perceive no traces of it in the water, is ſtopped by theſe hurdles. The water mixed with ſpawn is then drawn up, and after it has been put into large veſſels, it is ſold to merchants, who tranſport it afterwards to every part of the empire. This water is ſold by meaſure, and purchaſed by thoſe who are deſirous of ſtocking their ponds and reſervoirs with fiſh.

Notwithſtanding the tenderneſs of theſe fiſh even in their native climate, they are now naturalized in Britain, where they even breed. They were firſt introduced into England about the year 1691; but were not generally known till 1728, when a great number were brought over, and preſented firſt to Sir Matthew Dekker, and by him circulated round the neighbourhood of London, from whence they have been diſtributed to moſt parts of the country.

Nothing can be more amuſing than a glaſs bowl containing ſuch fiſhes: the double refractions of the glaſs and water repreſent them, when moving, in a ſhifting and changeable variety of dimenſions, ſhades, and colours; while the two mediums, aſſiſted by the concavo convex ſhape of the veſſel, magnify and diſtort them vaſtly: not to mention that the introduction of another element and its inhabitants into our parlours engages the fancy in a very agreeable manner. Some people exhibit this ſort of fiſh in a very fanciful way; for they cauſe a glaſs bowl to be blown with a large hollow ſpace within that does not communicate with it. In this cavity they put a bird occaſionally; ſo that you may ſee a goldfinch or a linnet hopping as it were in the midſt of the water, and the fiſhes ſwimming in a circle round it. The ſimple exhibition of the fiſhes is agreeable and pleaſant; but in ſo complicated a way becomes whimſical and unnatural, and liable to the objection due to him.

Qui variare cupit rem prodigialiter unam.

CYPRIPEDIUM, the LADY's SLIPPER, in botany: A genus of the diandria order, belonging to the gynandria claſs of plants; and in the natural method ranking under the 7th order, *Orchideæ*. The nectarium is ventricoſe, inflated, and hollow. There are three ſpecies: of which only one, viz, the calceolus is a native of Britain. It grows in rough ground in different parts of the iſland. The other ſpecies are natives of America. None of them are eaſily propagated in gardens, and therefore muſt be tranſplanted from thoſe places where they are natives.

CYPRUS, an iſland ſituated in the Levant, or moſt eaſterly part of the Mediterranean ſea, between 33 and 36 degrees of eaſt longitude, and 30 and 34 of north latitude. In ancient times this iſland was known by the name of Acamis, Ceraſtis, Aſpalia, Amathus, Macaria, Cryptos, Colinia, Sphecia, Paphia Salaminia Æroſa, and Cyprus. The etymologies of theſe names are neither very eaſily found, nor are they of much importance. The name by which it was moſt generally known is that of *Cyprus*, ſaid to be derived from *cypros*, the name of a ſhrub or tree with which the iſland abounded; ſuppoſed to be the cypreſs.

Cyprus, according to Eratoſthenes, was firſt diſcovered by the Phœnicians, two or three generations before the days of Aſterius and Minos kings of Crete; that is, according to Sir Iſaac Newton's computation, 2006 years before the Chriſtian era. It was at that time ſo full of wood that it could not be tilled, and the Phœnicians firſt cut down that wood for melting copper, with which the iſland abounded; and afterwards, when they began to ſail without fear on the Mediterranean, that is, after the Trojan war, they built great natives of the wood produced on the iſland. Joſephus, however, informs us, that the deſcendants of *Cittim*, the ſon of Javan, and grandſon of Japhat, were the original inhabitants of Cyprus. According to his account, Cittim, ſeeing his brother Tarſhiſh ſettled in Cilicia where he built the city of Tarſus, ſettled with his followers in this oppoſite iſland; and either he or his deſcendants laid the foundations of the city of *Citium*, which, according to Ptolemy, was the moſt ancient in the iſland. As Cyprus was too narrow to contain the great numbers who attended him, he left here as many as might ſerve to people the country, and with the reſt paſſed over into Macedon.

The iſland of Cyprus was divided among ſeveral petty kings till the time of Cyrus the Great. He ſubdued them all; but left each in poſſeſſion of his kingdom, obliged them only to pay him an annual tribute, and to ſend ſupplies of men, money, and ſhips, when required. The Cyprian princes lived thus ſubject to the Perſians till the reign of Darius Hyſtaſpes, when they attempted to ſhake off the yoke, but with bad ſucceſs; their forces being entirely defeated, and themſelves again obliged to ſubmit. They made another more ſucceſsful attempt about the year before Chriſt 357; but, however, could never totally free themſelves from their ſubjection. It is very probable that they ſubmitted to Alexander the Great, though hiſtorians are ſilent as to that event. On the death of the Macedonian conqueror, the dominion of Cyprus was diſputed by Antigonus and Ptolemy the ſon of Lagus. At laſt Antigonus prevailed, and the whole iſland ſubmitted to him about 304 years before Chriſt. He and his ſon Demetrius kept poſſeſſion of it for 11 years, when it was recovered by Ptolemy, and quietly poſſeſſed by him and his deſcendants till 58 years before Chriſt, when it was moſt unjuſtly ſeized by the Romans. In the time of Auguſtus, it began to be ranked among the proconſular provinces, and to be governed by magiſtrates ſent thither by the ſenate. In the year 648 it was conquered by the Saracens; but recovered by the Romans in 957. They held it, however, but for a very ſhort time, and the barbarians kept poſſeſſion of it till the time of the croiſades. It was then reduced by the croiſaders: and Richard I. of England gave it to the princes of the Luſignan family, who held it till the year 1570. They divided it into 12 provinces, in each of which was a capital city from which the province was denominated. So conſiderable was the iſland at this time, that beſides the cities abovementioned, and others of leſs note, it contained 800 villages. In 1570 it was taken by the Turks, and though it hath ever ſince continued under their tyrannical yoke, is ſtill ſo conſiderable as to be governed by a beglerbeg, and ſeven ſangiacs under him.

The air in this iſland is for the moſt part very unwholeſome, on account of the many fens and marſhes with which the country abounds. The ſoil is an excellent fertile clay; and would produce all the neceſſaries of life in abundance, if properly cultivated. There are but few ſprings or rivers in this iſland; ſo that when the rains do not fall plentifully at the uſual ſeaſons, the inhabitants are much diſtreſſed by the ſcarcity of water. By reaſon of the uncultivated ſtate of the country, they are alſo greatly infeſted with poiſonous reptiles of various kinds. The people are extremely ignorant and laſcivious, as indeed they are remarked to have been from the remoteſt antiquity. Anciently the worſhip of Venus was eſtabliſhed in this iſland, whence her title among the poets of the *Cyprian queen;* and ſuch an inclination had the inhabitants to become the votaries of this goddeſs, both in theory and practice, that the young women uſed to proſtitute themſelves in her temple in order to raiſe themſelves portions. Nor are their ſucceſſors ſaid to be much better at this day. The exports of the iſland are ſilks, oil, cotton, wine, ſalt, and turpentine: the imports are French and Venetian broad cloths; and ſometimes a few bales of Engliſh manufacture, cutlery wares, ſugar, tin, lead, &c.

Knights of Cyprus, an order inſtituted by Guy de Luſignan, titular king of Jeruſalem, to whom Richard I. of England, after conquering this iſland, made over his right.

CYRANO (Bergerac), a French author, born in Gaſcony, about the year 1620. He firſt entered into the army, where his natural courage engaged him frequently in duels in the quality of a ſecond: which, with other raſh actions, procured him the title of the *Interpid*. But the little proſpect he ſaw of preferment made him renounce the trade of war for the exerciſe of wit. His comic hiſtories of the ſtates and empires in the ſun and moon, ſhow him well acquainted with the Carteſian philoſophy, and to have a lively imagination. Lord Orrery claſſes him with Swift for his turn of humour, which he ſays the latter adopted and purſued.

CYRENAICA, an ancient kingdom of Africa, correſponding to the preſent kingdom and deſert of Barca and Tripoli. It was originally inhabited by a number of barbarous nations differing little from great gangs of robbers. Afterwards ſome colonies from Greece ſettled here, and Cyrenaica became ſo powerful a ſtate, that it waged war with Egypt and Carthage, often with ſucceſs. In the time of Darius Hyſtaſpes, Arceſilaus, the reigning prince in Cyrenaica, was driven from the throne; on which his mother Pheretima applied for aſſiſtance to the king of Cyprus. Her ſon afterwards returning to Barca, the chief city of Cyrene, was there aſſaſſinated, together with his father-in-law. Pheretima finding herſelf diſappointed by the king of Cyprus, applied to Darius Hyſtaſpes, and by the aſſiſtance of the Perſians reduced Barca. Here ſhe behaved with the utmoſt cruelty, cauſing all thoſe who had been concerned in her ſon's death to be impaled, and the breaſts of their wives to be cut off and affixed near them. She is ſaid to have been afterwards devoured by worms; which was looked upon as a divine judgment for her exceſſive cruelty. The priſoners in the mean time were ſent to Darius, who ſettled them in a diſtrict of Bactria, from them called *Barca*. Cyrenaica, however, ſeems to have remained free till the time of Alexander the Great, who conquered it along with Egypt. Soon after his death the inhabitants recovered their liberty; but were in a ſhort time reduced by Ptolemy king of Egypt. Under theſe kings it remained till Ptolemy Phyſcon made it over to his baſtard ſon Apian, who in the 658th year of Rome left it by will to the Romans. The ſenate permitted all the cities to be governed by their own laws; and this immediately filled the country with tyrants, thoſe who were moſt potent in every city or diſtrict endeavouring to aſſume the ſovereignty of it. Thus the kingdom was thrown into great confuſion; but Lucullus in a good meaſure reſtored the public tranquillity on his coming thither during the firſt Mithridatic war. It was found impoſſible, however, totally to ſuppreſs theſe diſturbances till the country was reduced to the form of a Roman province, which happened about 20 years after the death of Apian, and 76 before Chriſt. Upon a revolt, the city of Cyrene was ruined by the Romans; but they afterwards rebuilt it. In proceſs of time it fell to the Arabs; and then to the Turks, who are the preſent maſters of it.

CYRENAICS, a ſect of ancient philoſophers, ſo called from their founder Ariſtippus of Cyrene, a diſciple of Socrates.

The great principle of their doctrine was, that the ſupreme good of man in this life is pleaſure; whereby they not only meant a privation of pain, and a tranquillity of mind, but an aſſemblage of all mental and ſenſual pleaſures, particularly the laſt.

Cicero makes frequent mention of Ariſtippus's ſchool; and ſpeaks of it as yielding debauchees. Three diſciples of Ariſtippus, after his death, divided the ſect into three branches; under which diviſion it languiſhed and ſunk; the firſt called the *Hegeſiac* ſchool; the ſecond the *Annicerian;* and the third the *Theodoran;* from the names of their authors.

CYRENE (anc. geog.), the capital of Cyrenaica, and one of the cities called *Pentapolis*, diſtant from Apollonia its ſea-port, 10 miles, ſituated on a plain, of the form of a table, according to Strabo. A colony of the Thereans. Though they were deſcendants of the Lacedemonians, yet they differed from them in their turn of mind or diſpoſition, applying themſelves to philoſophy; and hence aroſe the Cyrenaic ſect, at the head of which was Ariſtippus, who placed all happineſs in pleaſure. The Cyreneans were a people much given to aurigation, or the uſe of the chariot, from their excellent breed of horſes, (Pindar, Ephorus, Strabo.)

CYRIL (St) biſhop of Jeruſalem, ſucceeded Maximus in 350. He was afterwards depoſed for the crime of expoſing to ſale the treaſures of the church, and applying the money to the ſupport of the poor during a great famine. Under Julian he was reſtored to his ſee, and was firmly eſtabliſhed to all his old honours and dignities under Theodoſius; in which he continued unmoleſted to his death in 386. The remains of this father conſiſt only of 23 catecheſes, and one letter to the emperor Conſtantius.

Cyrill (St) patriarch of Alexandria, ſucceeded Theophilus, his uncle, in 412. Scarce was he inſtalled, when he began to exert his authority with great vigour; he drove the Novatians and Jews from Alexandria,

andria, permitting their wealth and ſynagogues to be taken from them. This proceeding highly diſpleaſed Oreſtes ,the governor of the city, who ſaw that if the biſhop's authority was not ſoon ſuppreſſed it might grow too ſtrong for that of the magiſtrate. Upon which a kind of civil war broke out between Oreſtes and the biſhop; many tumults were raiſed, and ſome battles fought in the very ſtreets of Alexandria. St Cyrill alſo diſtinguiſhed himſelf by his zeal againſt Neſtorius biſhop of Conſtantinople, who, in ſome of his homilies, had aſſerted that the Virgin Mary ought not to be called the mother of God. The diſpute at firſt proved unfavourable to Cyrill, whoſe opinion was not only condemned, but himſelf deprived of his biſhopric and thrown into priſon. But he was ſoon after releaſed, and gained a complete victory over Neſtorius, who in 431 was depoſed from his ſee of Conſtantinople. Cyrill returned to his ſee at Conſtantinople, where he died in 444. St Cyrill alſo wrote againſt Theodorus of Mopſueſta, Diodorus of Tarſus, and Julian the apoſtate. He compoſed commentaries on St John's goſpel, and wrote ſeveral other books. His works were publiſhed in Greek and Latin in 1638, in ſix volumes folio.

CYRUS, the ſon of Cambyſes the Perſian, by Mandane the daughter of Aſtyages king of the Medes. The two chief hiſtorians, who have written the life of Cyrus, are Herodotus and Xenophon; but their accounts of him are different, in as much as the latter makes his father a king of Perſia, and the former a meaner man. The account of Herodotus, as Dr Prideaux obſerves, indeed contains narratives that are much more ſtrange and ſupriſing, and conſequently more diverting and agreeable to the reader: and for this reaſon more have choſe to follow him than Xenophon.

Herodotus informs us, that Aſtyages king of the Medes, dreamed, that a vine ſprung from the womb of his daughter Mandane, the branches whereof overſhadowed all Aſia; whereupon having conſulted the ſoothſayers, he was told that this dream portended the future power and greatneſs of a child who ſhould be born of his daughter; and further, that the ſame child ſhould deprive him of his kingdom. Aſtyages, to prevent the accompliſhment of this prediction, inſtead of marrying his daughter to ſome powerful prince, gave her to Cambyſes a Perſian of mean condition, and one who had no great capacity for forming any important deſign, nor for ſupporting the ambition of his ſon, by his own riches and authority. Nor did Aſtyages ſtop here; the apprehenſions he was under, leſt Mandane's ſon might perhaps find that aſſiſtance in his own courage, or ſome lucky circumſtances which his family was not able to ſupply him with, induced him to take a reſolution of diſpatching the child, if there ſhould be any. As ſoon, therefore, as he underſtood his daughter was with child, he commanded one of his officers, whoſe name was Harpagus, to deſtroy the infant as ſoon as it came into the world. Harpagus, fearing the reſentment of Mandane, put the child into the hands of one who was the king's ſhepherd, in order to expoſe him. The ſhepherd's wife was ſo extremely touched with the beauty of Cyrus, that ſhe deſired her huſband rather to expoſe her own ſon, who was born ſome time before, and preſerve the young prince. After this manner Cyrus was preſerved and brought up among the king's ſhepherds.

One day, as the neighbouring children were at play together, Cyrus was choſen king; and having puniſhed one of his little play-fellows with ſome ſeverity, for diſobeying his commands, the child's parent complained of Cyrus to Aſtyages. This prince ſent for young Cyrus, and obſerving ſomething great in his air, his manner and behaviour, together with a great reſemblance of his daughter Mandane, he made particular inquiry into the matter, and diſcovered, that, in reality, Cyrus was no other than his grandſon. Harpagus, who was the inſtrument of preſerving him, was puniſhed with the death of his own ſon: however, Aſtyages believing that the royalty which the ſoothſayers had promiſed to the young prince, was only that which he had lately exerciſed among the ſhepherds children, troubled himſelf no more about it. Cyrus being grown up, Harpagus diſcloſed the whole ſecret of his birth to him, together with the manner wherein he had delivered him from the cruel reſolution of his grandfather. He encouraged him to come into Media, and promiſed to furniſh him with forces in order to make him maſter of the country, and depoſe Aſtyages. Cyrus hearkened to theſe propoſitions, engaged the Perſians to take arms againſt the Medes, marched at the head of them to meet Aſtyages, defeated him, and poſſeſſed himſelf of Media. He carried on many other wars; and at length ſat down before Babylon, which after a long ſiege he took.

The relation of Cyrus's life from Xenophon is as follows: Aſtyages king of Media married his daughter Mandane to Cambyſes king of Perſia, ſon to Achæmenes king of the ſame nation. Cyrus was born at his father's court, and was educated with all the care his birth required. When he was about the age of 12 years, his grandfather Aſtyages ſent for him to Media, together with his mother Mandane. Some time after, the king of Aſſyria's ſon having invaded Media, Aſtyages, with his ſon Cyaxares and his grandſon Cyrus, marched againſt him. Cyrus diſtinguiſhed himſelf in this war, and defeated the Aſſyrians. Cambyſes afterwards recalled him, that he might have him near his own perſon; and Aſtyages dying, his ſon Cyaxares, uncle by the mother's ſide to Cyrus, ſucceeded him in the kingdom of Media.

Cyrus, at the age of 30 years, was, by his father Cambyſes, made general of the Perſian troops; and ſent at the head of 30,000 men to the aſſiſtance of his uncle Cyaxares, whom the king of Babylon with his allies the Cappadocians, Carians, Phrygians, Cilicians, and Paphlagonians, were preparing to attack. Cyaxares and Cyrus prevented them, by falling upon them and diſperſing them. Cyrus advanced as far as Babylon, and ſpread terror throughout the country. From this expedition he retired to his uncle, towards the frontiers of Armenia and Aſſyria, and was received by Cyaxares in the tent of the Aſſyrian king whom he had defeated.

After this, Cyrus carried the war into the countries beyond the river Halys, entered Cappadocia, and ſubdued it entirely. From thence he marched againſt Crœſus king of Lydia, beat him in the firſt battle; then beſieged him in Sardis his capital; and after a ſiege of fourteen days obliged him to ſurrender. See CROESUS. After this, Cyrus having almoſt reduced all Aſia, repaſſed the Euphrates, and made war upon the Aſſyrians. He marched directly to Babylon, took it, and there prepared a palace for his uncle Cyaxares, whether he might retire, if at any time he had an inclination to come to Babylon; for he was not then in the army. After all theſe expeditions, Cyrus returned to his father and mother into Perſia, where they were ſtill living; and going ſome time after to his uncle Cyaxares into Media he married his couſin the only daughter and heireſs of all Cyaxares's dominions, and went with her to Babylon, from whence he ſent men of the firſt rank and quality to govern all the ſeveral nations which he had conquered. He engaged again in ſeveral wars, and ſubdued all the nations which lie between Syria and the Red Sea. He died at the age of 70 years, after a reign of 30: but authors differ very much concerning the manner of his death. Herodotus, Juſtin, and Valerius Maximus relate, that he died in the war againſt the Scythians; and that falling into an ambuſh which queen Tomyris had laid for him, ſhe ordered his head to be cut off, and caſt into a veſſel full of blood, ſaying, "Thou haſt always thirſted after human blood, now glut thyſelf with it." Diodorus the Silician ſays, that he was taken in an engagement and hanged. Cteſias aſſures us, that he died of a wound which he received in his thigh: but by Xenophon's account he died peaceably in his bed, amidſt his friends and ſervants; and certain it is, that in Alexander's time his monument was ſhown at Paſagarda in Perſia.

From all this, it is eaſy to conclude that we are but imperfectly acquainted with the hiſtory of this great prince, the founder of the Perſian, and deſtroyer of the Chaldæan empire. We learn fewer particulars of it from ſcripture, but then they are more certain than any that we have produced. Daniel (viii. 3—20.) in the famous viſion wherein God ſhowed him the ruin of ſeveral great emperors, which were to precede the birth of the Meſſiah, repreſents Cyrus to us under the idea of "a ram, which had two horns: and the two horns were high, but the one was higher than the other, and the higher came up laſt. This ram puſhed weſtward, and northward, and ſouthward, ſo that no beaſts might ſtand before him; neither was their any that could deliver out of his hand, but he did according to his will, and became great." The ram's two horns ſignify the two empires which Cyrus reunited in his perſon; that of the Medes, and that of the Perſians. The laſt was greater and more powerful than the empire of the Medes: or otherwiſe, theſe two horns ſignify the two branches of Cyrus's ſucceſſors. His ſon Cambyſes dying, the empire was transferred to Darius the ſon of Hyſtaſpes, and was continued down to Darius Codomannus, who, as Calmet thinks, is the great horn which the he-goat, that denotes Alexander, run againſt. In chap vii. 5. Daniel compares Cyrus to a bear, with three ribs in the mouth of it, to which it was ſaid, "Ariſe, devour much fleſh." Cyrus ſucceeded his father Cambyſes in the kingdom of Perſia, and Darius the Mede, by Xenophon called Cyaxares, and Aſtyages in the apocryphal chapter (xiii. 1.) of Daniel, in the kingdom of the Medes and empire of Babylon. He was monarch of all the Eaſt; or as he ſpeaks (2 Chr. xxxvi. 22, 23, and Ezr. i. 1. 2.) "of all the earth," when he permitted the Jews to return into their own country, in the year of the world 3466, before Jeſus Chriſt 538. The enemies of the Hebrews, making uſe of this prince's affection to his own religion, prevailed with him to put a ſtop by his orders to the building of the temple at Jeruſalem; (Ezr. iv. 5.) The prophets frequently foretold the coming of Cyrus; and Iſaiah (xliv. 28.) has been ſo particular as to declare his name 200 years before he was born. Joſephus (Antiq. l. 11. c. 2.) ſays, that the Jews of Babylon ſhowed this paſſage of the prophet to Cyrus; and that this prince, in the edict which he granted them for their return, acknowledged that he received the empire of the world from the God of Iſrael; and that the ſame God had deſcribed him by name in the writings of the prophets, and foretold that he ſhould build a temple to him at Jeruſalem. Cyrus is pointed out in ſcripture under the name of the righteous man and the ſhepherd of Iſrael, (Iſaiah xli. 2. 10. xlvi. 11. and xliv. 28.) Notwithſtanding this, God ſays of him, (Iſa. xlv. 5.) "I girded thee, though thou haſt not known me." And Jeremiah calls Cyrus and his people, who overthrew the Babyloniſh empire, thieves and robbers. The taking of Babylon by Cyrus is clearly ſet down by the prophets, and may be ſeen under the articles BABYLON and BELSHAZZAR. Archbiſhop Uſher fixes the birth of Cyrus to the year of the world 3405; his firſt year at Babylon to 3466, and his death to 3475. The eaſtern people will have it, that Cyrus by the mother's ſide was deſcended from ſome of the Hebrew prophets; as alſo that his wife was a Jew, which is the reaſon (ſay they), that this prince ſo attached himſelf to the Jews, to whom he was ſo nearly allied.

CYRUS II. was the younger ſon of Darius Nothus, and the brother of Artaxerxes. He was ſent by his father at the age of 16 to aſſiſt the Lacedemonians againſt Athens. Artaxerxes ſucceeded to the throne at the death of Nothus; and Cyrus, who was of an aſpiring ſoul, attempted to aſſaſſinate him. He was diſcovered, and had been puniſhed with death, had not his mother Paryſatis ſaved him from the hands of the executioners by her tears and intreaties. This circumſtance did not in the leaſt check the ambition of Cyrus: he was appointed over Lydia and the ſea-coaſts, where he ſecretly fomented rebellion and levied troops under various pretences. At laſt he took the field with an army of 100,000 barbarians, and 13,000 Greeks under the command of Clearchus. Artaxerxes met him with 900,000 men near Cunaxa. The battle was long and bloody; and Cyrus might have perhaps obtained the victory, had not his uncommon raſhneſs proved his ruin. It is ſaid that the two royal brothers met in perſon, and their engagement ended in the death of Cyrus, 401 years before the Auguſtan age. Artaxerxes was ſo anxious of its being univerſally reported that his brother had fallen by his hand, that he put to death two of his ſubjects for boaſting that they had killed Cyrus. The Greeks who were engaged in the expedition, obtained much glory in the battle; and after the death of Cyrus, they remained victorious in the field without a commander. They were not diſcouraged though at the diſtance of above

600 leagues from their country, and ſurrounded on every ſide by a powerful enemy. They unanimouſly united in the election of commanders, and traverſed all Aſia, in ſpite of the continual attacks of the Perſians; and nothing is more truly celebrated in ancient hiſtory than the bold retreat of the ten thouſand. The journey that they made from the place of their firſt embarkation till their return has been calculated at 1155 leagues performed in the ſpace of 15 months, including all the time which was devoted to take reſt and refreſhment. This retreat has been celebrated by Xenophon, who was one of their leaders, and among the friends and ſupporters of Cyrus.

CYST, the bag or tunic including all incyſted tumors, as the ſcirrhus, atheroma, ſteotoma, meliceres, &c.

CYSTIC, in anatomy, a name given to two arteries and two veins.

CYSTIC DUCT. See ANATOMY, nº 97.

CYTHERA, *orum*, (anc. geog.) an iſland oppoſite to Mallea a promontory, and to Boiæ a town of Laconica; with a cognominal town, which has an excellent port called *Scandea*. The iſland was ſacred to Venus, with a very ancient temple of that goddeſs exhibited in armour at Cythera, as in Cyprus. Now *Cerigo*.

CYTHEREA, in mythology, the ſurname of Venus, ſo called from Cytheræ an iſland, where ſhe had a temple eſteemed the moſt ancient in Greece, and on the ſhores of which ſhe was believed to be borne by the Zephyrs, ſurrounded by the Loves, the Tritons, and Nereides, reclining in a languiſhing poſture in a ſea-ſhell. They give the name of Cytheriades to the Graces which attended her on the ſhore without quitting her, except on thoſe occaſions when ſhe rather choſe to be waited on by the Pleaſures.

CYTINUS, in botany: A genus of the dodecandria order, belonging to the gynandria claſs of plants; and in the natural method ranking under the 11th order, *Sarmentaceæ*. The calyx is quadrifid, ſuperior; there is no corolla; the antheræ are 16, and ſeſſile; the fruit an octolocular polyſpermous berry.

CYTISUS, TREE TREFOIL: A genus of the decandria order, belonging to the diadelphia claſs of plants; and in the natural method ranking under the 32d order, *Papilionaceæ*. The calyx is bilabiated, with the upper lip bifid; inferior, tridentate; the legumen attenuated at the baſe. There are 11 ſpecies; of which the moſt remarkable are, 1. The laburnum, or large deciduous cytiſus, hath a large upright tree-ſtem, branching into a full-ſpreading head, 20 or 30 feet high, having ſmooth greeniſh branches, oblong oval entire leaves, growing by threes on long ſlender footſtalks; and from the ſides of all the branches numerous yellow flowers collected into long ſpikes, hanging looſely downward, and appearing in May. 2. The ſeſſilifolius,. often called *cytiſus ſecundus cluſii*, have a low ſhrubby ſtem dividing into numerous erect browniſh branches, forming a buſhy head five or ſix feet high, garniſhed with ſmall oval leaves growing by threes; ſome on very ſhort foot-ſtalks, others ſitting cloſe; and bright yellow flowers in ſhort erect ſpikes at the ends of the branches, appearing in June. 3. The nigricans grows with a ſhort ſhrubby ſtem, dividing low into many erect ſlender branches, forming a buſhy head for our five feet high, with oblong, oval, trifoliate leaves, and yellow flowers, terminating all the branches in upright ſpikes, appearing in July. 4. The hirſutus, or hairy evergreen Neapolitan cytiſus, riſes with an upright ſhrubby grey ſtem, ſending out many erect greeniſh hairy branches, forming a fine head ſix or eight feet high, cloſely garniſhed with ſmall hairy trifoliated leaves on ſhort footſtalks, and yellow flowers from the ſides of the branches in ſhort pendulous ſpikes, appearing in June. 5. The Auſtriacus, Auſtrian, or Tartarian evergreen cytiſus, hath a ſhrubby ſtem, dividing low into many greeniſh branches, forming a buſhy head three or four feet high, having ſmooth whitiſh-green leaves, and bright yellow flowers in cloſe umbellate heads at the ends of the branches, having a cluſter of leaves under each head. Theſe flowers appear in May,

Culture, &c. All the ſorts are hardy, and will proſper in any common ſoil and expoſure: though, as the hirſutus is ſometimes affected by ſevere froſt, it ſhould have a dry ſoil, and a ſomewhat ſheltered ſituation. They may all be propagated by ſeeds or cuttings, and all the culture they require in the nurſery is to have the ground kept clear from weeds, and dug annually between the rows. Though they are generally conſidered only as ornamental ſhrubs, yet the firſt ſpecies, if originally trained to a ſtem, and ſuffered to ſtand, will grow to the ſize of pretty large timber trees. They grow naturally on the Alps, the mountains of Dauphine, and the highlands of Scotland; and the timber being very hard, and taking a fine poliſh, is frequently uſed for making chairs, tables, bed-ſteads, and other furniture; and is ſaid to equal the fineſt mahogony in beauty. A ſpecies of cytiſus, called by Linnæus *cytiſus cajan*, is known in the Weſt Indies, where it is a native, by the name of the *pigeon-pea*, from the ſeeds being the common food for theſe birds in that part of the world. Theſe ſeeds are alſo ſometimes uſed as food for the human ſpecies; and as they are of a very binding quality, afford a wholeſome nouriſhment during the wet ſeaſon, when dyſenterics are ſo frequent.

CYZICENS, CYZICENA, among the ancient Greeks, were a ſort of magnificent banqueting-houſes, always looking towards the north, and uſually opening upon gardens.

They had their name from Cyzicus, a city very conſiderable for the grandeur of its buildings; ſituated in an iſland of Myſia, bearing the ſame name.

CYZICUM, or CYZICUS (anc. geog.), one of the nobleſt cities of the Hither Aſia; ſituated in a cognominal iſland of the Propontis, on the coaſt of Myſia; joined to the continent by two bridges (Strabo); the firſt by Alexander: the city, a colony of the Mileſians (Pliny). Rendered famous by the ſiege of Mithridates, which was raiſed by Lucullus.—The inhabitants were made a free people by the Romans, but forfeited their freedom under Tiberius. It was adorned with a citadel and walls round it; had a port and marble towers; and three magazines, one for arms, another for warlike engines, and a third for corn. Cyziceni, the people; noted by the ancients for their timidity and effeminacy: hence the proverb in Zenodotus and others, *Tinctura Cyzenica*, applied to perſons guilty of an indecency through fear: but *Staleres Cy-*

ziceni, nummi Cyziceni, denote things executed to perfection.

CZACKTHURN, a ſtrong town of Germany, in Auſtria, and near the frontiers of Hungary. It is ſeated between the rivers Drave and Muhir. in E. Long. 17. 19. N. Lat. 46. 24.

CZAR, a title of honour, aſſumed by the grand-dukes, or, as they are now ſtyled emperors of Ruſſia. The natives pronounce it *tzar*, or *zaar*; and this, by corruption (it has been fancied) from *Cæſar* "emperor," from ſome imagined relation to the Roman emperors. But this etymology does not ſeem correct. When the czar Peter formally required of the European courts an acknowledgement of his imperial titles, and that the appellation of *Emperor* ſhould never be omitted, there was great difficulty made about it, eſpecially at the court of Vienna; which occaſioned him to produce the famous letter, written in the German tongue, from Maximilian I. emperor of Germany, to Vaſſili Ivanovitch, confirming a treaty of alliance offenſive and defenſive againſt Sigiſmond king of Poland. In this diſpatch, which is dated Auguſt the 4th, 1514, and is ratified with the ſeal of the golden-bull, Maximilian addreſſes Vaſſili by calling him *Kayſer* and *Herrſcher aller Ruſſen*; "emperor and ruler of all the Ruſſias." But independently of this document, there could be no doubt that the foreign courts, in their intercourſe with that of Moſcow, ſtyled the ſovereigns indiſcriminately *Great Duke, Czar*, and *Emperor*. With reſpect to England in particular, it is certain, that in Chancellor's Account of Ruſſia, ſo early as the middle of the 16th century, Ivan Vaſſilievitch II. is called *Lord and Emperor of all Ruſſia*; and in the Engliſh diſpatches, from the reign of Elizabeth to that of Anne, he is generally addreſſed under the ſame appellation. When the European powers, however, ſtyled the tzar *Emperor of Muſcovy*, they by no means intended to give him a title ſimilar to that which was peculiar to the emperor of Germany; but they beſtowed upon him that appellation as upon an Aſiatic ſovereign, in the ſame manner as we now ſay the emperors of China and Japan. When Peter, therefore, determined to aſſume the title of emperor, he found no difficulty in proving that it had been conferred upon his predeceſſors by moſt of the European powers; yet when he was deſirous of affixing to the term the European ſenſe, it was conſidered as an innovation, and was productive of more negotiations than would have been requiſite for the termination of the moſt important ſtate affair. At the ſame time it occaſioned a curious controverſy among the learned, concerning the riſe and progreſs of the titles by which the monarchs of this country have been diſtinguiſhed. From their reſearches, it appeared that the early ſovereigns of Ruſſia were called great duke, and that Vaſſili Ivanovitch was probably the firſt who ſtyled himſelf *tzar*, an expreſſion which in the Sclavonian language ſignifies *king*; and that his ſucceſſors continued to bear within their own dominions that title as the moſt honourable appellation, until Peter the Great firſt took that of *Povelitel* or emperor. After many delays and objections, the principal courts of Europe conſented, about the year 1722, to addreſs the ſovereign of Ruſſia with the title of emperor; without prejudice, nevertheleſs, to the other crowned heads of Europe.

CZASLAU, a town of Bohemia, and capital of a circle of the ſame name. Here is the higheſt tower in all Bohemia; and near this place the king of Pruſſia gained a victory over the Auſtrians in 1742. It is ſeated on the river Crudenka, in E. Long. 15. 33. N. Lat. 49. 50.

CZENSTOKOW, a town of Poland in the palatinate of Cracovia, with a fort, in which they keep a rich treaſure, called "the treaſure of the virgin Mary." The pilgrims flock hither ſo much for the ſake of a convent near it, that it is called the *Loretto* of Poland. The town is ſituated on the river in Warte, E. Long. 19. 15. N. Lat. 50. 48.

CZERNIC, a town of Carniola, in Auſtria, ſituated in E. Long. 15. 0. N. Lat. 46 12. It is remarkable for its lake; for a particular deſcription of which ſee the article CIRCHNITZER.

CZERNIKOU, a conſiderable town of Muſcovy, and capital of a duchy of the ſame name, with a caſtle. It is ſeated on the river Dezna, in E. Long. 32. 13. N. Lat. 51. 20.

CZONGRODT, a town of Upper Hungary, and capital of a territory of the ſame name, at the confluence of the rivers Teiſſe and Keres. E. Long. 20. 57. N. Lat. 45. 50.

D.

D, THE fourth letter of the alphabet, and the third conſonant.

Grammarians generally reckon D among the lingual letters, as ſuppoſing the tongue to have the principal ſhare in the pronunciation thereof; though the Abbot de Dangeau ſeems to have reaſon in making it a palate letter. The letter D is the fourth in the Hebrew, Chaldee, Samaritan, Syriac, Greek, and Latin alphabets; in the five firſt of which languages it has the ſame name, though ſomewhat differently ſpoke, *e. g.* in Hebrew and Chaldee *Daleth*, in Syriac *Doleth*, and in Greek *Delta*.

The form of our D is the ſame with that of the Latins, as appears from all the ancient medals and inſcriptions; and the Latin D is no other than the Greek Δ, rounded a little, by making it quicker and at two ſtrokes. The Δ of the Greeks, again, is borrowed from the ancient character of the Hebrew *Daleth*; which form it ſtill retains, as is ſhown by the Jeſuit Souciat, in his Diſſertation on the Samaritan Medals.

D is alſo a numeral letter, ſignifying *five hundred*; which ariſes hence, that, in the Gothic characters, the D is half the M, which ſignifies a *thouſand*. Hence the verſe,

> *Litera* D *velut* A *quingentos ſignificabit.*

A daſh added a-top, $\overline{D}$, denotes it to ſtand for five thouſand.

Uſed as an abbreviation, it has various ſignifications: thus D ſtands for Doctor; as, M. D. for Doctor of Medicine: D. T. Doctor of Theology; D. D. implies Doctor of Divinity, or "dono dedit;" D. D. D. is uſed for "dat, dicat, dedicat;" and D. D. D. D. for "dignum Deo donum dedit."

DAB, in ichthyology, the Engliſh name of a ſpecies of PLEURONECTES.

DABUL, a town of Aſia, in the Eaſt Indies, on the coaſt of Malabar, and to the ſouth of the gulf of Cambaye, on a navigable river. It was formerly very flouriſhing, but is now much decayed. It belongs to the Portugueſe, and its trade conſiſts principally in pepper and ſalt. E. Long. 73. 55. N. Lat. 17. 30.

DACCA, a town of Aſia, in the kingdom of Bengal in the Eaſt Indies, ſituated in E. Long. 89. 10. N. Lat. 24. 0.—The advantages of the ſituation of this place, and the fertility of the ſoil round it, have long ſince made it the centre of an extenſive commerce. The courts of Delhi and Muxadavad are furniſhed from thence with the cottons wanted for their own conſumption. They each of them maintain an agent on the ſpot to ſuperintend the manufacture of them; and he has an authority, independent of the magiſtrate, over the brokers, weavers, embroiderers, and all the workmen whoſe buſineſs has any relation to the object of his commiſſion. Theſe unhappy people are forbidden, under pecuniary and corporal penalties, to ſell, to any perſon whatever, a piece exceeding the value of three guineas: nor can they, but by dint of money, relieve themſelves from this oppreſſion.

In this, as in all the other markets, the Europeans treat with the Mooriſh brokers ſettled upon the ſpot, and appointed by the government. They likewiſe lend their name to the individuals of their own nation, as well as to Indians and Armenians living in their ſettlements, who, without this precaution, would infallibly be plundered. The Moors themſelves, in their private tranſactions, ſometimes avail themſelves of the ſame pretence, that they may pay only two, inſtead of five *per cent*. A diſtinction is obſerved, in their contracts, between the cottons that are beſpoke and thoſe which the weaver ventures, in ſome places, to manufacture on his own account. The length, the number of threads, and the price, of the former are fixed: nothing further than the commiſſion for the latter is ſtipulated, becauſe it is impoſſible to enter into the ſame detail. Thoſe nations that make a point of having fine goods, take proper meaſures that they may be enabled to advance money to their workmen at the beginning of the year. The weavers, who in general have but little employment at that time, perform their work with leſs hurry than in the months of October, November, and December, when the demand is preſſing.

Some of the cottons are delivered unbleached, and others half-bleached. It were to be wiſhed that this cuſtom might be altered. It is very common to ſee cottons that look very beautiful, go off in the bleaching. Perhaps the manufacturers and brokers foreſee how they will turn out; but the Europeans have not ſo exquiſite a touch, nor ſuch an experienced eye to diſcern this. It is a circumſtance peculiar to India, that cottons, of what kind ſoever they are, can never be well bleached and prepared but in the place where they are manufactured. If they have the misfortune to get damage before they are ſhipped for Europe, they muſt be ſent back to the places from whence they came.

DACE, in ichthyology, a ſpecies of CYPRINUS.

This fiſh is extremely common in the rivers in Britain, and gives the expert angler great diverſion. The dace will bite at any fly; but he is more than ordinarily fond of the ſtone caddis, or May-fly, which is plentiful in the latter end of April and the whole month of May. Great quantities of theſe may be gathered among the reeds of ſedges by the water-ſide; and on the hawthorn buſhes near the waters. Theſe are a large and handſome bait; but as they laſt only a ſmall part of the year in ſeaſon, recourſe is to be had to the ant-fly. Of theſe the black ones found in large mole-hills or ant-hills are the beſt. Theſe may be kept alive a long time in a bottle, with a little of the earth of the hill, and ſome roots of graſs; and they are in ſeaſon throughout the months of June, July, Auguſt, and September. The beſt ſeaſon of all is when they ſwarm, which is in the end of July or beginning of Auguſt; and they may be kept many months in a veſſel waſhed out with a ſolution of honey in water, even longer than with the earth and graſs-roots in the vial; though that is the moſt convenient method with a ſmall parcel taken for one day's fiſhing. In warm weather this fiſh very ſeldom refuſes a fly at the top of the water; but at other times he muſt have the bait ſunk to within three inches of the bottom. The winter fiſhing for dace requires a very different bait: this is a white maggot with a reddiſh head, which is the produce of the eggs of the beetle, and is turned up with the plough in great abundance. A parcel of theſe put in any veſſel, with the earth they were taken in, will keep many months, and are an excellent bait. Small dace may be put into a glaſs jar with freſh water; and there preſerved alive for a long time, if the water is properly changed. They have been obſerved to eat nothing but the animalcula of the water. They will grow very tame by degrees.

DACHAW, a town of Bavaria in Germany. It is pretty large, well built, and ſeated on a mountain, near the river Amber. Here the elector has a palace and fine gardens. E. Long. 11. 30. N. Lat. 48. 20.

DACIA (anc. geog.), a country which Trajan, who reduced it to a province, joined to Mœſia by an admirable bridge. This country lies extended between the Danube and the Carpathian mountains, from the river Tibiſcus, quite to the north bend of the Danube; ſo as to extend thence in a direct line to the mouth of the Danube and to the Euxine; on the north-ſide next the Carpates, terminated by the river Hieraſus, now the Pruth; on the weſt by the Tibiſcus or Teiſs; compriſing a part of Upper Hungary, all Tranſylvania and Walachia, and a part of Moldavia. *Daci*, the people; a name which Strabo takes to be the ſame with the *Davi* of Comedies: neighbours, on the weſt, to the *Getae;* an appellation common alſo in Comedies. Joſephus mentions a ſet of religious men among the Daci, whom he calls *Pliſti*, and compares with the Eſſeni; of theſe Pliſti no other author makes any mention. *Dacicus*, the epithet; aſſumed by ſome emperors, (Juvenal.) There was a Dacia Aureliani, a part of Illyricum, which was divided into the eaſtern and weſtern; Sirmium being the capital of the latter, and Sardica of the former. But this belongs to the lower age.

DACIER, (Andrew), born at Caſtres in Upper Languedoc, 1651, had a great genius and inclination for learning, and ſtudied at Saumur under Tannegui le Fevre, then engaged in the inſtruction of his daughter, who proved afterwards an honour to her ſex. This gave riſe to that mutual tenderneſs which a marriage of 40 years could never weaken in them. The duke of Montauſier hearing of his merit, put him in the liſt of commentators for the uſe of the dauphin, and engaged him in an edition of Pompeius Feſtus, which he publiſhed in 1681. His edition of Horace printed at Paris in 10 vols in 12mo, and his other works, raiſed him a great reputation. He was made a member of the academy of inſcriptions in 1695. When the hiſtory of Louis XIV. by medals was finiſhed, he was choſen to preſent it to his majeſty; who being informed of the pains which he had taken in it, ſettled upon him a penſion of 2000 livres, and appointed him keeper of the books of the king's cloſet in the Louvre. When that poſt was united to that of library-keeper to the king, he was not only continued in the privileges of his place during life, but the ſurvivance was granted to his wife, a favour of which there had been no inſtance before. But the death of Madam Dacier in 1720, rendered this grant, which was ſo honourable to her, ineffectual. He died September 18. 1722, of an ulcer in the throat. In his manners, ſentiments, and the whole of his conduct, he was a complete model of that ancient philoſophy of which he was ſo great an admirer, and which he improved by the rules and principles of Chriſtianity.

DACIER (Anne), daughter of Tannegui le Fevre, profeſſor of Greek at Saumur in France. She early ſhowed a fine genius, which her father cultivated with great care and ſatisfaction. After her father's death ſhe went to Paris, whither her fame had already reached; ſhe was then preparing an edition of Callimachus, which ſhe publiſhed in 1674. Having ſhown ſome ſheets of it to Mr Huet, preceptor to the dauphin, and to ſeveral other men of learning at the court, the work was ſo highly admired, that the duke of Montauſier made a propoſal to her of publiſhing ſeveral Latin authors for the uſe of the dauphin. She rejected this propoſal at firſt, as a taſk to which ſhe was not equal. But the duke inſiſted upon it; ſo that at laſt he gained her conſent; upon which ſhe undertook an edition of Florus, publiſhed in 1674. Her reputation being now ſpread over all Europe, Chriſtina queen of Sweden ordered count Konigſmark to make her a compliment in her name: upon which Mademoiſelle le Fevre ſent the queen a Latin letter, with her edition of Florus: to which her majeſty wrote an obliging anſwer; and not long after ſent her another letter, to perſuade her to abandon the Proteſtant religion, and made her conſiderable offers to ſettle at her court. In 1683 ſhe married Mr Dacier; and ſoon after declared her deſign to the duke of Montauſier and the biſhop of Meaux of reconciling herſelf to the church of Rome, which ſhe had entertained for ſome time: but as Mr Dacier was not yet convinced of the reaſonableneſs of ſuch a change, they retired to Caſtres in 1684, where they had a ſmall eſtate, in order to examine the points of controverſy between the Proteſtants and the Roman Catholics. They at laſt determined in favour of the latter, and made their public abjuration in 1685. After this, the king gave both huſband and wife marks of his favour. In 1693, ſhe applied herſelf to the education of her ſon and daughter, who made a prodigious progreſs: the ſon died in 1694, and the daughter became a nun in the abbey of Longchamp. She had another daughter, who had united in her all the virtues and accompliſhments that could adorn the ſex; but ſhe died at 18. Her mother has immortalized her memory in the preface to her tranſlation of the Iliad. Madam Dacier was in a very infirm ſtate of health the two laſt years of her life: and died, after a very painful ſickneſs, Auguſt 27. 1720, aged 69. She was remarkable for her firmneſs, generoſity, equality of temper, and piety.

DACTYL, *dactylus*, a foot in the Latin and Greek poetry, conſiſting of a long ſyllable, followed by two ſhort ones: as *cārmĭnĕ*

Some ſay it is derived from δακτυλος, "a finger, becauſe it is divided into three joints, the firſt of which is longer than the other two.

The dactyl is ſaid to have been the invention of Dionyſius or Bacchus, who delivered oracles in this meaſure at Delphos, before Apollo. The Greeks call it πολιτικος. The dactyl and ſpondee are the moſt conſiderable of the poetical feet; as being the meaſures uſed in heroic verſe, by Homer, Virgil, &c. Theſe two are of equal time, but not equal motion. The ſpondee has an even, ſtrong, and ſteady pace, like a trot: the dactyl reſembles the nimbler ſtrokes of a gallop.

DACTYLUS was alſo a ſort of dance among the ancient Greeks, chiefly performed, Heſychius obſerves, by the athletæ.

DACTYLS alſo denote the fruit of the palm-tree, more uſually called *dates*.

DACTYLI IDÆI; the *Fingers of Mount Ida.* Concerning theſe, Pagan theology and fable give very different accounts. The Cretans paid divine worſhip to them, as thoſe who had nurſed and brought up the god Jupiter; whence it appears, that they were the ſame as the Corybantes and Curetes. Nevertheleſs Strabo makes them different; and ſays, that the tradition in Phrygia was, that "Curetes and Corybantes were deſcended from the Dactyli Idæi: that there were originally an hundred men in the iſland, who were called *Dactyli Idæi*; from whom ſprang nine Curetes, and each of theſe nine produced ten men, as many as the fingers of a man's two hands; and that this gave the name to the anceſtors of the Dactyli Idæi." He relates another opinion, which is, that there were but five Dactyli Idæi; who, according to Sophocles, were the inventors of iron: that theſe five brothers had five ſiſters, and that from this number they took the name of *fingers of mount Ida,* becauſe they were in number ten; and that they worked at the foot of this mountain. Diodorus Siculus reports the matter a little differently. He ſays "the firſt inhabitants of the iſland of Crete were the Dactyli Idæi, who had their reſidence on mount Ida: that ſome ſaid they were an hundred; others only five, in number equal to the fingers of a man's hand, whence they had the name of *Dactyli*: that they were magicians, and addicted to myſtical ceremonies: that Orpheus was their diſciple, and carried their myſteries into Greece: that the Dactyli invented the uſe of iron and fire, and that they had been recompenſed with divine honours."

Diomedes the Grammarian ſays, The Dactyli Idæi were prieſts of the goddeſs Cybele: called *Idæi*, becauſe that goddeſs was chiefly worſhipped on mount Ida in Phrygia; and *Dactyli*, becauſe that, to prevent Saturn from hearing the cries of infant Jupiter, whom Cybele had committed to their cuſtody, they uſed to ſing certain verſes of their own invention, in the Dactylic meaſure. See CURETES and CORYBANTES.

DACTYLIC, ſomething that has a relation to dactyls.

Anciently, there were dactylic as well as ſpondaic flutes, *tibiæ dactylicæ*. The dactylic flutes conſiſted of unequal intervals; as the dactylic foot does of unequal meaſures.

DACTYLIC Verſes are hexameter verſes, ending in a dactyl inſtead of a ſpondee; as ſpondaic verſes are thoſe which have a ſpondee in the fifth foot inſtead of a dactyl.

An inſtance of a dactylic verſe we have in Virgil:

Bis patriæ cecidere manus: quin protinus omnia
Per legerent oculis ——— Æn. vi. 33.

DACTYLIOMANCY, DACTYLIOMANTIA, a ſort of divination performed by means of a ring. The word is compoſed of the Greek δακτυλιος "ring," of δακτυλος "finger," and μαντεια "divination."

Dactyliomancy conſiſted principally in holding a ring, ſuſpended by a fine thread, over a round table, on the edge whereof were made divers marks with the twenty-four letters of the alphabet. The ring in ſhaking, or vibrating over the table, ſtopped over certain of the letters, which, being joined together, compoſed the anſwer required. But the operation was preceded and accompanied by ſeveral ſuperſtitious ceremonies; for firſt the ring was to be conſecrated with a great deal of myſtery: the perſon who held it was to be clad in linen garments to the very ſhoes; his head was to be ſhaved all round; and in his hand he was to hold vervain. And before he proceeded on any thing, the gods were firſt to be appeaſed by a formulary of prayers, &c. Ammianus Marcellinus gives the proceſs at large in his 29th book.

DACTYLIS, COCK'S-FOOT GRASS: A genus of the digynia order, belonging to the triandria claſs of plants; and in the natural method ranking under the 4th order, *Gramina*. The calyx is bivalved and compreſſed, and the one valve longer than the other, carinated, or having the rachis prominent and ſharp. There are two ſpecies, the cynoſuroides or ſmooth cock's-foot graſs, and the glomeratus or rough cock's-foot graſs. Both are natives of Britain: the firſt grows in marſhy places, and the latter is common in meadows and paſture-grounds. This laſt is eat by horſes, ſheep, and goats; but refuſed by cows.

DACTYLUS, in zoology, a name given by Pliny to the PHOLAS.

DADUCHI, in antiquity, prieſts of Ceres. That goddeſs having loſt her daughter Proſerpine, ſay mythologiſts, began to make ſearch for her at the beginning of the night. In order to do this in the dark, ſhe lighted a torch, and thus ſet forth on her travels throughout the world: for which reaſon it is that ſhe is always ſeen repreſented with a lighted torch in her hand. On this account, and in commemoration of this pretended exploit, it became a cuſtom for the prieſts, at the feaſts and ſacrifices of the goddeſs, to run about in the temple, with torches after this manner; one of them took a lighted torch from off the altar, and holding it with his hand, ran with it to a certain part of the temple, where he gave it to another, ſaying to him, *Tibi trado*: this ſecond ran after the like manner to another part of the temple, and gave it to the third, and ſo of the reſt. From this ceremony the prieſts became denominated *daduchi*, δαδουχοι *q. d.* "torch-bearers;" from δας, "an unctuous reſinous wood, as pine, fir, &c." whereof the ancients made torches; and εχω, "I have, I hold."— The Athenians alſo gave the name *deduchus* to the high-prieſt of Hercules.

DÆDALA, a mountain and city of Lycia, where Dædalus was buried, according to Pliny.—*Alſo* two feſtivals in Bœotia, ſo called; one of them, obſerved at Alalcomenes by the Platæans in a large grove, where they expoſed in the open air pieces of boiled fleſh, and carefully obſerved whether the crows that came to prey upon them directed their flight. All the trees upon which any of theſe birds alighted were immediately cut down, and with them ſtatues were made, called *Dædala,* in honour of Dædalus. The other feſtival was of a more ſolemn kind. It was celebrated every 60 years by all the cities of Bœotia, as a compenſation for the intermiſſion of the ſmaller feſtivals for that number of years, during the exile of the Platæans. Fourteen of the ſtatues called *Dædala* were diſtributed by lot among the Platæans, Lebadæans, Coroneans, Orchomenians, Theſpians, Thebans, Tanagræans, and Chæroneans, becauſe they had effected a reconciliation among the Platæans, and cauſed them to be recalled from exile about the time that Thebes was reſtored by Caſſander the ſon of Antipater. During this feſtival a woman in the habit of a bridemaid accompanied a ſtatue which was dreſſed in female garments, on the banks of the Eurotes. This proceſſion was attended to the top of mount Cithæron by many of the Bœotians, who had places aſſigned them by lot. Here an altar of ſquare pieces of wood cemented together like ſtones was erected, and upon it were thrown large quantities of combuſtible materials. Afterwards a bull was ſacrificed to Jupiter, and an ox or heifer to Juno, by every one of the cities of Bœotia, and by the moſt opulent that attended. The pooreſt citizens offered ſmall cattle; and all theſe oblations, together with the Dædala, were thrown into the common heap and ſet on fire, and totally reduced to aſhes. They originated in this: When Juno, after a quarrel with Jupiter, had retired to Eubœa, and refuſed to return to his bed, the god, anxious for her return, went to conſult Cithæron king of Platæa, to find ſome effectual meaſure to break her obſtinacy. Cithæron adviſed him to dreſs a ſtatue in woman's apparel, and carry it in a chariot, and publickly to report it was Platæa the daughter of Aſopus, whom he was going to marry. The advice was followed; and Juno, informed of her huſband's future marriage, repaired in haſte to meet the chariot, and was eaſily united to him, when ſhe diſcovered the artful meaſures he made uſe of to effect a reconciliation.

DÆDALUS, an Athenian, ſon of Eupalamus, deſcended from Erechtheus king of Athens. He was the moſt ingenious artiſt of his age; and to him we are indebted for the invention of the wedge, and many other mechanical inſtruments, and the ſails of ſhips. He made ſtatues which moved of themſelves, and ſeemed to be endowed with life. Talus his ſiſter's ſon promiſed to be as great as himſelf by the ingenuity of his inventions; and therefore from envy he threw him down from a window and killed him. After the murder of this youth, Dædalus, with his ſon Icarus, fled from Athens to Crete, where Minos king of the country gave him a cordial reception. Dædalus made a famous labyrinth for Minos, and aſſiſted Paſiphae the queen to gratify her unnatural paſſion for a bull. For this action Dædalus incurred the diſpleaſure of Minos, who ordered him to be confined in the labyrinth which he had conſtructed. Here he made himſelf wings with feathers and wax, and carefully fitted them to his body and that of his ſon, who was the companion of his confinement. They took their flight in the air from Crete; but the heat of the ſun melted the wax on the wings of Icarus, whoſe flight was too high, and he fell into that part of the ocean which from him has been called the *Icarian Sea.* The father by a proper management of his wings alighted at Cumæ, where he built a temple to Apollo, and thence directed his courſe to Sicily, where he was kindly received by Cocalus, who reigned over part of the country. He left many monuments of his ingenuity in Sicily, which ſtill exiſted in the age of Diodorus Siculus. He was diſpatched by Cocalus, who was afraid of the power of Minos, who had declared war againſt him becauſe he had given an aſylum to Dædalus. The flight of Dædalus from Crete with wings is explained by obſerving that he was the inventor of ſails, which in his age might paſs at a diſtance for wings. He lived 1400 years before the Chriſtian era. There were two ſtatuaries of the ſame name; one of Sicyon ſon of Patroclus; the other a native of Bithynia.

DÆMON Δάιμων, a name given by the ancients to certain ſpirits or genii, which they ſay appeared to men, either to do them ſervice or to hurt them.

The Greek word δαιμων is derived (according to Plato, in his Cratylus, p. 398. *ed. Serrani,* vol. i.) from δαημων, "knowing or intelligent;" but according to others from δαιομαι, "to diſtribute," (ſee the Scholiaſt on Homer, Il. i. ver. 222). Either of theſe derivations agrees with the office aſcribed to dæmons by the ancient heathens, as the ſpirit intruſted with the inſpection and government of mankind. For, according to the philoſophers, dæmons held a middle rank between the celeſtial gods and men on earth, and carried on all intercourſe between them; conveying the addreſſes of men to the gods, and the divine benefits to men. It was the opinion of many, that the celeſtial divinities did not themſelves interpoſe in human affairs, but committed the entire adminiſtration of the government of this lower world to theſe ſubaltern deities: *Neque enim pro majeſtate deum cœleſtium fuerit, hæc curare;* (Apuleius *de deo Socratis,* p. 677). *Cuncta cœleſtium voluntate, numine & authoritate, ſed dæmonum obſequio, & opera, & miniſterio fieri arbitrandum eſt; (Id.* p. 675.) Hence they became the objects of divine worſhip. "*If idols are nothing,*" ſays Celſus (*apud Origen con. Celſ.* lib. viii. p. 393.), "what harm can there be to join in the public feſtivals? If they are dæmons, then it is certain that they are gods, in whom we are to confide, and to whom we ſhould offer ſacrifices and prayers, to render them propitious."

Several of the heathen philoſophers held, that there were different kinds of dæmons; that ſome of them were ſpiritual ſubſtances of a more noble origin than the human race, and that others had once been men.

But thoſe dæmons who were the more immediate objects of the eſtabliſhed worſhip amongſt the ancient nations were human ſpirits, ſuch as were believed to become dæmons or deities after their departure from their bodies. Plutarch teaches (*Vit. Romul.* p. 36. *ed. Paris*) "that according to a divine nature and juſtice, the ſouls of virtuous men are advanced to the rank of dæmons; and that from dæmons, if they are properly purified, they are exalted into gods, not by any political inſtitutions, but according to right reaſon." The ſame author ſays in another place (*de Iſ. & Oſir.* p. 361.), "that Iſis and Oſiris were, for their virtue, changed from good dæmons into gods, as were Hercules and Bacchus afterwards, receiving the united honours both of gods and dæmons." Heſiod and other poets who have recorded the ancient hiſtory or traditions on which the public faith and worſhip were founded, aſſert, that the men of the golden age, who were ſuppoſed to be very good, became dæmons after death, and diſpenſers of good things to mankind.

Though *dæmon* is often uſed in a general ſenſe as equivalent to a *deity;* and is accordingly applied to *fate* or *fortune*, or whatever elſe was regard as a god: yet thoſe dæmons who were the more immediate objects of divine worſhip amongſt the heathens were human ſpirits; as is ſhown in Farmer on Miracles, chap. iii. ſect. 2.

The word *dæmon* is uſed indifferently in a good and in a bad ſenſe. In the former ſenſe, it was very commonly uſed among the ancient heathens. "We muſt not (ſays Menander) think any dæmon to be evil, hurtful to a good life, but every god to be good." Nevertheleſs, thoſe are certainly miſtaken who affirm, that *dæmon* never ſignifies an evil being till after the times of Chriſt. Pythagoras held dæmons who ſent diſeaſes to men and cattle (*Diogen. Laert. Vit. Pythagor.* p. 514. *ed. Amſtel.*) Zaleucus, in his preface to his Laws (*apud Stobæum*, Serm. 42.) ſuppoſes that an evil dæmon might be preſent with a man, to influence him to injudice. The dæmons of Empedocles were evil ſpirits, and exiles from heaven; (Plutarch, Περι τȣ μη δειν δανειζεσθαι). And in his life on Dion (p. 958) he ſays, "It was the opinion of the ancients, that evil and miſchievous dæmons, out of envy and hatred to good men, oppoſe whatever they do." Scarce did any opinion more generally prevail in ancient times than this, *viz.* that as the departed ſouls of good men became good dæmons, ſo the departed ſouls of bad men became evil dæmons.

It has been generally thought, that by *dæmons* we are to underſtand *devils*, in the Septuagint verſion of the Old Teſtament. Others think the word is in that verſion certainly applied to the ghoſts of ſuch dead men as the heathens deified, in Deut. xxxii. 17. Pſ. cvi. 37. That *dæmon* often bears the ſame meaning in the New Teſtament, and particularly in Acts xvii. 18. 1 Cor. x. 21. 1 Tim. iv. 1, Rev. ix. 13. is ſhown at large by Mr Joſeph Mede (Works, p. 623, *et ſeq.*). That the word is applied *always* to human ſpirits in the New Teſtament, Mr Farmer has attempted to ſhow in his Eſſay on Demoniacs p. 208. *et ſeq.* As to the meaning of the word *dæmon* in the fathers of the Chriſtian church, it is uſed by them in the ſame ſenſe as it was by the heathen philoſophers, eſpecially the latter Platoniſts; that is ſometimes for departed human ſpirits, and at other times for ſuch ſpirits as had never inhabited human bodies. In the fathers, indeed, the word is more commonly taken in an evil ſenſe, than in the ancient philoſophers. Beſides the two forementioned kinds of dæmons, the fathers, as well as the ancient philoſophers, held a third, *viz.* ſuch as ſprang from the congreſs of ſuperior beings with the daughters of men. In the theology of the fathers, theſe were the worſt kind of dæmons.

Different orders of dæmons had different ſtations and employments aſſigned them by the ancients. Good dæmons were conſidered as the authors of good to mankind; evil dæmons brought innumerable evils both upon men and beaſts. Amongſt evil dæmons there was a great diſtinction with reſpect to the offices aſſigned them; ſome compelled men to wickedneſs, others ſtimulated them to madneſs. See DEMONIAC.

Much has been ſaid concerning the dæmon of Socrates. He pretended to his friends and diſciples, and even declared to the world, that a friendly ſpirit, whom he called his *dæmon*, directed him how to act on every important occaſion in his life, and reſtrained him from imprudence of conduct.

In contemplating the character of this great philoſopher, while we admire him as the nobleſt pattern of virtue and moral wiſdom that appeared in the heathen world, we are naturally led to inquire, whether what he gave out concerning his dæmon were a trick of impoſture, or the reverie of a heated imagination, or a ſober and true account of a favour which heaven deſigned to confer on ſo extraordinary a man.

To aſcertain in this caſe the object of our inquiries, is by no means ſo eaſy as the ſuperficial thinker may be apt to imagine. When we conſider the dignity of ſentiment and ſimplicity of manners which Socrates diſplayed through the general tenor of his life, we cannot readily bring ourſelves to think that he could be capable of ſuch a trick of impoſture. Nothing of the wildneſs of an enthuſiaſt appears in his character; the modeſty of his pretenſions, and the reſpect which in his converſation and conduct he uniformly teſtified for the ordinary duties of ſocial life, ſufficiently prove that he was free from the influence of blind enthuſiaſm: we cannot infer, therefore, that, like the aſtronomer in Raſſelas, he was deceived with reſpect to his dæmon by an over-heated imagination. It is no leſs difficult to believe, that God would diſtinguiſh an heathen in ſo eminent a manner, and yet leave him uninſtructed in the principles of true religion. Surely, if ever ſcepticiſm be reaſonable, it muſt be in ſuch matters as the preſent.

Yet, if it be ſtill inſiſted, that ſome one of theſe three notions concerning the dæmon of Socrates muſt be more probable than the others; we would rather eſteem Socrates an enthuſiaſt in this inſtance, than degrade him to the baſe character of an impoſtor, or ſuppoſe that a ſpiritual being actually revealed himſelf to the philoſopher, and condeſcended to become his conſtant attendant and counſellor. People are often under the influence of an over-heated imagination with regard to ſome one thing, and cool and ſober as to every thing elſe.

1
Definition.

DÆMONIAC (from *dæmon*), a human being whoſe volition and other mental faculties are overpowered and reſtrained, and his body poſſeſſed and actuated, by ſome created ſpiritual being of ſuperior power.

2
Diſpute concerning dæmoniacs.

Such ſeems to be the determinate ſenſe of the word; but it is diſputed whether any of mankind ever were in this unfortunate condition.

It is generally agreed, that neither good nor evil ſpirits are known to exert ſuch authority at preſent over the human race: but in the ancient heathen world, and among the Jews, particularly in the days of our Saviour, evil ſpirits, at leaſt, are thought by many to have been more troubleſome.

3
Notions of the Greeks and Romans concerning poſſeſſions.

The Greeks and Romans imagined, that their deities, to reveal future events, frequently entered into the prophet or propheteſs who was conſulted, overpowered their faculties, and uttered reſponſes with their organs of ſpeech. Apollo was believed to enter into the Pythoneſs, and to dictate the prophetic anſwers received by thoſe who conſulted her. Other oracles beſides that of Delphi were ſuppoſed to unfold futurity by the ſame machinery. And in various other caſes, either malignant dæmons or benevolent deities were thought to enter into and to actuate human beings. The *Lymphatici*, the *Cerriti*, the *Larvati*, of the Romans, were all of this deſcription; and the Greeks, by the uſe of the word δαιμονιζομενοι, ſhow that they referred to this cauſe the origin of madneſs. Among the ancient heathens, therefore, it appears to have been a generally received opinion, that ſuperior beings entered occaſionally into men, overpowered the faculties of their minds, and actuated their bodily organs. They might imagine that this happened in inſtances in which the effects were owing to the operation of different cauſes; but an opinion ſo generally prevalent had ſurely ſome plauſible foundation.

4
Of the Jews.

The Jews too, if we may truſt the ſacred writings or Joſephus, appear to have believed in dæmoniacal poſſeſſion. The caſe of Saul may be recollected as one among many in which ſuperior created beings were believed by the Jews to exert in this manner their influence over human life. The general tenor of their hiſtory and language, and their doctrines concerning good and evil ſpirits, prove the opinion of dæmoniacal poſſeſſion to have been well known and generally received among them.

5
Of mankind in general in the days of our Saviour.

In the days of our Saviour, it would appear that dæmoniacal poſſeſſion was very frequent among the Jews and the neighbouring nations. Many were the evil ſpirits whom Jeſus is related in the goſpels to have ejected from patients that were brought unto him as poſſeſſed and tormented by thoſe malevolent dæmons. His apoſtles too, and the firſt Chriſtians, who were moſt active and ſucceſsful in the propagation of Chriſtianity, appear to have often exerted the miraculous powers with which they were endowed on ſimilar occaſions. The dæmons diſplayed a degree of knowledge and malevolence which ſufficiently diſtinguiſhed them from human beings: and the language in which the dæmoniacs are mentioned, and the actions and ſentiments aſcribed to them in the New Teſtament, ſhow that our Saviour and his apoſtles did not conſider the idea of dæmoniacal poſſeſſion as being merely a vulgar error concerning the origin of a diſeaſe or diſeaſes produced by natural cauſes.

6
Jeſus Chriſt and his apoſtles muſt have believed dæmoniacal poſſeſſion to be real.

The more enlightened cannot always avoid the uſe of metaphorical modes of expreſſion; which though founded upon error, yet have been ſo eſtabliſhed in language by the influence of cuſtom, that they cannot be ſuddenly diſmiſſed. When we read in the book of Joſhua, that the ſun on a certain occaſion ſtood ſtill, to allow that hero time to complete a victory; we eaſily find an excuſe for the conduct of the ſacred hiſtorian, in accommodating his narrative to the popular ideas of the Jews concerning the relative motions of the heavenly bodies. In all ſimilar inſtances, we do not complain much of the uſe of a ſingle phraſe, originally introduced by the prevalence of ſome groundleſs opinion, the falſity of which is well known to the writer.

But in deſcriptions of characters, in the narration of facts, and in the laying down of ſyſtems of doctrine, we require different rules to be obſerved. Should any perſon, in compliance with popular opinions, talk in ſerious language of the exiſtence, diſpoſitions, declarations, and actions of a race of beings whom he knew to be abſolutely fabulous, we ſurely could not praiſe him for candid integrity: we muſt ſuppoſe him to be either exulting in irony over the weak credulity of thoſe around him, or taking advantage of their weakneſs, with the diſhoneſty and the ſelfiſh views of an impoſtor. And if he himſelf ſhould pretend to any connection with this imaginary ſyſtem of beings; and ſhould claim, in conſequence of his connection with them, particular honours from his contemporaries; whatever might be the dignity of his character in all other reſpects, nobody could heſitate even for a moment to brand him as an impoſtor of the baſeſt character.

Preciſely in this light muſt we regard the conduct of our Saviour and his apoſtles, if the idea of dæmoniacal poſſeſſion were to be conſidered merely as a vulgar error. They talked and acted as if they believed that evil ſpirits had actually entered into thoſe who were brought to them as poſſeſſed with devils, and as if thoſe ſpirits were actually expelled by their authority out of the unhappy perſons whom they had poſſeſſed. They expected, they demanded too, to have their profeſſions and declarations believed, in conſequence of their performing ſuch mighty works, and to be honoured as having thus triumphed over the powers of hell. The reality of dæmoniacal poſſeſſion ſtands upon the ſame evidence with the goſpel ſyſtem in general.

7
Reaſonableneſs of this doctrine.

Neither is any thing abſurd or unreaſonable in this doctrine. It does not appear to contradict thoſe ideas which the general appearances of nature and the ſeries of events ſuggeſt concerning the benevolence and wiſdom of the Deity, and the counſels by which he regulates the affairs of the univerſe. We often fancy ourſelves able to comprehend things to which our underſtanding is wholly inadequate: we perſuade ourſelves, at times, that the whole extent of the works of the Deity muſt be well known to us, and that his deſigns muſt always be ſuch as we can fathom. We are then ready, whenever any difficulty ariſes to us, in conſidering the conduct of Providence, to model things according to our own ideas; to deny that the Diety can poſſibly be the author of things which we cannot reconcile; and to aſſert, that he muſt act on every occaſion in a manner conſiſtent with our narrow views. This is the pride of reaſon; and it ſeems to have ſuggeſted the ſtrongeſt objections that have been at any time urged againſt the reality of dæmoniacal poſſeſſion. But the Deity may ſurely connect one order of his creatures with another. We perceive mutual relations and a beautiful connection to prevail through all that part of nature which falls within the ſphere of our obſervation. The inferior animals are connected with mankind, and ſubjected to their authority, not only in inſtances in which it is exerted for their advantage, but even where it is tyrannically abuſed to their deſtruction. Among the evils to which mankind have been ſubjected, why might not their being liable to dæmoniacal poſſeſſion be one? While the Supreme Being retains the ſovereignty of the univerſe, he may employ whatever agents he thinks proper in the execution of his purpoſes: he may either commiſſion an angel or let looſe a devil; as well as bend the human will, or communicate any particular impulſe to matter.

All that revelation makes known, all that human reaſon can conjecture, concerning the exiſtence of various orders of ſpiritual beings, good and bad, is perfectly conſiſtent with, and even favourable to, the doctrine of dæmoniacal poſſeſſion. It was generally believed through the ancient heathen world; it was equally well known to the Jews, and equally reſpected by them; it is mentioned in the New Teſtament in ſuch language, and ſuch narratives are related concerning it, that the goſpels cannot well be regarded in any other light than as pieces of impoſture, and Jeſus Chriſt muſt be conſidered as a man who diſhoneſtly took advantage of the weakneſs and ignorance of his contemporaries, if this doctrine be nothing but a vulgar error; it teaches nothing inconſiſtent with the general conduct of Providence; it is not the caution of philoſophy, but the pride of reaſon, that ſuggeſts objections againſt this doctrine.

8
Arguments of the Antidæmonianiſts.

Thoſe, again, who are unwilling to allow that angels or devils have ever intermeddled ſo much with the concerns of human life, urge a number of ſpecious arguments in oppoſition to theſe.

9
The caſes in which the Greeks and Romans ſuppoſed dæmoniacal poſſeſſion, was only inſtances of madneſs, &c.

The Greeks and Romans of old, ſay they, did believe in the reality of dæmoniacal poſſeſſion. They ſuppoſed that ſpiritual beings did at times enter into the ſons or daughters of men, and diſtinguiſh themſelves in that ſituation by capricious freaks, deeds of wanton miſchief, or prophetic enunciations. But in the inſtances in which they ſuppoſed this to happen, it is evident that no ſuch thing took place. Their accounts of the ſtate and conduct of thoſe perſons whom they believed to be poſſeſſed in this ſupernatural manner, ſhow plainly that what they aſcribed to the influence of dæmons were merely the effects of natural diſeaſes. Whatever they relate concerning the *larvati*, the *cerriti*, and the *lymphatici*, ſhows that theſe were merely people diſordered in mind, in the ſame unfortunate ſituation with thoſe madmen and idiots and melancholy perſons whom we have among ourſelves. Feſtus deſcribes the *Larvati* as being *furioſi et mente moti*. Horace ſays,

> *Hellade percuſſâ, Marius cum præcipitat ſe,*
> *Cerritus fuit?*

Plato, in his *Simæus*, ſays, ȣδεις γαρ εννους εφαπτεται μαντικης ενθεουκ, αληθους. Lucian deſcribes dæmoniacs as lunatic, and as ſtaring with their eyes, foaming at the mouth, and being ſpeechleſs.

10
The ſame is true of the Dæmoniacs of the New Teſtament.

It appears ſtill more evidently, that all the perſons ſpoken of as poſſeſſed with devils in the New Teſtament, were either mad or epileptic, and preciſely in the ſame condition with the madmen and epileptics of modern times. The Jews, among other reproaches which they threw out againſt our Saviour, ſaid, *He hath a devil, and is mad; why hear ye him?* The expreſſions *he hath a devil*, and *is mad*, were certainly uſed on this occaſion as ſynonymous. With all their virulence, they would not ſurely aſcribe to him at once two things that were inconſiſtent and contradictory. Thoſe who thought more favourably of the character of Jeſus, aſſerted concerning his diſcourſes, in reply to his adverſaries, *Theſe are not the words of him that hath a dæmon*; meaning, no doubt, that he ſpoke in a more rational manner than a madman could be expected to ſpeak. The Jews appear to have aſcribed to the influence of dæmons, not only that ſpecies of madneſs in which the patient is *raving and furious*, but alſo *melancholy* madneſs. Of John, who ſecluded himſelf from intercourſe with the world, and was diſtinguiſhed for abſtinence and acts of mortification, they ſaid, *He hath a dæmon.* The youth, whoſe father applied to Jeſus to free him from an evil ſpirit, deſcribing his unhappy condition in theſe words, *Have mercy on my ſon, for he is lunatic and ſore vexed with a dæmon; for oft times he falleth into the fire, and oft into the water*, was plainly epileptic. Every thing indeed that is related in the New Teſtament concerning dæmoniacs, proves that they were people affected with ſuch natural diſeaſes as are far from being uncommon among mankind in the preſent age. When the ſymptoms of the diſorders cured by our Saviour and his apoſtles as caſes of dæmoniacal poſſeſſion, correſpond ſo exactly with thoſe of diſeaſes well known as natural in the preſent age, it would be abſurd to impute them to a ſupernatural cauſe. It is much more conſiſtent with common ſenſe and ſound philoſophy to ſuppoſe, that our Saviour and his apoſtles wiſely, and with that condeſcenſion to the weakneſs and prejudices of thoſe with whom they converſed, which ſo eminently diſtinguiſhed the character of the Author of our holy religion, and muſt always be a prominent feature in the character of the true Chriſtian, adopted the vulgar language in ſpeaking of thoſe unfortunate perſons who were groundleſsly imagined to be poſſeſſed with dæmons, though they well knew the notions which had given riſe to ſuch modes of expreſſion to be ill-founded, then to imagine that diſeaſes, which ariſe at preſent from natural cauſes, were produced in days of old by the intervention of dæmons, or that evil ſpirits ſtill continue to enter into mankind in all caſes of madneſs, melancholy or epilepſy.

Beſides, it is by no means a ſufficient reaſon for receiving any doctrine as true, that it has been generally received through the world. Error, like an epidemical diſeaſe, is communicated from one to another. In certain circumſtances, too, the influence of imagination predominates, and reſtrains the exertions of reaſon. Many falſe opinions have extended their influence through a very wide circle, and maintained it long. On every ſuch occaſion as the preſent, therefore, it becomes us to enquire, not ſo much how generally any opinion has been received, or how long it has prevailed, as from what cauſes it has originated, and on what evidence it reſts.

11
Inferences from the analogy of nature.

When we contemplate the frame of nature, we behold a grand and beautiful ſimplicity prevailing thro' the whole: Notwithſtanding its immenſe extent, and though it contains ſuch numberleſs diverſities of being; yet the ſimpleſt machine conſtructed by human art does not diſplay eaſier ſimplicity, or an happier connection of parts. We may therefore venture to draw an inference, by analogy, from what is obſervable of the order of nature in general to the preſent caſe. To permit evil ſpirits to intermeddle with the concerns of human life, would be to break through that order which the Deity appears to have eſtabliſhed through his works; it would be to introduce a degree of confuſion unworthy of the wiſdom of Divine Providence.

Such are the moſt rational arguments that have been urged on both ſides in this controverſy. Perhaps the dæmonianiſts have the ſtronger probabilities on their ſide; but we will not preſume to take upon ourſelves the office of arbitrators in the diſpute.

DÆMONIACS, in church-hiſtory, a branch of the Anabaptiſts; whoſe diſtinguiſhing tenet is, that the devils ſhall be ſaved at the end of the world.

DAFFODIL. See Narcissus.

DAGNO, a town of Turkey in Europe, in Albania, with a biſhop's ſee. It is the capital of the diſtrict of Ducagini, and is ſeated on the rivers Drino and Nero, near their confluence. It is 15 miles ſouth-eaſt of Scutari, and 15 north-eaſt of Aleſſio. E. Long. 19. 48. N. Lat. 42. 0.

DAGO, or Dagho, an iſland in the Baltic Sea, on the coaſt of Livonia, between the gulf of Finland and Riga. It is of a triangular figure, and may be about 20 miles in circumference. It has nothing conſiderable but two caſtles, called *Dagger-wort* and *Paden*. E. Long. 22 30. N. Lat. 58. 48.

DAGON, the falſe god of Aſhdod*, or, as the Greeks call it, *Azotus*. He is commonly repreſented as a monſter, half man and half fiſh; whence moſt learned men derive his name from the Hebrew *dag*, which ſignifies "a fiſh." Thoſe who make him to have been the inventor of *bread-corn*, derive his name from the Hebrew *Dagan*, which ſignifies *frumentum*; whence Philo Biblius calls him Ζευς Αρατρειος, *Jupiter Aratrius*.

This deity continued to have a temple at Aſhdod during all the ages of idolatry to the time of Maccabees: for the author of the firſt book of Maccabees tells us, that "Jonathan, one of the Maccabees, having beaten the army of Apollonius, Demetrius's general, they fled to Azotus, and entered into Bethdagon (the temple of their idol); but that Jonathan ſet fire to Azotus, and burnt the temple of Dagon and all thoſe who were fled into it."

Dagon, according to ſome, was the ſame with Jupiter, according to others Saturn, according to others Venus, and according to moſt Neptune.

DAHGESTAN, a country of Aſia, bounded by Circaſſia on the north, by the Caſpian Sea on the eaſt, by Chirvein a province of Perſia on the ſouth, and by Georgia on the weſt. Its chief towns are Tarku and Derbent, both ſituated on the Caſpian Sea.

DAHOME, a kingdom of Africa, on the coaſt of Guinea, to the north of Whidah, or Fida. The king of this country conquered Whidah, and very much diſturbed the ſlave-trade of the Europeans.

DAILLE (John), a Proteſtant miniſter near Paris, was one of the moſt learned divines of the 17th century, and was the moſt eſteemed by the Catholics of all the controverſial writers among the Proteſtants. He was tutor to two of the grandſons of the illuſtrious Mr Du Pleſſis Mornai. Mr Daille having lived 14 years with ſo excellent a maſter, travelled into Italy with his two pupils: one of them died abroad; with the other he ſaw Italy, Switzerland, Germany, Flanders, Holland, and England, and returned in 1621. He was received miniſter in 1623, and firſt exerciſed his office in the family of Mr Du Pleſſis Mornai; but this did not laſt long, for that lord died ſoon after. The memoirs of this great man employed Mr Daille the following year. In 1625 he was appointed miniſter of the church of Samur, and in 1626 removed to Paris. He ſpent all the reſt of his life in the ſervice of this laſt church, and compoſed ſeveral works. His firſt piece was his maſterpiece, and an excellent work, Of the Uſe of the Fathers, printed 1631. It is a ſtrong chain of reaſoning, which forms a moral demonſtration, againſt thoſe who would have religious diſputes decided by the authority of the fathers. He died in 1670, aged 77.

DAIRI, or Dairo, in the hiſtory of Japan, is the ſovereign pontiff of the Japaneſe; or, according to Kæmpfer, the hereditary eccleſiaſtical monarch of Japan. In effect, the empire of Japan is at preſent under two ſovereigns, *viz.* an eccleſiaſtical one called the *dairo*, and a ſecular one who bears the title of *kubo*. The laſt is the emperor, and the former the oracle of the religion of the country.

DAIRY, in rural affairs, a place appropriated for the management of milk, and the making of butter, cheeſe, &c. See Butter, Cheese, &c.

The dairy-houſe ſhould always be kept in the neateſt order, and ſo ſituated as that the windows or lattices never front the ſouth, ſouth-eaſt, or ſouth-weſt. Lattices are alſo to be preferred to windows, as they admit a more free circulation of the air than glazed lights poſſibly can do. It has been objected, that they admit cold air in winter and the ſun in ſummer; but the remedy is eaſily obtained, by making a frame the ſize of or ſomewhat larger than the lattice, and conſtructing it ſo as to ſlide backward and forward at pleaſure. Packthread ſtrained acroſs this frame, and oiled cap paper paſted thereon, will admit the light, and keep out the ſun and wind.

It is hardly poſſible in the ſummer to keep a dairy-houſe too cool; on which account none ſhould be ſituated far from a good ſpring or current of water. They ſhould be neatly paved either with red brick or ſmooth hard ſtone; and laid with a proper deſcent, ſo that no water may lodge. This pavement ſhould be well waſhed in the ſummer every day, and all the utenſils belonging to the dairy ſhould be kept perfectly clean. Nor ſhould we ever ſuffer the churns to be ſcalded in the dairy, as the ſteam that ariſes from hot water will injure the milk. Nor ſhould cheeſe be kept therein, nor rennet for making cheeſe, nor a cheeſe-preſs be fixed in a dairy, as the whey and curd will diffuſe their acidity throughout the room.

The proper receptacles for milk are earthen pans, or wooden vats or trundles; but none of theſe ſhould be lined with lead, as that mineral certainly contains a poiſonous quality, and may in ſome degree affect the milk: but if people are ſo obſtinate as to perſiſt in uſing them, they ſhould never forget to ſcald them, ſcrub them well with ſalt and water, and to dry them thoroughly, before they depoſite the milk therein. Indeed all the utenſils ſhould be cleaned in like manner before they are uſed; and if after this they in the leaſt degree ſmell ſour, they muſt undergo a ſecond ſcrubbing before they are fit for uſe.

DAKIR, in Engliſh ſtatutes, is uſed for the twentieth part of a laſt of hides. According to the ſtatute of

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* See 1 *Sam.* Chap. V.

51 Hen. III. *De compoſitione ponderum & menſurarum*, a laſt of hides conſiſts of twenty dakirs, and every dakir of ten hides. But by 1 Jac. cap. 33. one laſt of hides or ſkins is twelve dozen. See DICKER.

DAIS, in botany: A genus of the monogynia order, belonging to the decandria claſs of plants, and in the natural method ranking under the 31ſt order, *Vepreculæ*. The involucrum is tetraphyllous; the corolla quadrifid or quinquefid; the fruit a monoſpermous berry.

DAISY. See BELLIS.

DALACA, an iſland of the Red Sea, over-againſt the coaſt of Abex, about 72 miles in length and 15 in breadth. It is very fertile, populous, and remarkable for a pearl fiſhery. The inhabitants are negroes, and great enemies to the Mahometans. There is a town of the ſame name ſeated over-againſt Abaſſia.

DALBERGIA, in botany; a genus of the octandria order, belonging to the diadelphia claſs of plants. There are two filaments or ſtamina quadrifid at top. The fruit is pedicellated, not gaping, leguminous, membrano-compreſſed, and bearing ſeeds.

DALEA, a province of Sweden, bounded on the north by Dalecarlia, on the eaſt by the Wermeland and the lake of Wener, on the ſouth by Gothland, and on the north by Norway and the ſea.

DALEBURG, a town of Sweden, and capital of the province of Dalia, ſeated on the weſtern bank of the lake Wener, 50 miles north of Gottenburg. E. Long. 13. 0. N. 59. 0.

DALECARLIA, a province of Sweden, ſo called from a river of the ſame name, on which it lies, near Norway. It is divided into three parts, which they call *valleys*; and is about 175 miles in length and 100 in breadth. It is full of mountains, which abound in mines of copper and iron, ſome of which are of a prodigious depth. The towns are very ſmall, and Idra is the capital. The inhabitants are rough, robuſt, and warlike; and all the great revolutions in Sweden had their riſe in this province. The river riſes in the Dofrine mountains; and, running ſouth-eaſt thro' the province, falls into the gulph of Bothnia.

DALECHAMP (James), a phyſician in Normandy, in the 16th century, wrote a Hiſtory of Plants, and was well ſkilled in polite learning. He wrote notes on Pliny's Natural Hiſtory, and tranſlated Athenæus into Latin. He practiſed phyſic at Lyons from 1552 to 1558, when he died, aged 75.

DALECHAMPIA, in botany: A genus of the adelphia order, belonging to the monœcia claſs of plants; and in the natural method ranking under the 38th order, *Tricoccæ*. The involucrum of the male is common and quadripartite; the calyces hexaphyllous; corolla none; the nectarium laminated or ſcaly; the ſtamina monodelphous or coalited at the baſe, and polyandrous or numerous. The female involucrum is common and triphyllous; corolla none; ſtyle one; the capſule tricoccous.—There is but one ſpecies, *viz*. the ſcandens, a native of Jamaica. It is a climbing plant, which riſes to a conſiderable height; and is remarkable for nothing but having its leaves armed with briſtly hairs, which ſting the hands of thoſe who unwarily touch them.

DALEM, a town of the United Provinces, and capital of a diſtrict of the ſame name. It was taken by the French in 1672, who demoliſhed the fortifications. It is ſeated on the river Bervine, five miles north-eaſt of Liege. E. Long. 5. 59. N. Lat. 50. 40.

D'ALEMBERT. See ALEMBERT.

DALEN (Cornelius Van), an eminent engraver, who flouriſhed about the year 1640. He was a native of Holland; but under what maſter he learned the art of engraving, is uncertain. It is difficult to form a proper judgment of his merit; for ſometimes his prints reſemble thoſe of Cornelius Viſcher, of Lucas Voſterman, of P. Pontius, of Bolſwert, and other maſters. A ſet of antique ſtatues, engraved by him, are in a bold, free ſtyle, as if founded upon that of Goltzius; others, again, ſeem imitations of that of Francis Poilly. In all theſe different manners he has ſucceeded; and they plainly manifeſt the great command he had with his graver, for he worked with that inſtrument only. He engraved a great variety of portraits, ſome of which are very valuable, and form the beſt as well as the larger part of his works.

DALKEITH, a town of Scotland, in Mid-Lothian, ſix miles ſouth-eaſt of Edinburgh; W. Long. 2. 20. N. Lat. 55. 50. It is the principal reſidence of the Duke of Buccleugh, who has here a noble houſe and extenſive parks. In this houſe, which at the time was the head-quarters of General Monk, the reſtoration of Charles II. was planned.—The Duke's eldeſt ſon has the title of Earl of Dalkeith. Here is a conſiderable market weekly on Thurſdays, which ſupplies in part both Edinburgh and Glaſgow.

DALMATIA, a province of Europe, bounded on the north by Boſnia, on the ſouth by the gulph of Venice, on the eaſt by Servia, and on the weſt by Morlachia. Spalatro is the capital of that part belonging to the Venetians; and Raguza, of a republic of that name; the Turks have a third, whoſe capital is Herzegovina. The air is wholeſome, and the ſoil fruitful; and it abounds in wine, corn, and oil.

DALTON, a town of Lancaſhire, in England. It is ſeated on the ſpring-head of a river, in a champaign country, not far from the ſea; and the ancient caſtle is made uſe of to keep the records, and priſoners for debt in the liberty of Furnes. W. Long. 3. 0. N. Lat. 54. 18.

DALTON (John), D.D. an eminent divine and poet, was the ſon of the Rev. Mr John Dalton rector of Dean near Whitehaven in Cumberland, where he was born in 1709. He was educated at Queen's College, Oxford; and became tutor or governor to the Lord Beauchamp, only ſon of the Earl of Hertford, late Duke of Somerſet; during which time he adapted Milton's admirable Maſk of Comus to the ſtage, by a judicious inſertion of ſeveral ſongs and different paſſages ſelected from other of Milton's works, as well as of ſeveral ſongs and other elegant additions of his own, ſuited to the characters and to the manner of the original author. During the run of this piece he induſtriouſly ſought out a grand-daughter of Milton's, oppreſſed both by age and poverty; and procured her a benefit from it, the profits of which amounted to a very conſiderable ſun. He was promoted by the king to a prebend of Worceſter; where he died on the 22d of July 1763. Beſides the above, he wrote a deſcriptive poem, addreſſed to two ladies at their return from viewing the coal-mines near Whitehaven; and Remarks on 12 hiſtorical deſigns of Raphael, and the *Muſeum Græcum & Egyptiacum*.

DAM, a boundary or confinement, as to *dam* up or *dam* out. *Infra damnum ſuum*, within the bounds or limits of his own property or juriſdiction.

DAMA, in zoology. See CERVUS.

DAMAGE, in law, is generally underſtood of a hurt or hindrance attending a perſon's eſtate: but, in common law, it is part of what the jurors are to inquire of in giving verdict for the plaintiff or defendant in a civil action, whether real or perſonal; for after giving verdict on the principal cauſe, they are likewiſe aſked their conſciences touching coſts and damages, which contain the hindrances that one party hath ſuffered from the wrong done him by the other. See COSTS.

DAMAN, a maritime town of the Eaſt Indies, at the entrance into the gulph of Cambay. It is divided by the river Daman into two parts; one of which is called *New Daman*, and is a handſome town, well fortified, and defended by a good Portugueſe garriſon. The other is called *Old Daman*, and is very ill built. There is a harbour between the two towns, defended by a fort. It was taken by the Portugueſe in 1535. The Mogul has attempted to get poſſeſſion of it ſeveral times, but always without effect. E. Long. 72. 35. N. Lat. 21. 5.

DAMASCENUS (John), an illuſtrious father of the church in the 8th century, born at Damaſcus, where his father, though a Chriſtian, enjoyed the office of counſellor of ſtate to the Saracen caliph; to which the ſon ſucceeded. He retired afterwards to the monaſtery of St Sabas, and ſpent the remainder of his life in writing books of divinity. His works have been often printed: but the Paris edition in 1712, 2 vols folio, is eſteemed the beſt.

DAMASCIUS, a celebrated heathen philoſopher, born at Damaſcus in the year 540, when the Goths reigned in Italy. He wrote the life of his maſter Iſidorus; and dedicated it to Theodora, a very learned and philoſophical lady, who had alſo been a pupil to Iſidorus. In this life, which was copiouſly written, he frequently made oblique attacks on the Chriſtian religion. We have nothing remaining of it but ſome extracts preſerved by Photius. Damaſcius ſucceeded Theon in the rhetorical ſchool, and Iſidorus in that of philoſophy, at Athens.

DAMASCUS, a very ancient city of Syria in Aſia, ſeated in E. Long. 47. 18. N. Lat. 35. 0. Some of the ancients ſuppoſe this city to have been built by one Damaſcus, from whom it took its name; but the moſt generally received opinion is, that it was founded by Uz the eldeſt ſon of Aram. It is certain, from *Gen.* xiv. 5. that it was in being in Abraham's time, and conſequently may be looked upon as one of the moſt ancient cities in the world. In the time of king David it ſeems to have been a very conſiderable place; as the ſacred hiſtorian tells us, that the Syrians of Damaſcus ſent 20,000 men to the relief of Hadadezer king of Zobah. We are not informed whether at that time it was governed by kings, or was a republic. Afterwards, however, it became a monarchy which proved very troubleſome to the kingdom of Iſrael, and would even have deſtroyed it entirely, had not the Deity miraculouſly interpoſed in its behalf. At laſt this monarchy was deſtroyed by Tiglath Pileſer king of Aſſyria, and Damaſcus was never afterwards governed by its own kings. From the Aſſyrians and Babylonians it paſſed to the Perſians, and from them to the Greeks under Alexander the Great. After his death he belonged, with the reſt of Syria, to the Seleucidæ; till their empire was ſubdued by the Romans about 70 years before Chriſt. From them it was taken by the Saracens in 633; and it is now in the hands of the Turks.—Notwithſtanding the tyranny of the Turkiſh government, Damaſcus is ſtill a conſiderable place. It is ſituated in a plain of ſo great extent, that one can but juſt diſcern the mountains which compaſs it on the other ſide. It ſtands on the weſt ſide of the plain, about two miles from the head of the river Barrady, which waters it. It is of a long, ſtrait figure, extending about two miles in length, adorned with moſques and ſteeples, and encompaſſed with gardens computed to be full 30 miles round. The river Barrady, as ſoon as it iſſues from the clefts of the Antilibanus into the plain, is divided into three ſtreams, whereof the middlemoſt and biggeſt runs directly to Damaſcus, and is diſtributed to all the ciſterns and fountains of the city. The other two ſeemed to be artificial; and are drawn round, one to the right, and the other to the left, on the borders of the gardens, into which they are let by little currents, and diſperſed every where. The houſes of the city, whoſe ſtreets are very narrow, are all built on the outſide either with ſun-burnt brick, or Flemiſh wall: and yet it is no uncommon thing to ſee the gates and doors adorned with marble portals, carved, and inlaid with great beauty and variety; and within theſe portals to find large ſquare courts beautified with fragrant trees and marble fountains, and compaſſed round with ſplendid apartments. In theſe apartments the ceilings are uſually richly painted and gilded; and their duans, which are a ſort of low ſtages ſeated in the pleaſanteſt part of the room, and elevated about 16 or 18 inches above the floor, whereon the Turks eat, ſleep, ſay their prayers, &c. are floored, and adorned on the ſides with variety of marble mixed in moſaic knots and mazes, ſpread with carpets, and furniſhed all round with bolſters and cuſhions, to the very height of luxury. In this city are ſhown the church of John the Baptiſt, now converted into a famous moſque; the houſe of Ananias, which is only a ſmall grotto or cellar wherein is nothing remarkable; and the houſe of Judas with whom Paul lodged. In this laſt is an old tomb, ſuppoſed to be that of Ananias; which the Turks hold in ſuch veneration, that they keep a lamp continually burning over it. There is a caſtle belonging to Damaſcus, which is like a little town, having its own ſtreets and houſes; and in this caſtle a magazine of the famous Damaſcus ſteel was formerly kept. The fruit-tree called the *damaſcene*, and the flower called the *damaſk roſe*, were tranſplanted from the gardens belonging to this city; and the ſilks and linens known by the name of *damaſks*, were probably invented by the inhabitants.

Damascus-ſteel. See DAMASK.

DAMASIA (anc. geog.), a town of Vindelicia on the Licus. Afterwards called *Auguſta.* Now *Augsburg* in Suabia, on the Lech. E. Long. 10. 50. N. Lat. 48. 20.

DAMASK, a ſort of ſilken ſtuff, having ſome parts raiſed above the ground, repreſenting flowers or other figures. Damaſk ſhould be of dreſſed ſilks, both in warp and woof. It has its name from its being originally brought from Damaſcus in Syria.

There is alſo a ſtuff in France called the *caffart damaſk*, made in imitation of the true damaſk, having woof of hair, coarſe ſilk, thread, wool, or cotton. Some have the warp of ſilk and the woof of thread; others are all thread or all wool.

DAMASK is alſo a kind of wrought linen, made in Flanders, ſo called, becauſe its large flowers reſemble thoſe of damaſks. It is chiefly uſed for tables; a table-cloth and a dozen of napkins are called a *damaſk-ſervice*.

DAMASK is alſo applied to a very fine ſteel, in ſome parts of the Levant, chiefly at Damaſcus in Syria; whence its name. It is uſed for ſword and cutlaſs blades, and is finely tempered.

DAMASKEENING, or DAMASKING, the art or operation of beautifying iron, ſteel, &c. by making inciſions therein, and filling them up with gold or ſilver wire; chiefly uſed for adorning ſword-blades, guards, and gripes, locks of piſtols, &c.

Damaſkeening partakes of the moſaic, of engraving, and of carving: like the moſaic, it has inlaid work; like engraving, it cuts the metal, repreſenting divers figures; and, as in chaſing, gold and ſilver is wrought in relievo. There are two ways of damaſking; the one, which is the fineſt, is when the metal is cut deep with proper inſtruments, and inlaid with gold and ſilver wire: the other is ſuperficial only.

DAMELOPRE, a kind of bilander, uſed in Holland for conveying merchandiſe from one canal to another; being very commodious for paſſing under the bridges.

DAMIANISTS, in church-hiſtory, a branch of the ancient acephali-ſeveritæ. They agreed with the catholics in admitting the VIth council, but diſowned any diſtinction of perſons in the Godhead; and profeſſed one ſingle nature, incapable of any difference: yet they called God "the Father, Son, and Holy Ghoſt."

DAMIETTA, a port-town of Egypt, ſituated on the eaſtern mouth of the river Nile, four miles from the ſea, and 100 miles north of Grand Cairo. E. Long. 32. and N. Lat. 31. The preſent town ſtands upon a different ſite from the ancient Damietta ſo repeatedly attacked by the European princes. The latter, according to Abulfeda, was a "town ſurrounded by walls, and ſituated at the mouth of the eaſtern branch of the Nile." Stephen of Byzantium inform us, that it was called *Thamiatis* under the government of the Greeks of the lower empire, but that it was then very inconſiderable. It increaſed in importance every day, in proportion as Peluſium, which was frequently plundered, loſt its power. The total ruin of that ancient town occaſioned the commerce of the eaſtern parts of the Delta to be transferred to Damietta. It was, however, no longer a place of ſtrength, when, towards the year 238 of the Hegira, the emperors of Conſtantinople took poſſeſſion of it a ſecond time. The importance of a harbour ſo favourably ſituated opened the eyes of the caliphs. In the year 244 of the Hegira, Elmetouakkel ſurrounded it with ſtrong walls. This obſtacle did not prevent Roger king of Sicily from taking it from the Mahometans in the year 550 of the Hegira. He did not, however, long enjoy his conqueſt. Salah Eddin, who about that period mounted the throne of Egypt, expelled the Europeans from Damietta. Fifteen years after they returned to beſiege it; but this able ſultan baffled all their efforts. Notwithſtanding their land army was ſupported by a fleet of 1200 ſail, they were obliged to make a diſgraceful retreat.

It was the fate of this place to be conſtantly beſieged. In the year 615 of the Hegira, under the reign of Eladel, the cruſaders attacked it with a very conſiderable force. They landed on the weſtern ſhore of the Nile; and their firſt care was to ſurround their camp with a ditch and palliſado. The mouth of the river was defended by two towers, furniſhed with numerous garriſons. An enormous iron chain, ſtretching from one ſide to the other, hindered the approach of veſſels. The cruſaders carried by ſtorm the tower on the ſame ſide with their camp, broke the chain, and opened the entrance of the river for their fleet. Nejm Eddin, the ſultan's ſon, who was encamped near Damietta, covered it with an army. To ſtop the enemies veſſels he threw a bridge over the Nile. The Franks overturned it, and the prince adopted the meaſure of choking up the mouth of the river, which he almoſt rendered impaſſable by ſeveral large boats he ſunk there. After alternate and various ſucceſſes, many bloody battles, and a ſiege of 17 months, the Chriſtian princes took Damietta by ſtorm. They did not, however, long enjoy the fruit of ſo much blood ſpilt, and of an armament which had coſt immenſe ſums. Completely inveſted near the canal of Achmoun, by the waters of the Nile and by the Egyptian army, they purchaſed their lives and their liberty by the ſacrifice of their conqueſt.

One-and-thirty years after this defeat St Louis carried Damietta without ſtriking a ſtroke. The Arabs, however, ſoon recovered it; but tired of keeping a place which continually drew upon them the moſt warlike nations of Europe, they totally deſtroyed it, and rebuilt it further up in the country. This modern Damietta, firſt called *Menchié*, as Abulfeda tells us, has preſerved the memory of its origin in a ſquare ſtill called by that name. Writers in general have confounded theſe two towns, aſcribing to the one the attributes of the other. The modern Damietta is rounded in a ſemicircle on the eaſtern bank of the Nile, two leagues and a half from the mouth of it. The eye, placed at one of the extremities of the creſcent, takes in its whole extent. It is reckoned to contain 80,000 ſouls. It has ſeveral ſquares, the moſt conſiderable of which has retained the name of *Menchié*. The bazars are filled with merchants. Spacious *okals*, or *khans*, collecting under their porticos the ſtuffs of India, the ſilks of mount Lebanon, ſal ammoniac, and pyramids of rice, proclaim that it is a commercial town. The houſes, thoſe in particular which are on the banks of the river, are very lofty. They have in general handſome ſaloons built on the top of their terraces, which are cheerful belvideres, open to every wind, where the Turk, effeminately reclining on a ſopha, paſſes his life in ſmoking, in looking on the ſea, which bounds the horizon on one ſide, on the great lake that extends itſelf on the other, and on the Nile, which running between them, traverſes a rich country. Several large moſques, adorned with lofty minarets, are diſperſed over the town. The public baths, lined with marble, are diſtributed in the ſame manner as thoſe of Grand Cairo. The linen you are ſerved with is clean, and the water very pure. The heat and the treatment in them, ſo far from injuring the health, ſerve to ſtrengthen, nay even to improve it, if uſed with moderation. This cuſtom, founded on experience, is general in Egypt.

The port of Damietta is continually filled with a multitude of boats and ſmall veſſels. Thoſe called *Scherm* ſerve to convey the merchandize on board the ſhips in the road, and to unload them; the others carry on the coaſting trade. This town carries on a great trade with Syria, with Cyprus, and Marſeilles. The rice called *Mezelaoui*, of the fineſt quality there is in Egypt, is cultivated in the neighbouring plains. The exports of it amount annually to about ſix millions of livres. The other articles of the produce of the country are linens, ſal-ammoniac, corn, &c. A ruinous policy for the country prohibits the exportation of this laſt article; but the law is evaded, and it paſſes under the name of rice.

The Chriſtians of Aleppo and Damaſcus, ſettled in this town, have for ſeveral ages carried on its principal commerce. Turkiſh indolence, content with extorting from them from time to time, ſuffers them to become rich. The exportation of rice to foreign countries is prohibited; but by means of ſome *douceurs* to the cuſtomhouſe officers, the people of Provence load annually ſeveral ſhips with it. The *Bogaz* preventing them from entering the Nile, their cargoes are conveyed on board by the boats of the country. This inconvenience is the ſource of endleſs vexation and abuſes. The boat, which is loaded in the evening with rice of the firſt quality, is frequently not that which arrives at the ſhip; an inferior quality is ſubſtituted for it during the night. The Marſeilles captains, aware of theſe rogueries, without being able to prevent them, endeavour to play off trick againſt trick, ſo that this commerce has become a general ſcene of knavery. But the badneſs of the port is ſtill more detrimental to Damietta. The road where the veſſels lie being expoſed to every wind, the ſlighteſt gale obliges the captains to cut their cables and take ſhelter at Cyprus, or to ſtand off to ſea. It would be eaſy, by cutting a canal only of half a league, to open a paſſage for ſhips into the Nile, where there is deep water. This work, which might be executed at very little expence, would render Damietta a noble harbour; but deſpotiſm, inſenſible to the intereſt of the people, is always ſurrounded by deſtruction in its progreſs, and wants both the will and the power to create.

The tongue of land on which Damietta is ſituated, ſtraitened on one ſide by the river, and on the other by the weſtern extremity of lake *Menzalé*, is only from two to ſix miles wide from eaſt to weſt. It is interſected by innumerable rivulets in every direction, which render it the moſt fertile ſpot in Egypt. The ſoil there produces, *communibus annis*, 80 buſhels of rice for one. The other produce is in the ſame proportion. It is there that nature, laviſhing profuſely her pomp and riches, preſents flowers, fruits, and harveſts, at every ſeaſon of the year. Winter never deprives it of theſe advantages; its beauties are never impared by ſummer. Deſtructive heats, as well as chilling colds, are equally unknown in that happy ſpot. The thermometer varies only from 9 to 24 degrees above the freezing point. Damietta is indebted for this charming temperature to the immenſe quantity of water with which it is ſurrounded. The verdure is no where ſo freſh; the trees are no where covered with ſuch quantities of fruit. The rivulets around the fields of rice are lined with ſeveral kinds of reeds, ſome of which riſe to a great height. The reed *calamus* is here found in abundance, which is made uſe of for writing by the orientals. Its ſlender ſtalk bears long narrow leaves, which hang gracefully, and ſpreading branches covered with white flowers. Here alſo are to be ſeen foreſts of papyrus, of which the ancient Egyptians made their paper. Strabo, who calls it *Biblus*, gives an accurate deſcription of it. It is here alſo that the *Lotus*, of which the Arabs have preſerved the primitive name of *Nuphar*, exalts its lofty ſtalk above the waters. Its large calyx blows either of an azure blue or of a brilliant white, and it appears with the majeſty of the king of the aquatic plants. The marſhes and the canals in the interior parts of country are filled with this ſuperb flower, which diffuſes a moſt agreeable odour.

There are a great many villages around Damietta, in moſt of which are manufactures where the moſt beautiful linens of the country are fabricated. The fineſt napkins in particular are made there, fringed with ſilk. You are ſerved at table with them, but eſpecially on ceremonial viſits, when the ſlave preſents you with one to wipe your mouth with, after you have drank your ſherbet, or eat the ſweetmeats, which are carried round on a ſilver plate to all the company. Theſe ſmall towns, generally ſurrounded with little woods, or trees promiſcuouſly planted, form a whimſical and pictureſque aſſemblage. By the ſide of the ſycamore and the melancholy tamarind, one ſees the elegant caſſia tree, with its cluſters of yellow flowers, like thoſe of the cytiſus. The top of the date-tree, loaded with enormous bunches, riſes above the grove. The caſſia, with its ſweet-ſcented flower, grows under its ſhade. The orange and lemon trees cover the labourer's cabin with their golden fruit. The banana-tree with its long leaves, the pomegranate with its ſcarlet flower, and the fig-tree with its ſugary fruit, throw a vaſt variety into theſe landſcapes.

DAMNII, anciently a people of Britain: ſituated between the Selgovæ to the ſouth and the Caledonii to the north. Now *Clydeſdale*.

DAMNONII. See DANMONII.

DAMOCLES, one of the flatterers of Dionyſius the Elder of Sicily. He admired the tyrant's wealth, and pronounced him the happieſt man on earth. Dionyſius prevailed upon him to undertake for a while the charge of royalty, and be convinced of the happineſs which a ſovereign enjoyed. Damocles aſcended the throne, and while he gazed upon the wealth and ſplendor that ſurrounded him, he perceived a ſword hanging

ing over his head by a horſe hair. This ſo terrified him that all his imaginary felicity vaniſhed at once, and he begged Dionyſius to remove him from a ſituation which expoſed his life to ſuch fears and dangers.

DAMON, the name of ſeveral illuſtrious ancients; particularly of a Pythagorean philoſopher very intimate with Pythias. When he had been condemned to death by Dionyſius, he obtained from the tyrant leave to go and ſettle his domeſtic affairs, on promiſe of returning at a ſtated hour to the place of execution. Pythias pledged himſelf to undergo the puniſhment which was to be inflicted on Damon, ſhould he not return in time, and he conſequently delivered himſelf into the hands of the tyrant. Damon returned at the appointed moment, and Dionyſius was ſo ſtruck with the fidelity of thoſe two friends, that he remitted the puniſhment, and intreated them to permit him to ſhare their friendſhip and enjoy their confidence.

DAMPIER (William), a famous navigator, deſcended from a good family in Somerſetſhire in England, was born in 1652. Loſing his father when very young, he was ſent to the ſea, where he ſoon diſtinguiſhed himſelf, particularly in the South Sea. His voyage round the world is well known, and has gone through many editions. He appears afterward to have engaged in an expedition concerted by the merchants of Briſtol to the South Sea, commanded by Captain Woods Rogers; who ſailed in Auguſt 1708, and returned in September 1711: but we have no further particulars of his life or death.

DAMPS, in natural hiſtory (from the Saxon word *damp*, ſignifying vapour or exhalation), are certain noxious exhalations iſſuing from ſome parts of the earth, and which prove almoſt inſtantly fatal to thoſe who breathe them.

Theſe damps are chiefly obſerved in mines and coal-pits: though vapours of the ſame kind often iſſue from old lavas of burning mountains; and, in thoſe countries where volcanoes are common, will frequently enter houſes, and kill people ſuddenly without the leaſt warning of their approach. In mines and coal-pits they are chiefly of two kinds, called by the miners and colliers the *choke* and *fire-damps*; and both go under one general name of *foul airs*. The *choke-damp* is very much of the nature of fixed air; and uſually infeſts thoſe places which have been formerly worked, but long neglected, and are known to the miners by the name of *waſtes*. No place, however, can be reckoned ſafe from this kind of damps, except where there is a due circulation of air; and the procuring of this is the only proper means of preventing accidents from damps of all kinds. The choke-damp ſuffocates the miners ſuddenly, with all the appearances found in thoſe that are ſuffocated by fixed air. Being heavy, it deſcends towards the loweſt parts of the workings, and thus is dangerous to the miners, who can ſcarce avoid breathing it. The *fire-damp*, which ſeems chiefly to be compoſed of inflammable air, riſes to the roof of the workings, as being ſpecifically lighter than the common atmoſphere; and hence, though it will ſuffocate as well as the other, it ſeldom proves ſo dangerous in this way as by its inflammable property, by which it often takes fire at the candles, and explodes with extreme violence.

In the Phil. Tranſ. n° 119. there is an account of ſome exploſions by damps of this kind, on which we have the following obſervations. 1. Thoſe who are in the place where the vapour is fired, ſuddenly find themſelves ſurrounded with flames, but hear little or no noiſe; though thoſe who are in places adjacent, or above ground, hear a very great one. 2. Thoſe who are ſurrounded by the inflamed vapour feel themſelves ſcorched or burnt, but are not moved out of their places, though ſuch as unhappily ſtand in the way of it are commonly killed by the violence of the ſhock, and often thrown with great force out at the mouth of the pit; nor are the heavieſt machines found able to reſiſt the impetuoſity of the blaſt. 3. No ſmell is perceived before the fire, but a very ſtrong one of brimſtone is afterwards felt. 4. The vapour lies towards the roof, and is not perceived if the candles are held low; but when theſe are held higher, the damp deſcends like a black miſt, and catches hold of the flame, lengthening it to two or three handfuls; and this appearance ceaſes when the candles are held nearer the ground. 5. The flame continues in the vault for ſeveral minutes after the crack. 6. Its colour is blue, ſomething inclining to green, and very bright. 7. On the exploſion of the vapour, a dark ſmoke like that proceeding from fired gunpowder is perceived. 8. Damps are generally obſerved to come about the latter end of May, and to continue during the heat of ſummer. They return ſeveral times during the ſummer ſeaſon, but obſerve no certain rule.

Beſides theſe kinds of damps, which are very common, we find others deſcribed in the Philoſophical Tranſactions, concerning the nature of which we can ſay nothing. Indeed the account ſeems ſomewhat ſuſpicious. They are given by Mr Jeſſop, from whom we have the foregoing obſervations concerning the fire-damp, and who had theſe from the miners in Derbyſhire. After deſcribing the common damp, which conſiſts of fixed air, “They call the ſecond ſort (ſays he) the *peaſe-bloom damp*, becauſe, as they ſay, it ſmells like peaſe-bloom. They tell me it always comes in the ſummer-time; and thoſe grooves are not free which are never troubled with any other ſort of damps. I never heard that it was mortal; the ſcent, perhaps, freeing them from the danger of a ſurpriſe: but by reaſon of it many good grooves lie idle at the beſt and moſt profitable time of the year, when the ſubterraneous waters are the loweſt. They fancy it proceeds from the multitude of red-trefoil flowers, by them called *honeyſuckles*, with which the limeſtone meadows in the Peake do much abound. The third is the ſtrongeſt and moſt peſtilential of any; if all be true which is ſaid concerning it. Thoſe who pretend to have ſeen it (for it is viſible) deſcribe it thus: In the higheſt part of the roof of thoſe paſſages which branch out from the main groove, they often ſee a round thing hanging, about the bigneſs of a foot-ball, covered with a ſkin of the thickneſs and colour of a cob-web. This, they ſay, if it is broke by any accident, as the ſplinter of a ſtone, or the like, diſperſeth itſelf immediately, and ſuffocates all the company. Therefore, to prevent caſualties, as ſoon as they have eſpied it, they have a way, by the help of a ſtick and long rope, of breaking it at a diſtance; which done, they purify the place well with fire, before they dare enter it again. I dare not avouch

vouch the truth of this ſtory in all its circumſtances, becauſe the proof of it ſeems impoſſible, ſince they ſay it kills all that are likely to bear witneſs to the particulars: neither dare I deny but ſuch a thing may have been ſeen hanging on the roof, ſince I have heard many affirm it."—Some damps, ſeemingly of the ſame nature with thoſe laſt mentioned, are noticed by the author of the Chemical Dictionary, under the word *Damps*. "Amongſt the noxious mineral exhalations (ſays he), we may place thoſe which are found in the mines of Sal-gem in Poland. Theſe frequently appear in form of light flocks, threads, and ſpiders webs. They are remarkable for their property of ſuddenly catching fire at the lamps of the miners with a terrible noiſe and exploſion. They inſtantly kill thoſe whom they touch. Similar vapours are found in ſome mines of foſſil coal."

With regard to the formation of damps we have as yet no certain theory; nor, though the experiments of aerologiſts are abundantly able to ſhow the compoſition and manner of forming theſe noxious airs artificially, have they yet thrown much light on the method by which nature prepares them on a large ſcale. There are two general ways in which we may ſuppoſe this to be done; one by the ſtagnation of atmoſpherical air in old waſte places of mines and coal-pits, and its converſion into theſe mephitic exhalations; the other by their original formation from the phlogiſtic or other materials found in the earth, without any interference of the atmoſphere. In favour of the former opinion it may be urged, that old waſtes are never free from damps, eſpecially thoſe of the kind reſembling fixed air; nor are they always deficient in the inflammable kind. The ſame is alſo true of old wells, or even cellars, and in ſhort in every place where the air ſtagnates for any conſiderable time. But, on the other hand, we have many inſtances of fixed air coming out of the earth, and that in vaſt quantities, where no conſiderable ſtagnation of the atmoſphere could be ſuſpected; as for inſtance, in the grotto del Cani in Italy, where a continual ſtream of it has iſſued from time immemorial. The ſame ſeems to be the caſe with the tops of ſome high mountains, particularly Mount Blanc, the higheſt in Europe; on the top of which M. Sauſſure found the atmoſphere ſo much impregnated with fixed air, that lime-water expoſed to it very quickly gathered a cruſt on its ſurface. Sir William Hamilton, in his account of the eruptions of Veſuvius, informs us, that the inhabitants in the neighbourhood of that mountain are infeſted with a kind of peſtilential vapours named by them *mofetes*, which iſſue from the old lavas thrown out by the volcano. Theſe are of the nature of the damps in the mines or coal-pits, and iſſue forth in ſuch quantity as either to infect the atmoſphere for a very conſiderable way round, or to do miſchief by being carried from place to place by the atmoſpherical currents, which are not ſtrong enough to diſſipate them for ſome time. From ſome late accounts, the *ſamiel* (or ſcorching winds, as they have been repreſented) in the eaſtern countries, ſeem to be no other than ſtreams of fixed air of conſiderable extent, which exert their uſual and fatal effects on thoſe who breathe them. A ſtrong argument in favour of this opinion is, that theſe winds cannot croſs a river, it being the nature of water to abſorb fixed air, and thus deſtroy them.

Hence it is rendered probable that theſe mephitic vapours are often to be met with in the open atmoſphere, and conſequently cannot always be the effect of ſtagnation; nor indeed does it at all appear that mere ſtagnation can affect the quality of the atmoſphere either one way or other. This fluid cannot have its properties altered but by ſomething immerſed in it upon which it can act, and by means of which action its component parts may be changed or ſeparated. While this proceſs is going on, there is generally, if not always, an *abſorption* of air, accompanied indeed frequently with an emiſſion of ſome aerial fluid equal in quantity to that which is abſorbed. Mr Scheele, in his Eſſay on Fire, has ſhown by a number of experiments the effect of expoſing certain ſubſtances to the action of air, both on the ſubſtances themſelves and on the aerial fluid. The reſult of all theſe is no other than what we might expect from a very ſlow combuſtion, and which perhaps may on inquiry be found to be the only way by which air can be decompoſed. If the ſubſtance expoſed to the air was capable of abſorbing that part of the fluid which had undergone a change, there was always an evident diminution, but not otherwiſe. Thus, on incloſing ſome cauſtic fixed alkali in a phial of atmoſpheric air, a conſiderable diminution took place; and the alkali, by becoming ſaturated with fixed air, ſhowed that a decompoſition had taken place, and that the dephlogiſticated part of the air had ſeparated from the other, attached itſelf to the fixed alkali, and become fixed air by uniting with a certain proportion of phlogiſtic matter. Hence we may conceive, that in any place where the air was confined over a vaſt quantity of cauſtic alkaline ſalt, it would ſoon become unfit for the purpoſes of animal life, and we might ſay that a *damp* would be formed. But this would be a damp of a very different kind from that uſually met with in mines; for here the dephlogiſticated part of the atmoſphere being converted into fixed air, and abſorbed by the ſalt, only the poiſonous mephitic, or as it is commonly called *phlogiſticated*, air would remain, ſo that no fixed air could ever be ſeparated from it.

Let us now ſuppoſe, that inſtead of the alkaline ſalt a quantity of burning charcoal is confined in a place where there is not a proper circulation of air, and we will ſoon ſee that a damp of the very ſame kind with that called by miners the *choke-damp* will be formed. But this, according to the late diſcoveries, takes place by reaſon of the diſſipation of the charcoal by heat, and its union with the dephlogiſticated part of the atmoſphere, which always conſtitutes fixed air.* In this caſe, however, the damp muſt be but of ſhort continuance, and will ſoon be diſſipated after the charcoal is extinguiſhed; but if, inſtead of the charcoal, we ſubſtitute a large quantity of fermenting liquor, from whence the fixed air is naturally emitted, a damp will be formed much more difficult to be diſſipated than the former, becauſe it renews itſelf in a very ſhort time; and, unleſs there is a very conſtant circulation of air, it will be dangerous to enter the place where it is.

From the laſt example we may form an idea of the manner in which theſe damps, conſiſting chiefly of fixed air, are formed. We know not indeed thoroughly the nature of fermentation; but we are aſſured, that it is always accompanied by an internal heat; which, in ſome caſes, is raiſed to the utmoſt height, inſomuch that large quantities of moiſt vegetable ſubſtances, packed together, will ſometimes burſt out into flame. It is not, however, at all times neceſſary for the extrication of fixed air, that the heat ſhould come to this extremity. The example of fermenting liquors ſhows, that in ſome caſes a very moderate heat is ſufficient for the purpoſe. Now, though the compariſon may ſeem ſomewhat inadequate between the ſolid ſubſtance of the earth and a fermenting liquid, yet we know that a gentle heat conſtantly takes place in the bowels of the earth; and that almoſt all terreſtrial ſubſtances will emit fixed air on being expoſed to heat. It is not at all improbable, therefore, that, on the large ſcale of nature, the quantity of materials may compenſate for the weakneſs of the heat, and thus occaſion a conſtant emiſſion of fixed air; which, though ſlow in compariſon of what is effected in our experiments by a violent artificial heat, may yet accumulate in the narrow ſpaces of mines in ſuch a manner as to be very troubleſome. In volcanic countries, where the heat of the earth is much greater, the emiſſion of fixed air is in proportion; and thus we may account for that continual ſtream of it, which iſſues from the grotto del Cani, and perhaps other places. The *mofetes*, which are ſaid to proceed from old lavas, can only be accounted for by ſuppoſing the heat, which originally took place in them, to be in ſome meaſure renewed; or that they have been again, by ſome means or other, diſpoſed to take fire as formerly: but this we offer merely as a conjecture; there not being as yet ſufficient data to determine any thing poſitively upon the ſubject.

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* See *Aerology* and *Fixed Air*.

It may be objected to the hypotheſis juſt now laid down, that, if there is a continual diſpoſition in the earth to produce fixed air, the whole ſurface of it muſt pour out ſuch a quantity as would deſtroy every living creature upon it. This indeed might be granted, were the ſurface of the earth quite bare, and deſtitute of vegetation: but we know that fixed air is compoſed of the dephlogiſticated kind and phlogiſton; and that theſe two ingredients, after being once joined, may be ſeparated from each other, and reaſſume their proper characters. There is no abſurdity, therefore, in ſuppoſing that the fixed air may be continually decompoſed by the vegetables which grow all over the ſurface of the earth; and the atmoſphere not only thus preſerved from any taint from it, but ſupplied with a quantity of pure dephlogiſticated air, which it is certain that vegetables do emit. It is alſo certain, that wherever the atmoſphere is ſuffered to be in contact with the bare ſurface of the ground for ſome time, a conſiderable quantity of fixed air will be produced, unleſs there is a conſtant circulation of atmoſpherical air to carry off the former before it has time to produce any ſenſible effect. Hence we may account for the damps in wells, cellars, and even in the confined places of old caſtles and ruinous buildings, where the air is not in contact with the ſurface of the ground itſelf, but with mere heaps of rubbiſh and old walls.

With regard to what is called the *fire-damp*, the caſe ſeems to be more plain. In the Phil. Tranſ. n° 136, we have the following account of one of this kind which ſeemed evidently to iſſue from the earth. "This work is upon a coal of five yards in thickneſs, and hath been begun upon about ſix or eight and thirty years ago. When it was firſt found, it was extremely full of water, ſo that it could not be wrought down to the bottom of the coal; but a *witchet*, or cave, was driven out of the middle of it, upon a level, for gaining room to work, and drawing down the ſpring of water that lies in the coal to the eye of the pit. In driving of which witchet, after they had gone a conſiderable way under ground, and were ſcanted of wind, the fire-damps did begin by little and little to breed, and to appear in crevices and ſlits of the coal, where water had lain before the opening of the coal, with a ſmall bluiſh flame, working and moving continually; but not out of its firſt ſeat, unleſs the workmen held their candles to it; and then being weak, the blaze of the candle would drive it with a ſudden fizz away to another crevice, where it would ſoon after appear blazing and moving as formerly. This was the firſt knowledge of it in this work, which the workmen made but a ſport of; and ſo partly neglected, till it had gotten ſome ſtrength; and then upon a morning, the firſt collier that went down, going forwards in the witchet with his candle in his hand, the damp preſently darted out ſo violently at his candle, that it ſtruck the man clear down, ſinged all his hair and cloths, and diſabled him from working for a while after. Some other ſmall warnings it gave them, inſomuch that they reſolved to employ a man on purpoſe that was more reſolute than the reſt, to go down a while before them every morning, to chaſe it from place to place, and ſo to weaken it. His uſual manner was to put on the worſt rags he had, and to wet them all in water, and when he came within the danger of it, then he fell down groveling upon his belly, and ſo went forward, holding in one hand a long wand or pole, at the head whereof he tied candles burning, and reached them by degrees towards it; then the damp would fly at them, and if it miſſed of putting them out, would quench itſelf with a blaſt, and leave an ill-ſcented ſmoke behind. Thus they dealt with it till they had wrought the coal down to the bottom, and the water following, and not remaining as before in the body of it, among ſulphureous and braſſy metal that is in ſome veins of the coal, the fire-damp was not ſeen nor heard of till the latter end of the year 1675, which happened as followeth.

"After long working of this coal, it was found upon the riſing grounds that there lay another roach of coal at the depth of 14 yards under it, which proved to be 3½ yards thick, and ſomething more ſulphureous. This encouraged us to ſink in one of the pits we had formerly uſed on the five-yards coal.—As we ſunk the lower part of it, we had many appearances of the fire-damp in the watery crevices of the rocks we ſunk through, flaſhing and darting from ſide to ſide of the pit, and ſhowing rainbow-like colours upon the ſurface of the water in the bottom: but upon drawing up of the water with buckets, which ſtirred the air in the pit, it would leave burning, till the colliers at work, with their breath and ſweat, and the ſmoke of their candles, thickened the air in the pit, and then it would appear again; they lighted their candles at it ſometimes when they went out; and ſo in this pit it did no further harm."

In another pit, however, it ſoon appeared, and at laſt produced a moſt terrible exploſion. This was occaſioned by one of the workmen going imprudently down with a lighted candle, after a ceſſation of work for ſome days, and the force exerted by it ſeemed equal to that of gun-powder.

The formation of inflammable air in mines cannot be attributed to any vitiation of the atmoſphere; for there is no natural proceſs with which we are acquainted, by which ſuch a change could be accompliſhed. In one inſtance, however, we have an example of a fire-damp being produced, not only without any conſiderable ſtagnation of atmoſpherical air, but where there is the beſt circulation imaginable. This is in large bellows uſed in metallurgic works, which are ſometimes burſt by an exploſion of inflammable matter proceeding from the rancid matters with which the leather is greaſed. Dr Prieſtley has ſhown, that inflammable air is compoſed of pure elementary fire, charcoal or phlogiſton, and a little water; and that this compoſition may take place even *in vacuo*. All theſe materials are to be met with in the bowels of the earth. Coal, a bituminous ſubſtance, is abundantly able to ſupply the phlogiſton; the natural moiſture of the earth affords water, and the heat, however gentle, which conſtantly exiſts in the bowels of the earth, may be ſufficient to produce a quantity of inflammable air, which gradually accumulating in thoſe places where there is not a conſtant ſtream of atmoſpherical air to carry it off, will ſoon produce the dreadful effects already mentioned.

A much more important conſideration than the formation of damps, however, is the proper method of avoiding their pernicious effects. The inflammability of one kind affords an eaſy method of preventing it from accumulating, viz. by ſetting fire to it. This may be done with ſafety, unleſs it has been ſuffered to go too far before the experiment is made: for the inflammable air, being much lighter than any other kind, will naturally riſe to the top; ſo that a man, lying flat on the ground to avoid the force of the exploſion, and holding up a lighted candle fixed upon a pole, may at once free the mine from ſuch a troubleſome gueſt. But where it has been allowed to accumulate in too great quantity, ſo that this method cannot be uſed, or in the other kind, which is not inflammable, the method commonly practiſed is to produce a conſtant circulation of air as much as poſſible through all parts of the mine. To procure this, they make a perpendicular opening which they call a *ſhank* or *ſhaft*, ſo that the mine may have two or more openings; and thus by reaſon of the difference of temperature between the open atmoſphere and that in the mine, there is a continual draught of air through them both. This current will always be ſtronger in proportion to the difference between the external atmoſphere and that of the mine: and likewiſe in proportion to the difference between the depth of the two ſhafts. But as the temperature of the atmoſphere is variable, it happens, at certain ſeaſons of the year, that there is not a ſufficient difference between that of the atmoſphere and in the mine to produce the neceſſary circulation. This happens principally in the ſpring and autumn; at which ſeaſons it is neceſſary to light fires in the ſhafts, which are always efficacious for the purpoſe deſired.

Among the other uſes to which dephlogiſticated air might be applied, Mr Cavallo reckons that of ſecuring people from the dangerous effects of damps in mines, and other ſubterraneous places. "If a large bladder," ſays he, "into which a ſolution of lime in water is introduced, be filled with dephlogiſticated air, and a ſmall wooden or glaſs pipe be adapted to its neck, a man may hold that pipe in his mouth, and may breathe the dephlogiſticated air; and thus equipped he may enter into theſe ſubterranean places, amidſt the various elaſtic fluids contained in them. A large bladder of dephlogiſticated air will ſerve for above a quarter of an hour, which is a length of time ſufficient for various purpoſes; beſides, if longer time is required to be ſpent in theſe places, a perſon may have two or more bladders of dephlogiſticated air along with him, and may ſhift as ſoon as the air of one is contaminated. Without the neceſſity of any more complicated apparatus, the bladders full of dephlogiſticated air may be kept ſtopped by putting corks into the glaſs or wooden pipes that are tied to their necks. This air might alſo be uſed for diving-bells."

DAMSEL, from the French *damoiſel* or *damoiſeau*, an appellation anciently given to all young people of either ſex, that were of noble or genteel extraction, as the ſons and daughters of princes, knights, and barons: thus we read of Damſel Pepin, Damſel Louis le Gros, Damſel Richard prince of Wales.

From the ſons of kings this appellation firſt paſſed to thoſe of great lords and barons, and at length to theſe of gentlemen who were not yet knights.

At preſent damſel is applied to all maids or girls not yet married, provided they be not of the vulgar.

DAN, or Jor-dan, which laſt literally denotes "the river Dan;" ſo named from the people where it has its ſource, which is a lake called *Phiala*, from its round figure, to the north of its apparent riſing from the mountain Panium or Paneum, as was diſcovered by Philip, Tetrarch of Trachonites; for on throwing light bodies into the Phiala, he found them to emerge again at Paneum (Joſephus). From Paneum it runs in a direct courſe to a lake called *Samachonites;* as far as which it is called *Jordan the Leſs;* and thence to the lake Geneſareth, or of Tiberias, where it comes increaſed by the lake Samachonitis and its ſprings, and is called the *Greater Jordan;* continuing its direct courſe ſouthwards, till it falls into the Aſphaltites.

Dan (anc. geog.), a town to the weſt of the ſource of the Jordan; formerly called *Laïs* (Joſhua, Judges, Joſephus). This was the north, as Beerſheba was the ſouth, boundary of the Iſraelites; as appears from the common expreſſion in Scripture, from *Dan* to *Beerſheba*. At Dan Jeroboam erected one of the golden calves (1 Kings xii.).

Dan, the tribe, extended itſelf weſtward of Judah, and was terminated by Azotus and Dora on the Mediterranean (Joſephus).

DANAE, in antiquity, a coin ſomewhat more than an obolus, uſed to be put into the mouths of the dead, to pay their paſſage over the river Acheron.

DANAE, in fabulous hiſtory, was the daughter of Acriſius king of Argos, by Eurydice. She was confined in a brazen tower by her father, who had been told by an oracle that his daughter's ſon would put him to death. His endeavours to prevent Danae from becoming a mother proved fruitleſs; and Jupiter, who was enamoured of her, introduced himſelf to her bed by changing himſelf into a golden ſhower. From his embraces Danae had a ſon, with whom ſhe was expoſed on the ſea by her father. The wind drove the bark which carried her to the coaſts of the iſland of Seriphus; where ſhe was ſaved by ſome fiſhermen, and carried to Polydectes king of the place, whoſe brother, called *Dictys*, educated the child called *Perſeus*, and tenderly treated the mother. Polydectes fell in love with her; but as he was afraid of her ſon, he ſent him to conquer the Gorgons, pretending that he wiſhed Meduſa's head to adorn the nuptials which he was going to celebrate with Hippodamia the daughter of Œnomaus. When Perſeus had victoriouſly finiſhed his expedition, he retired to Argos with Danae to the houſe of Acriſius, whom he inadvertently killed. Some ſuppoſe that it was Prœtus the brother of Acriſius who introduced himſelf to Danae in the brazen tower; and inſtead of a golden ſhower, it was maintained that the keepers of Danae were bribed by the gold of her ſeducer. Virgil mentions that Danae came to Italy with ſome fugitives of Argos, and that ſhe founded a city called *Ardea*.

DANAIDES (fab. hiſt.), the fifty daughters of Danaus king of Argos. When their uncle Ægyptus came from Egypt with his fifty ſons, they were promiſed in marriage to their couſins; and before the celebration of their nuptials, Danaus, who had been informed by an oracle that he was to be killed by the hands of one of his ſons-in-law, made his daughters ſolemnly promiſe that they would deſtroy their huſbands. They were provided with daggers by their father; and all except Hypermneſtra ſtained their hands with the blood of their couſins the firſt night of their nuptials; and as a pledge of their obedience to their father's injunctions, they preſented him each with the head of the murdered ſons of Ægyptus. Hypermneſtra was ſummoned to appear before her father, and anſwer for her diſobedience in ſuffering her huſband Lynceus to eſcape; but the unanimous voice of the people declared her innocent, and ſhe dedicated a temple to the goddeſs of Perſuaſion. The ſiſters were purified of this murder by Mercury and Minerva by order of Jupiter; but according to the more received opinion, they were condemned to ſevere puniſhment in hell, and were compelled to fill with water a veſſel full of holes, ſo that the water ran out as ſoon as poured into it; and therefore their labour was infinite, and their puniſhment eternal. The heads of the ſons of Egyptus were buried at Argos; but their bodies were left at Lerna, where the murder had been committed.

DANAUS (fab. hiſt.), a ſon of Belus and Anchinoe, who after his father death reigned conjointly with his brother Ægyptus on the throne of Egypt. Some time after, a difference aroſe between the brothers, and Danaus ſet ſail with his fifty daughters in queſt of a ſettlement. He viſited Rhodes, where he conſecrated a ſtatue to Minerva, and arrived ſafe on the coaſt of Peloponneſus, where he was hoſpitably received by Gelanor king of Argos. Gelanor had lately aſcended the throne, and the firſt years of his reign were marked with diſſenſions with his ſubjects. Danaus took advantage of Gelanor's unpopularity, and obliged him to leave the crown. In Gelanor, the race of the Inachidæ was extinguiſhed, and the Belides began to reign at Argos in Danaus. Some authors ſay, that Gelanor voluntarily reſigned the crown to Danaus, on account of the wrath of Neptune, who had dried up all the waters of Argolus, to puniſh the impiety of Inachus. The ſucceſs of Danaus invited the fifty ſons of Ægyptus to embark for Greece. They were kindly received by their uncle; who either apprehenſive of their number, or terrified by an oracle, which threatened his ruin by one of his ſons-in-law, cauſed his daughters, to whom they were promiſed in marriage, to murder them the firſt night of their nuptials. His orders were executed. Hypermneſtra alone ſpared the life of Lynceus: (See DANAIDES). Danaus at firſt perſecuted Lynceus with unremitted fury; but he was afterwards reconciled to him, and he acknowledged him for his ſon-in-law and ſucceſſor after a reign of 50 years. He began his reign about 1586 years before the Chriſtian era; and after death he was honoured with a ſplendid monument in the town of Argos, which ſtill exiſted in the age of Pauſanias. According to Æſchylus, Danaus left Egypt, not to be preſent at the marriage of his daughters with the ſons of his brother, a connection which the deemed unlawful and impious.

DANCE, or DANCING, as at preſent practiſed, may be defined, "an agreeable motion of the body, adjuſted by art to the meaſures or tune of inſtruments, or of the voice."—But, according to what ſome reckon more agreeable to the true genius of the art, dancing is "the art of expreſſing the ſentiments of the mind, or the paſſions, by meaſured ſteps or bounds that are made in cadence by regulated motions of the body, and by graceful geſtures; all performed to the ſound of muſical inſtruments or of the voice."

There is no account of the origin of the practice of dancing among mankind. It is found to exiſt among all nations whatever, even the moſt rude and barbarous; and, indeed, however much the aſſiſtance of art may be neceſſary to make any one perfect in the practice, the foundation muſt certainly lie in the mechaniſm of the human body itſelf.

The connection that there is between certain ſounds and thoſe motions of the human body called *dancing*, hath ſeldom or never been inquired into by philoſophers, though it is certainly a very curious ſpeculation. The power of certain ſounds not only over the human ſpecies, but even over the inanimate creation, is indeed very ſurpriſing. It is well known, that the moſt ſolid walls, nay the ground itſelf, will be found to ſhake at ſome particular notes in muſic. This ſtrongly indicates the preſence of ſome univerſally diffuſed and exceedingly elaſtic fluid, which is thrown into vibrations by the concuſſions of the atmoſphere upon it, produced by the motion of the ſounding body.—If theſe concuſſions are ſo ſtrong as to make the large quantity of elaſtic fluid vibrate that is diſperſed through a ſtone wall or a conſiderable portion of earth, it is no wonder they ſhould have the ſame effect upon that inviſible and exceedingly ſubtile matter that pervades and ſeems to reſide in our nerves.

Some there are that have their nerves conſtructed in ſuch a manner, that they cannot be affected by the ſounds which affect others, and ſome ſcarce with any, while others have ſuch an irritability of the nerves in this caſe, that they cannot, without the greateſt difficulty, ſit or ſtand ſtill when they hear a favourite piece of muſic played.

It is conjectured by very eminent philoſophers, that all the ſenſations and paſſions to which we are ſubject do immediately depend upon the vibrations excited in the nervous fluid abovementioned. Hence, muſical ſounds have the greateſt power over thoſe people who are of a delicate ſenſible frame, and who have ſtrong paſſions. If it be true, therefore, that every paſſion in the human nature immediately depends upon a certain affection of the nervous ſyſtem, or a certain motion or vibration in the nervous fluid, we ſhall immediately ſee the origin of the different dances among different nations. One kind of vibration, for inſtance, raiſes the paſſions of anger, pride, &c. which are indiſpenſably neceſſary in warlike nations. The ſounds, for ſuch there are, capable of exciting a ſimilar vibration, would naturally conſtitute the martial muſic among ſuch natons, and dances conformable to it would be inſtituted. This appears to be the caſe particularly among barbarous nations, as we ſhall preſently have occaſion to remark. Other vibrations of the nervous fluid produce the paſſions of joy, love, &c.; and ſounds capable of exciting theſe particular vibrations will immediately be formed into muſic for dances of another kind.

As barbarous people are obſerved to have the ſtrongeſt paſſions, ſo they are alſo obſerved to be the moſt eaſily affected by ſounds and the moſt addicted to dancing. Sounds to us the moſt diſagreeable, the drumming with ſticks upon an empty caſk, or the noiſe made by blowing into reeds incapable of yielding one muſical note tolerable to us, is agreeable muſic to them. Much more are they affected by the ſound of inſtruments which have any thing agreeable in them. Mr Gallini informs us, that "The ſpirit of dancing prevails almoſt beyond imagination among both men and women in moſt parts of Africa. It is even more than inſtinct, it is a rage, in ſome countries in that part of the globe.—Upon the gold coaſt eſpecially, the inhabitants are ſo paſſionately fond of it, that in the midſt of their hardeſt labour, if they hear a perſon ſing, or any muſical inſtrument played, they cannot refrain from dancing.—There are even well atteſted ſtories of ſome negroes flinging themſelves at the feet of an European playing on a fiddle, intreating him to deſiſt, unleſs he had a mind to tire them to death; it being impoſſible for them to ceaſe dancing while he continued playing."—The ſame thing is found to take place in America, though, as the inhabitants of that continent are found to be of a more fierce and barbarous nature than the African nations, their dances are ſtill more uncouth and barbarous than theſe of the negroes. In Mexico, ſays Gallini, they have alſo their dances and muſic, but in the moſt uncouth and barbarous ſtyle. For their ſymphony they have wooden drums, ſomething in form of a kettle-drum, with a kind of pipe or flagellet, made of a hollow cane or reed, but very grating to an European ear. It is obſerved they love every thing that makes a noiſe, how diſagreeable ſoever the ſound is. They will alſo hum over ſomething like a tune when they dance 30 or 40 in a circle, ſtretching out their hands, and laying them on each others ſhoulders. They ſtamp and jump, and uſe the moſt antic geſtures for ſeveral hours, till they are heartily weary. And one or two of the company ſometimes ſtep out of the ring to make ſport for the reſt, by ſhowing feats of activity, throwing their lances up into the air, catching them again, bending backwards, and ſpringing forwards with great agility."

The origin of dancing among the Greeks was moſt certainly the ſame as among all other nations; but as they proceeded a certain length in civilization, their dances were of conſequence more regular and agreeable than thoſe of the more barbarous nations. They reduced dancing into a kind of regular ſyſtem; and had dances proper for exciting, by means of the ſympathy abovementioned, any paſſion whatever in the minds of the beholders. In this way they are ſaid to have proceeded very great lengths, to us abſolutely incredible. At Athens, it is ſaid, that the dance of the Eumenides or Furies on the theatre had ſo expreſſive a character as to ſtrike the ſpectators with irreſiſtible terror: men grown old in the profeſſion of arms trembled; the multitude ran out; women with child miſcarried; people imagined they ſaw in earneſt thoſe terrible deities commiſſioned with the vengeance of heaven to purſue and puniſh crimes upon earth.

The Greeks had martial dances, which they reckoned to be very uſeful for keeping up the warlike ſpirit of their youth; but the Romans, though equally warlike with the Greeks, never had any thing of the kind.—This probably may be owing to the want of that romantic turn for which the Greeks were ſo remarkable. The Romans had no heroes among them, ſuch as Hercules, Achilles, or Ajax; nor does the whole Roman hiſtory furniſh an example of a general that made war after the manner of Alexander the Great. Though their ſoldiers were as valiant as ever the Greeks could pretend to be, the object with them was the honour of the republic, and not their own perſonal praiſe. Hence there was leſs fury, and much more cool deliberate valour, exerciſed by the Romans, than any other nation whatever. The paſſions of pride, reſentment, obſtinacy, &c. were excited in them, not by the mechanical means of muſic and dancing, but by being taught that it was their chief honour to fight for the republic.—It does not however appear, that the Romans were at all leſs capable of being affected in this mechanical manner than the Greeks. When dancing, was once introduced, it had the very ſame effects at Rome as at Athens.

Among the Jews, dancing ſeems to have made a part of the religious worſhip on ſome occaſions, as we learn from ſome paſſages in the Pſalms, though we do not find either that or ſinging poſitively enjoined as a divine precept.—In the Chriſtian churches mentioned in the New Teſtament, there is no account of dancing being introduced as an act of worſhip, though it is certain that it was uſed as ſuch in after ages. Mr Gallini tells us, that "at Limoges, not long ago, the people uſed to dance the round in the choir of the church which is under the invocation of their patron ſaint; and at the end of each pſalm, inſtead of the *Gloria Patri*, they ſung as follows: *St Marcel, pray for us, and we will dance in honour of you.*"—Though dancing would now be looked upon as the higheſt degree of profanation in a religious aſſembly, yet it is certain, that dancing, conſidered as an expreſſion of joy, is no more a profanation than ſinging, or than ſimple ſpeaking; nor can it be thought in the leaſt more abſurd, that a Chriſtian ſhould dance for joy that Jeſus Chriſt is riſen from the dead, than that David danced before the ark when it was returned to him after a long abſence.

Plato reduces the dances of the ancients to three claſſes. 1. The military dances, which tended to make the body robuſt, active, and well-diſpoſed for all the exerciſes of war. 2. The domeſtic dances, which had for their object an agreeable and innocent relaxation and amuſement. 3. The mediatorial dances, which were in uſe in expiations and ſacrifices.—Of military dances there were two ſorts: the *gymnopedique* dance, or the dance of children; and the *enoplian*, or armed dance. The Spartans had invented the firſt for an early excitation of the courage of their children, and to lead them on inſenſibly to the exerciſe of the armed dance. This childrens dance uſed to be executed in the public place. It was compoſed of two choirs: the one of grown men, the other of children; whence, being chiefly deſigned for the latter, it took its name. They were both of them in a ſtate of nudity. The choir of the children regulated their motions by thoſe of the men, and all danced at the ſame time, ſinging the poems of Thales, Alcman, and Dionyſodotus.—The *enoplian* or *pyrrhic* was danced by young men armed cap-a-pee, who executed, to the ſound of the flute, all the proper movements either for attack or for defence. It was compoſed of four parts.—The firſt, the *podiſm* or footing; which conſiſted in a quick ſhifting motion of the feet, ſuch as was neceſſary for overtaking a flying enemy, or for getting away from him when an overmatch.—The ſecond part was the *xiphiſm*; this was a kind of mock-fight, in which the dancers imitated all the motions of combatants; aiming a ſtroke, darting a javelin, or dexterouſly dodging, parrying, or avoiding a blow or thruſt. The third part, called the *komos*, conſiſted in very high leaps or vaultings, which the dancers frequently repeated, for the better uſing themſelves occaſionally to leap over a ditch, or ſpring over a wall. The *tetracomos* was the fourth and laſt part: this was a ſquare figure, executed by ſlow and majeſtic movements; but it is uncertain whether this was every where executed in the ſame manner.

Of all the Greeks, the Spartans were thoſe who moſt cultivated the Pyrrhic dance. Athenæus relates, that they had a law by which they were obliged to exerciſe their children at it from the age of five years. This warlike people conſtantly retained the cuſtom of accompanying their dances with hymns and ſongs. The following was ſung for the dance called *trichoria*, ſaid to be inſtituted by Lycurgus, and which had its name from its being compoſed of three choirs, one of children, another of young men, and the third of old. The old men opened the dance, ſaying, "In time paſt we were valiant." The young men anſwered, "We are ſo at preſent." "We ſhall be ſtill more ſo when our time comes," replied the chorus of children. The Spartans never danced but with real arms. In proceſs of time, however, other nations came to uſe only weapons of wood on ſuch occaſions. Nay, it was only ſo late as the days of Athenæus, who lived in the ſecond century, that the dancers of the Pyrrhic, inſtead of arms, carried only flaſks, ivy-bound wands (thyrſus) or reeds. But, even in Ariſtotle's days, they had begun to uſe thyrſuſes inſtead of pikes, and lighted torches in lieu of javelins and ſwords. With theſe torches they executed a dance called the *conflagration of the world*.

Of the dances for amuſement and recreation, ſome were but ſimply gambols, or ſportive exerciſes, which had no character of imitation, and of which the greater part exiſt to this day. The others were more complex, more agreeable, figured, and were always accompanied with ſinging. Among the firſt or ſimple ones was the *aſcoliaſmus*; which conſiſted in jumping, with one foot only, on bladders filled with air or with wine, and rubbed on the outſide with oil. The *dipodium* was jumped with both feet cloſe. The *kybiſteſis* was what is called in England the *ſomerſet*.—Of the ſecond kind was that called the *wine-preſs*, of which there is a deſcription in Longinus, and the Ionian dances: theſe laſt, in the original of their inſtitution, had nothing but what was decent and modeſt; but, in time, their movements came to be ſo depraved, as to be employed in expreſſing nothing but voluptuouſneſs, and even the greateſt obſcenity.

Among the ancients there were no feſtivals nor religious aſſemblies but what were accompanied with ſongs and dances. It was not held poſſible to celebrate any myſtery, or to be initiated, without the intervention of theſe two arts. In ſhort, they were looked upon to be ſo eſſential in theſe kinds of ceremonies, that to expreſs the crime of ſuch as were guilty of revealing the ſacred myſteries, they employed the word [illegible], "to be out of the dance." The moſt ancient of theſe religious dances is the *Bacchic*; which was not only conſecrated to Bacchus, but to all the deities whoſe feſtival was celebrated with a kind of enthuſiaſm. The moſt grave and majeſtic was the *hyporchematic*: it was executed to the lyre, and accompanied with the voice.—At his return from Crete, Theſeus inſtituted a dance at which he himſelf aſſiſted at the head of a numerous and ſplendid band of youth round the altar of Apollo. The dance was compoſed of three parts; the *ſtrophe*, the *antiſtrophe*, and the *ſtationary*. In the ſtrophe, the movements were from the right to the left; in the antiſtrophe, from the left to the right. In the ſtationary, they danced before the altar; ſo that the ſtationary did not mean an abſolute pauſe or reſt, but only a more ſlow or grave movement. Plutarch is perſuaded, that in this dance there is a profound myſtery. He thinks, that by the ſtrophe, is indicated the motion of the world from eaſt to weſt; by the antiſtrophe, the motion of the planets from the weſt to the eaſt; and by the ſtationary, the ſtability of the earth. To this dance Theſeus gave the name of *geranos*, or "the crane;" becauſe the figures which characteriſed it bore a reſemblance to thoſe deſcribed by cranes in their flight.

With regard to the modern practice of dancing as an art, there are few directions that can be of much ſervice. The following is extracted from Mr Gallini's deſcription of the ſeveral ſteps or movements.

"The dancing (ſays he) is generally on a theatre, or in a ſaloon or room. At the theatre there are four parts to be conſidered. 1. The neareſt front to the ſpectators. 2. and 3. The two ſides or wings. 4. The fartheſt front from the ſpectators.

"In a ſaloon or room, the place in which are the ſpectators decides the appellation reſpectively to them of right and left. The dancer ſhould place himſelf in as advantageous a point of view to them as poſſible.

"In the dance itſelf, there are to be diſtinguiſhed, the attitude of the body, the figure, the poſitions, the bends, the riſings or leaps, the ſteps, the cabriole, the fallings, the ſlides, the turns of the body, the cadences.

"The *attitude* of the body requires the repreſenting one's ſelf in the moſt graceful manner to the company.

"The *figure* is to follow the track preſcribed to the ſteps in the dance.

"The *poſition* is that of the varied attitudes, which muſt be at once ſtriking and eaſy, as alſo of the different exertions of the legs and feet in dancing.

"The *bends* are inflexions of the knees, of the body, of the head, or the arms.

"The *riſings* are the contraſt to the bends, the extenſion of the knee. One of theſe two motions neceſſarily precedes the other.

"The *ſtep* is the motion by the foot or feet from one place to another.

"The *leap* is executed by ſpringing up into the air; it begins with a bend, and proceeds with a quick extenſion of the legs, ſo that both feet quit the ground.

"The *cabriole* is the croſſing, or cutting of capers, during the leap, before the return of the feet to the ground.

"The *falling* is the return of the feet to the ground, by the natural gravitation of the body.

"The *ſlide* is the action of moving the foot along the ground without quitting it.

"The *turn* is the motion of the body towards either ſide, or quite round.

"The *cadence* is the knowledge of the different meaſures, and of the times of movement the moſt marked in the muſic.

"The *track* is the line marked by the dance: it may be either ſtraight or curve, and is ſuſceptible of all the inflexions correſpondent to the various deſigns of the compoſer.—There are the right, the diametral line, the circular line, and the oblique line. The *right* line is that which goes lengthwiſe, reckoning from one end of the room towards the other. The *diametral* line is acroſs the room, from one ſide to the other. The *circular* line is waving, or undulatory, from one place to another. The *oblique* line proceeds obliquely from one quarter of the room towards another.—Each of theſe lines may directly or ſeparately form the dancer's track, diverſified with ſteps and poſitions.

"The *regular* figure is when two or more dancers move in contrary directions; that is to ſay, that when one moves towards the right, the other moves to the left.—The *irregular* line is when the couples figuring together are both on the ſame ſide.

"Commonly the man gives the right hand to the lady in the beginning or ending of the dance, as we ſee in the *minuet*, *louvre*, &c.

"When a greater number of dancers figure together, they are to execute the figure agreeably to the compoſition of the dance, with ſpecial attention to keep an eye conſtantly on the partner.—When, in any given dance, the dancers have danced for ſome time in the ſame place, the *track* is only to be conſidered as the conductor of the *ſteps*, but not of the *figure*; but when the dance continues, without being confined to the ſame place, then the *track* muſt be conſidered as the conductor both of the ſteps and of the figure.

"Now, to obſerve the figure, the dancer muſt have placed himſelf at the beginning of the tract upon which he is to dance, and comprehend the figure before he himſelf begins it. He is to remark and conceive whether the figure is right, diametral, circular, or oblique; if it is progreſſive or retrogreſſive, or towards the right or left. He ſhould have the air played or ſung to him, to underſtand the movement.—Where the tracks croſs one another, the ſteps of each of the couples muſt leave a ſufficient diſtance between them not to confuſe the figure.

"There are commonly reckoned ten kinds of poſitions, which are divided into *true* and *falſe*, five each.—There are three principal parts of the foot to be obſerved; the toes, the heel, and the ancle.

"The true poſitions are when the two feet are in a certain uniform regularity, the toes turned equally outwards.—The falſe are divided into regular and irregular. They differ from the true, in that the toes are either both turned inwards; or if the toes of one foot are turned outwards, the others are turned inward.

"In the firſt of the true poſitions, the heels of the two feet are cloſe together, ſo that they touch; the toes being turned out. In the ſecond, the two feet are open in the ſame line, ſo that the diſtance between the two heels is preciſely the length of one foot. In the third, the heel of one foot is brought to the ancle of the other, or ſeems to lock in with it. In the fourth, the two feet are the one before the other a foot's length, diſtance between the two heels, which are on the ſame line. In the fifth, the two feet are acroſs, the one before the other; ſo that the heel of one foot is directly oppoſite to the toes of the other.

"In the firſt of the falſe poſitions, the toes of both feet are turned inwards, ſo that they touch, the heels being open. The ſecond is, when the feet are aſunder at a foot's diſtance between the toes of each, which are turned inward, the heels being on a line. The third is, when the toes of one foot are turned outwards, the other inwards, ſo that the two feet form a parallel. The fourth is, when the toes of the two feet are turned inwards: but the toes of one foot are brought nearer the ancle of the other. The fifth is, when the toes of the two feet are turned inwards, but the heel of one foot is oppoſite to the toes of the other.

"There are mixed poſitions, compoſed of the true and falſe in combination; which admit of ſuch an infinite variety, and are in their nature ſo unſuſceptible of deſcription by words, that it is only the ſight of the performance that can give any tolerable idea of them.

"Of the bends of the knee there are two kinds; the one *ſimple*, the other *forced*. The ſimple bend is an inflexion of the knees without moving the heel, and is executed with the foot flat to the ground. The forced bend is made on the toes with more force and lower.

"Much is to be obſerved on the head of *ſteps*. Firſt, not to make any movement before having put the body in an upright poſture, firm on the haunches.

"Begin with the inflexion of the knee and thigh; advance one leg foremoſt; with the whole foot on the ground, laying the ſtreſs of the body on the advanced leg.

"There are ſome who begin the ſtep by the point of the toes; but that has an air of theatrical affectation. Nothing can be more noble than a graceful eaſe and dignity of ſtep. The quantity of ſteps uſed in dancing are almoſt innumerable; they are nevertheleſs reducible under five denominations, which may ſerve well enough to give a general idea of the different movements that may be made by the leg, viz. the direct ſtep, the open ſtep, the circular ſtep, the twiſted ſtep, and the cut ſtep.

"The *direct* ſtep is when the foot goes upon a right line, either forwards or backwards.

"The *open* ſtep is when the legs open. Of this ſtep there are three kinds: one when they open outwards; another, when, deſcribing a kind of circle, they form an in-knee'd figure; a third, when they open ſideways; this is a ſort of right ſtep, becauſe the figure is in a right line.

"The *round* ſtep, is when the foot, in its motion, makes a circular figure, either inwards or outwards.

"The *twiſted* ſtep, or pas *tortille*, is when the foot in its motion turns in and out. There are three kinds of this ſtep; one forwards, another backwards, the third ſidelong.

"The *cut* ſtep is when one leg or foot comes to ſtrike againſt the other. There are alſo three ſorts of this ſtep; backwards, forwards, and ſidelong.

"The ſteps may be accompanied with bendings, riſings, leaps, cabrioles, fallings, ſlidings, the foot in the air, the tip-toe, the reſt on the heel, quarter-turns, half-turns, three-quarter turns, and whole-turns.

"There may be practiſed three kinds of bends, or ſinkings, in the ſteps; *viz.* bending before the ſtep proceeds, in the act of ſtepping, and at the laſt of the ſteps.

"The beginning or initial ſink-pace is at the firſt ſetting off, on advancing the leg.

"The bend in the act of ſtepping continues the march or walk.

"The final ſink-pace cloſes the march.

"The riſing is juſt the reverſe of the bend, or ſink-pace, which ſhall have preceded it.

"Some great maſters in the art of dancing, having obſerved that muſic, which is inſeparable from it, was capable of being preſerved and conveyed by the muſical characters, imagined by analogy, that the like advantage could be procured to the compoſition of dances. Upon this plan they attempted what is called the *chorography*, an art which they ſuppoſe was either utterly unknown to the ancients, or not tranſmitted to us from them.

"It may indeed be eaſily allowed, that the track or figure of a dance may be determined by written or engraved lines; but thoſe lines will neceſſarily appear ſo perplexing, ſo intricate, ſo difficult, if not impoſſible to ſeize, in their various relations, that they are only fit to diſguſt and diſcourage, without the poſſibility of their conveying a ſatisfactory or retainable inſtruction.—Thence it is, that the article of *Chorography* in the French *Encyclopédie* is univerſally exploded as unintelligible and uſeleſs: though nothing more than an elementary indication of the art; and an explanation, ſuch as it is, of ſome of the technical terms of it."

Stage-Dances. The Greeks were the firſt who united the dance to their tragedies and comedies; not indeed as making part of thoſe ſpectacles, but merely as an acceſſary.

The Romans, as uſual, copied after the Greeks; but in the reign of Auguſtus they left their inſtructors far behind them. Two very extraordinary men made their appearance at that time: they invented a new ſpecies of entertainment, and carried it to an aſtoniſhing degree of perfection. Nothing was then talked of but the wonderful talents and amazing performances of Pylades and Bathylus, who were the firſt to introduce among the Romans what the French call the *ballet d'action*, wherein the performer is both actor and dancer.

Pylades undertook the hard taſk of repreſenting, with the aſſiſtance of the dance alone, ſtrong and pathetic ſituations. He ſucceeded perhaps beyond his own expectation, and may be called the father of that ſtyle of dancing which is known to us by the name of *grave* or *ſerious pantomime*.

Bathylus an Alexandrian, and a freedman of Mecenas, took upon himſelf to repreſent ſuch ſubjects as required a certain livelineſs and agility. He was handſome in his perſon; and the two great ſcourges of Roman follies, Perſius and eſpecially Juvenal, ſpeak of him as the gallant of every woman in Rome. The latter, in his cynic ſtyle, even goes ſo far as to ſay, that when Bathylus performed the dance called, after the name of a celebrated female dancer, *Chironomos-Leda*, the graveſt matron was turned off her guard, and the young virgin longed for the dancer's addreſſes.

Nature had been exceſſively partial to thoſe two men. They were endowed with genius, and all the exterior charms that could captivate the eye. By their ſtudy, application, and a deſire to eſtabliſh a laſting reputation, they diſplayed to the greateſt advantage all the reſources which the art of dancing could ſupply. Theſe, like two phenomena, diſappeared, and never did the world ſee "their like again." Government withdrew her protection, the art gradually ſunk into obſcurity, and became even entirely forgotten on the acceſſion of Trajanus to the empire.

Thus buried with the other arts in entire oblivion, dancing remained uncultivated till about the 15th century, when ballets were revived in Italy at a magnificent entertainment given by a nobleman of Lombardy at Tortona on account of the marriage between Galeas Duke of Milan and Iſabella of Arragon. Every reſource that poetry, muſic, dancing, and machinery could ſupply, was employed and exhauſted on the occaſion. The deſcription given of ſo ſuperb an entertainment excited the admiration of all Europe, and excited the emulation of ſeveral men of genius, who improved the hint to introduce among their countrymen a kind of ſpectacle equally pleaſing and noble.

It would ſeem, however, that at firſt the women had no ſhare in the public or theatrical dance; at leaſt we do not ſee them mentioned in the various entertainments given at the opera in Paris till the 21ſt of January 1681, when the then Dauphineſs, the princeſs of Conti, and ſome other ladies of the firſt diſtinction in the court of Louis XIV. performed a ballet with the opera called *Le Triomphe de l'Amour*. This union of the two ſexes ſerved to enliven and render the ſpectacle more pleaſing and far more brilliant than it ever was at any other period. It was received with ſo much applauſe, that on the 16th of May following, when the ſame opera was acted in Paris at the theatre of the Palais Royal, it was thought indiſpenſable for the ſucceſs of that kind of entertainment to introduce female dancers. They have continued ever ſince to be the principal ſupport of the opera.

The dance is now in ſuch commendation, that, particularly in France, the opera-houſe ſeems rather an academy for dancing than calculated for the repreſentation of lyric poems. The diſguſting and immoderate length of their recitatives is one of the chief cauſes of that general taſte for dancing which prevails amongſt them. A wit being aſked one day what could be done to keep up an opera threatened with a moſt complete damnation? "Do! (ſays he); why, lengthen the dances and ſhorten the petticoats." So evident it is, that ſinging, though apparently the chief purpoſe of an opera, is by no means the moſt pleaſing part of the entertainment to the ſpectators.

Thus, what was at firſt introduced as a mere acceſſary to the muſical performance, became in proceſs of time its only ſupport; and this circumſtance excited the emulation of ſeveral eminent ballet-maſters. The art, however, of compoſing thoſe grand dances, which are now ſo much admired, was for many years in a ſtate of infancy, till Monſieur Noverre ſtept forth and gave it that degree of perfection which it ſeems impoſſible to exceed. This celebrated ballet-maſter and performer, in a work lately publiſhed, has with great elegance and ingenuity delineated the nature, objects, and powers of dancing, enumerated the proper requiſites to give it effect, and ſhown how much it may be ennobled by an acquaintance with the kindred arts.

Ballets, he obſerves, have hitherto been the faint ſketch only of what they may be one day. An art entirely ſubſervient, as this is, to taſte and genius, may receive daily variation and improvements. Hiſtory, painting, mythology, poetry, all join to raiſe it from that obſcurity in which it lies buried; and it is truly ſurpriſing, that compoſers have hitherto diſdained ſo many valuable reſources.

According to our author, the reaſon why this art has remained ſo long in its infancy, is becauſe its effects have been reſtrained to the tranſitory ones of fire-works calculated only to pleaſe the eye; and it never was ſuppoſed to have powers ſufficient to ſpeak to the heart: whereas it may vie, he ſays, with the beſt dramatic pieces, prove equally intereſting, and captivate the ſpectator by the charms of the moſt complete illuſion.

If ballets, therefore, ſays he, "are for the moſt part unintereſting and uniformly dull; if they fail in the characteriſtic expreſſion which conſtitutes their eſſence, the defect does not originate from the art itſelf, but ſhould be aſcribed to the artiſts. Are then the latter to be told, that dancing is an imitative art? I am indeed inclined to think that they know it not, ſince we daily ſee the generality of compoſers ſacrifice the beauties of the dance, and give up the graceful *naiveté* of ſentiment, to become the ſervile copieſts of a certain number of figures, known and hackneyed for above a century; ſo that the ballets of Phaeton, or of any ancient opera, revived by a modern compoſer, would prove ſo very ſimilar to former ones, that one would think they have undergone no alterations, and are the ſame in every ſtep.

"Ballet-maſters ſhould conſult the productions of the moſt eminent painters. This would bring them nearer to nature, and induce them to avoid, as often as poſſible, that ſymmetry of figures, which, by repeating the object, preſent two different pictures on one and the ſame canvas.

"Thoſe ſymmetrical figures from right to left, according to my judgment, are ſupportable only in the entrées, which are not meant to expreſs any thing in particular, but are only calculated to afford ſome relief to the principal dancers. They may be introduced in a general dance at the concluſion of an entertainment, they may alſo be admitted in the *pas* of four, ſix, &c. though in my opinion it be ridiculous even in this caſe to prefer the diſplay of bodily ſtrength and agility to expreſſion and ſentiment. But ſuch figures muſt give way to nature in what we term *ballets d'action*. An inſtance, though perhaps not very forcible, may ſerve to elucidate and ſupport my argument.

"At the ſudden and unexpected appearance of ſome young fauns, a troop of nymphs take themſelves to flight with equal affright and precipitation. The former are in purſuit of the latter with that eagerneſs which the very hope of pleaſure can inſpire. Now they *ſtop* to obſerve what impreſſion they have made on the nymphs; theſe at the ſame time, and for a ſimilar reaſon, check their career: with fear they ſurvey their purſuers, endeavour to gueſs at their intentions, and provide for a retreat to ſome ſpot, where they may reſt ſecure from the dangers that threaten them. Both troops now join, the nymphs reſiſt, defend themſelves, and at laſt effect their eſcape with no leſs ſwiftneſs than dexterity.

"This I call a buſy active ſcene in which the dance, as it were, ſhould ſpeak with energy. Here ſtudied and ſymmetrical figures cannot be introduced without a manifeſt violation of the truth, without deſtroying the rules of probability, and without weakening the action and leſſening its effect.—This ſcene ſhould be conſpicuous; for its beautiful diſorder, and the art of the compoſer, muſt here be the handmaid of nature.

"A ballet-maſter, devoid of taſte and diſcernment, will make of this a mechanical piece of dancing, and thus deprive it of the effect it was calculated to produce for want of entering into the ſpirit of it. His nymphs and fauns will be arranged upon a parallel line, he will place the former in attitudes aukwardly uniform, and inſiſt on the latter holding up their arms to an even altitude; rather than deviate from the beaten path, and the antique rules of opera dancing, he will cautiouſly avoid to have, on the right and left, his nymphs placed in unequal numbers, but will reduce a ſcene of action, which ought to be ſupported with ſpirit, to an exerciſe equally affected and unintereſting.

"Perhaps ſome ill-diſpoſed critics, ſo far ſtrangers to the art as not to judge of it from its various effects, will maintain, that the above ſcene ſhould preſent only two different objects, the one pourtrayed in the love-ſick fauns, the other expreſſed by the affright of the nymphs. But how many ſhades may ſerve to embelliſh theſe pictures? how varied may be the ſtrokes of the pencil? how oppoſite the lights? and what a number of tints ought to be employed in order to draw from this twofold ſituation a multiplicity of images, each more lively and ſpirited than the other?

"As all men ſhare the ſame paſſions, and theſe differ in proportion to their ſenſations and feelings, they may therefore be worked upon more or leſs powerfully in proportion as they manifeſt themſelves outwardly with more or leſs force and impetuoſity. This principle once acknowledged, and nature indeed inforces it daily, it would certainly be more to the purpoſe to diverſify the attitudes and vary the expreſſion; for then the pantomime action of each perſonage would be diveſted of a diſguſting uniformity. The truth of imitation and the ſkill of the painter would conſpicuouſly appear in giving a different aſpect to the features, ſome of them expreſſive of a kind of ferocity, others betraying leſs eagerneſs, theſe caſting a more tender look; and to the reſt, the languiſhing air of voluptuouſneſs. The ſketch of this firſt picture naturally leads to the compoſition of the ſecond: here ſome nymphs appear divided between fear and deſire; there ſome others expreſs by the contraſt of their attitudes the various emotions of their ſoul. Some are more ſcornful than their companions, whilſt others betray a curioſity equal to their fears. This enſemble gives life to the whole picture, and is the more pleaſing that it is perfectly conſiſtent with nature. From this expoſition, you will not heſitate to agree with me, that ſymmetry, the offspring of art itſelf, ſhould never find place in the ballets d'action.

"I ſhall beg leave to enquire of all thoſe who reaſon from habitual prejudice, whether they will look for their favourite ſymmetry in a herd of ſheep flying from the wolf, or amongſt wretched peaſants leaving their huts and fields, in order to ſhelter themſelves from the fury of a party of enemies? By no means. But the art lies in concealing art itſelf; my aim is by no means to introduce diſorder and confuſion; on the contrary, I will have regularity even in irregularity. What I moſt inſiſt upon is, the introducing of well concerted groups, ſituations forcibly expreſſed, but never beyond nature, and above all, a certain eaſe in compoſition, which betrays not the labour of the compoſer. As for the figures, they are likely to pleaſe only in proportion as they quickly ſucceed each other, and are deviſed with equal taſte and elegance."

A ballet perfect in all its parts, our author proceeds to obſerve, is a picture, drawn from life, of the manners, dreſſes, ceremonies, and cuſtoms of all nations. It muſt therefore be a complete pantomime, and through the eyes ſpeak, as it were, to the very ſoul of the ſpectator. If it wants expreſſion, if it be deficient in point of ſituation and ſcenery, it degenerates into a ſpectacle equally flat and monotone.

According to Plutarch, a ballet is, if the expreſſion may be allowed, a mute converſation, or a ſpeaking and animated picture, whoſe language conſiſts of motions, figures, and geſtures.—Theſe figures, ſays our author, are unlimited in their number, becauſe there are a thouſand things that the ballet may expreſs. Phrynicus, one of the oldeſt tragedy writers, ſays, that he could find in our ballet as many figures as the ſea rolls waves in a high winter tide.

A well compoſed ballet, therefore, may do without the aſſiſtance of words: M. Noverre even remarks, that theſe only ſerve to weaken the action, and partly deſtroy its effects. He has no opinion of a pantomime which, in order to be underſtood, muſt borrow the help of a verbal explanation. "Any ballet whatever (ſays he), deſtitute of intrigue, action, and intereſt, diſplaying nothing more than the mechanical beauties of the art, and, though decorated with a pompous title, unintelligible throughout, is not unlike thoſe portraits and pictures to which the painters of old ſubſcribed the names of the perſonages and action they meant to repreſent: becauſe they were imperfect in point of imitation, the ſituations weakly expreſſed, the outlines incorrect, and the colours unſeemly.

"When dancers ſhall feel, and, Proteus like, transform themſelves into various ſhapes to expreſs to the life the conflict of paſſions; when their features, their very looks, ſhall ſpeak their inward feelings; when, extending their arms beyond the narrow circle preſcribed by the rigid rules of pedantry, and with equal grace and judgment giving them a fuller ſcope, they ſhall by proper ſituations deſcribe the gradual and ſucceſſive progreſs of the paſſions; when, in fine, they call good ſenſe and genius to the aſſiſtance of their art, then they may expect to diſtinguiſh themſelves: explanatory ſpeeches will become uſeleſs; a mute but powerful eloquence will be ſubſtituted to much better effect; each motion will be a ſentence; every attitude will pourtray a ſituation; each geſture convey a thought, and each glance a new ſentiment: every part will pleaſe, becauſe the whole will be a true and faithful imitation of nature."

A ballet, in whatever ſtyle it may be, ſhould, according to Ariſtotle, be compoſed, as well as poetry, of two different parts, which he calls parts of quality and parts of quantity. Nothing exiſts in nature without matter, form, and figure; the ballet therefore becomes a mere nonentity, if it be deficient in any of thoſe eſſential parts, which mark and conſtitute the being of any one thing animate or inanimate. The matter here is the ſubject intended for repreſentation; its form conſiſts in the ingenious diſtribution of the plan; and the various compounding parts conſtitute its figure. Form therefore contains the parts of quality, and the extent the parts of quantity.

Thus it appears, that ballets are in ſome degree ſubject to the rules of poetical compoſition. They, nevertheleſs, differ from tragedies and comedies, in that the former are not ſubject to the three unities of time, place, and action: Yet they require an unity of plot, in order that the various ſcenes may meet and end on the ſame point.—The ballet, therefore, may be termed the brother of the drama; though not reſtrained to its ſtricter rules: which only ſerve to cramp the imagination, check its flight, and confine genius; and if adhered to, muſt ſet aſide all thought of compoſition of ballets, by depriving them of their chief ornament, pleaſing variety.

M. Noverre conſiders tragedy as the ſubject moſt ſuitable for the art of dancing. The former abounds in noble incidents, ſituations, &c. and theſe produce the beſt ſtage effects. Beſides, the paſſions are more forcibly expreſſed by great characters than by common men: the imitation is of courſe leſs difficult, the action in the pantomime more ſignificant, natural, and intelligible.

“ The buſineſs of a ſkilful maſter (he obſerves), is to foreſee, as it were, at one glance, the general effect that may reſult from the enſemble, and never give the preference to one ſingle part over the whole. The only way for him to beſtow his thoughts on the greateſt number, is to forget for a while the principal characters of the drama; if his whole attention ſhould entirely be taken up with the parts of his firſt dancers of both ſexes, the action is ſuſpended, the ſcenes are ſlow in their progreſs, and the whole performance muſt fall ſhort of its deſired effect.

In the tragedy of Merope, by Voltaire, the principal characters are, Merope, Poliſonte, Egiſte, and Narbas: But although the parts of the inferior actors are not of equal importance, yet they all concur to the general action, and to the progreſſion of the drama, which would appear deficient in ſome parts, ſhould either of thoſe characters be wanting in the repreſentation. No uſeleſs perſonage ſhould be obtruded on the ſtage. Every thing therefore that may tend to weaken the effect of the drama ought to be carefully avoided, and only that number of actors introduced which is barely requiſite for the execution of the performance.

“ A ballet is a production of the ſame kind. It muſt be divided into acts and ſcenes, each of which, as well as the act itſelf, muſt have its beginning, its middle, and its end; that is, in other words, expoſition, plot, and denouement.

“ I have obſerved above, that the principal performers in a ballet ſhould be forgotten for a while: My reaſon is, that, in my opinion, it is eaſier to give ſtriking parts to Hercules and Omphale, Ariadne and Bacchus, Ajax and Ulyſſes, &c. than to 24 perſons in their retinue: If theſe have nothing to ſay, they are ſuperfluous, and of courſe ought to be rejected; but, if they are to ſpeak, let their converſation be conſonant with that of the principal characters.

“ The difficulty, therefore, does not lie in aſſigning a primary and diſtinctive part to Ajax or Ulyſſes; ſince it ſprings naturally from the importance of their ſituation in the play; but in introducing the figures in a becoming ſtyle, giving them parts of more or leſs importance, connected with the action of the two heroes; in introducing women, ſome of whom will appear concerned for Ajax, and the greater number ſhowing their partiality for Ulyſſes. The triumph of the latter, the former's death, preſent to the man of genius a ſeries of images that vie with each other in point of intereſting and pittoreſque ſituations. Theſe, by means of colouring ſkilfully contraſted, cannot but produce the moſt lively ſenſations. In fine, a ballet pantomime ſhould be dramatic in all its parts; and the figure-dancers, who ſucceed to the principal performers, ought to continue the ſcene, not by a number of ſymmetrical figures and ſtudied ſteps, but by that kind of animated expreſſion which keeps up the attention of the ſpectators to the main ſubject for which the preceding actors have prepared the audience.

“ Yet, either through ignorance or in conſequence of a vitiated habit, there are but few well ſupported ballets. Dance is introduced for the mere purpoſe of dancing: the end is ſuppoſed to be anſwered by the mechanical motions of the feet, or by high jumping, and that the idea which people of real taſte may have of a ballet is fully anſwered, when inactive performers are introduced in it, who mix and joſtle each other, preſenting a confuſed heap of pictures, ſketched without taſte, aukwardly grouped, and totally devoid of that harmony and expreſſion, the offspring of the ſoul, which alone can embelliſh art by giving it life.”

M. Noverre, in conſidering the knowledge neceſſary for attaining perfection in the preſent art, obſerves, that mythology, ancient poetry, and chronology, ought to be the primary ſtudies of a ballet-maſter; who ought alſo to poſſeſs a genius for poetry and painting, ſince the art borrows all its charms from a perfect imitation of nature.

A ſlight knowledge of geometry cannot but prove very advantageous, as it will help the maſter to introduce his figures in due proportion, to calculate exactly, and execute with preciſion. By means of that unerring guide, he will retrench every ſuperfluous acceſſary, and thus enliven the performance. Taſte will introduce elegance, genius create variety, and judgment direct the whole.

What is a ballet but a piece of more or leſs complicated machinery, which ſtrikes or ſurpriſes the beholder by its various effects, only in proportion as thoſe are diverſified and ſudden? That chain and connection of figures, thoſe motions ſucceeding each other with rapidity, thoſe various forms turning contrary ways, that mixture of different incidents, the enſemble and harmony which mark the ſteps and accompany the exertions of the dancers; do not all theſe give you the idea of a mechaniſm moſt ingeniouſly contrived?

Ballets are often built on preternatural ſubjects: ſeveral of them require the aſſiſtance of machinery. For inſtance, few of the ſubjects taken from Ovid will be fit for repreſentation, without a change of ſcenery, flights through the air, metamorphoſes, &c. This author therefore muſt never be taken for a model, unleſs the ballet-maſter himſelf be an expert mechaniſt. None are to be found out of the capital but journeymen and ſtage-ſweepers, whom the patronage of ſome mighty ſon of the ſock has preferred by degrees to that employment. The talents of thoſe upſtarts conſiſt in, and reach not beyond, the capacity of putting up the lights which they were wont to ſnuff for many years, or letting down aukwardly a glory of the moſt wretched ſtyle. The theatres in Italy are not remarkable for their machinery; thoſe of Germany, built upon the ſame plan, are not leſs deficient in point of that enchanting part of ſtage-exhibition; ſo that a ballet-maſter muſt, in theſe countries, find himſelf greatly embarraſſed, if unſkilled in the mechanical arts, he cannot convey his ideas with perſpicuity, by building for that purpoſe ſmall models, which are better underſtood by the generality of workman than the cleareſt verbal explanation.

The theatres of Paris and London are the beſt ſupplied with theſe reſources. The Engliſh are very ingenious: their ſtage machinery is more ſimplified than the French: and of courſe produce a quicker effect.

Amongſt them all theſe kinds of works are moſt exquiſitely finiſhed; that neatneſs, care, and exactitude, which is remarkable throughout every part, greatly contribute to the preciſion of the whole. Thoſe chief-d'œuvres of mechaniſm particularly diſplay themſelves in their pantomimes; which, however, are low and trivial, devoid of taſte and intereſt, and built upon the meaneſt incidents. It may be ſaid that this kind of entertainment, which, is got up at a prodigious expence, is only calculated to pleaſe thoſe eyes which are ſhocked at nothing; and that it would meet with no ſucceſs on the French theatres, where no other pleaſantry is permitted but ſuch as is not incompatible with decency, abounds with delicacy and wit, and is no ways levelled againſt morals and humanity.

A compoſer who wiſhes to riſe ſuperior to the generality of ballet-maſters, ſhould ſtudy the painters, and trace them in their various manners of drawing and compoſing. Both arts have the ſame object in view whether it be for taking likeneſſes, mixing the colours, and preſerving the clare-obſcure; or for grouping the figures properly; laying on the draperies, throwing the former into elegant attitudes, and giving them life and expreſſion.

Upon the ſame principal, the knowledge of anatomy will ſerve to render more clear and intelligible the precepts which he has to lay down for his pupils. It will be an eaſy matter for him to diſtinguiſh properly between the natural and habitual defects in their conformation. Theſe are the greateſt obſtacles that ſo often impede the progreſs of young beginners. Thus once knowing the cauſe, he will be able to remedy the evil; as his leſſon and precepts will then be the reſult of ſtrict attention, they never can fail of becoming profitable.

Drawing is too uſeful in the compoſition of ballets for the maſter not to pay a ſerious attention to that art; it will contribute to the beauty of the forms; it will give to the figures an air of novelty and elegance, animate the groups, throw the body into graceful poſitions, and ſhow the attitudes in a juſt preciſion.

A ballet-maſter who is no proficient in muſic, will make a bad choice of his airs. He will not enter into the ſpirit or character of them. The motions of his dancers will not beat time with that preciſion and delicacy which are abſolutely neceſſary, unleſs he is endued with that ſenſibility of organ which is more commonly the gift of nature than the reſult of art, and is far above what may be acquired by long practice and ſteady application.

A good choice of muſic is as eſſential to dancing as the choice of words and the phraſing of a ſpeech is to eloquence. It is the tune and time of the muſic that fix and determine the motions of the dancers. If the former be uniform and devoid of taſte, the ballet will, like its model, be dull and unmeaning.

By this immediate connection between muſic and dancing, it clearly appears, that, from a practical knowledge of the former, the ballet-maſter will derive the greateſt advantages. He will then be able to impart his thoughts to the compoſer; and if taſte and knowledge combine together, he will either ſet the muſic himſelf, or at leaſt furniſh the compoſer with the principal outlines, to characteriſe the action of the dancer; as this will be varied and expreſſive, the ballet cannot fail of being equally ſo. Muſic well compoſed ſhould paint and ſpeak; and the dance ſet to thoſe ſounds, will be, as it were, the echo to repeat the words. If on the contrary it be mute, if it ſpeak not to the ear of the dancer, then all ſentiment and expreſſion are baniſhed from the performance.

As nothing can appear trifling to the man of genius, nothing ſhould ſeem ſo to the ballet-maſter. It is impoſſible for him to diſtinguiſh himſelf in his profeſſion, unleſs he applies to ſtudy thoſe arts which have been juſt mentioned. Yet to inſiſt that he ſhould be maſter of them all in that degree of perfection which is attainable only by thoſe who give themſelves entirely up to the ſtudy of each of them in particular, would be requiring a mere impoſſibility.

All that can be deemed ſtrictly requiſite, therefore, is a general knowledge, a ſlight tincture of thoſe ſciences which, by the connection they have with each other, are likely to contribute to the improvement of the art and to its reputation. From the natural union, however, that ſubſiſts between the arts, and from the harmony which reigns amongſt them, that ballet-maſter will ennoble his compoſition with the moſt fire, ſpirit, livelineſs, and intereſt, who has moſt genius and imagination, and whoſe knowledge is moſt extenſive.

As to performers, and their perſonal qualifications: The firſt point to which it is directed to pay attention when one takes up the profeſſion of a dancer (at leaſt ſo ſoon as he becomes capable of reflection), is his bodily formation: If one is conſcious of any natural defects which ſeem irremediable by art, it will be beſt immediately to renounce every idea that may have been formed of the advantage ariſing from popular approbation. But where perſonal defects can be reformed by application, ſtudy, or the advice and aſſiſtance of judicious maſters, then it becomes an eſſential concern quickly to exert every effort, before the parts to be corrected have acquired ſtrength and conſiſtence, before nature has unalterably taken her bent, and the error becomes too habitual and inveterate.

Among other perſonal defects, there are two which deſerve particular notice: The firſt is that of being *jarreté*, "knock-knee'd; the other of being *arqué* or "bow-leggd."

A man is ſaid to be *jarreté* or in-knee'd when the haunches are ſtraight, and incline inwardly, the thighs lie near, and the knees are protuberant, and ſo cloſe that they touch and knock together at every ſtep even when the feet are at a diſtance; ſo that ſuch a perſon, from the knees to the feet, makes the figure of a triangle: in people of this formation, likewiſe, there is a clumſineſs in the inſtep of the ancle, a great elevation in the inſtep, while the *tendo Achillis* is not only very ſlender, but much extended in the articulation.

The other defect, of being *arqué* or bow-legged, is the oppoſite of the former; and exiſts in the ſame parts, namely, from the haunches to the feet, which deſcribe a ſort of bow or arch; for the haunches being in this caſe hollow, the thighs and knees ſtand open, and at a diſtance, and produce the ſame effect in the lower extremities, ſo that they can never be brought in proper contact like thoſe of a well-ſhaped perſon;

their feet alſo are long and flat, the ancle juts out, and the *tendo Achillis* is large and cloſely inſerted. A ſingle view of theſe diametrically oppoſite defects, prove more forcibly than any arguments, that the inſtructions which might correct the errors of one of thoſe ſort of dancers, would tend only to increaſe the defects of the other; and that conſequently their aim and ſtudy ought to be correſpondently oppoſite.

The dancer whoſe defect is of the firſt kind, that of being *jarreté*, muſt uſe the means which art furniſhes him with, to ſeparate and widen the too cloſely connected parts. The firſt ſtep to this end is to turn the thighs outwardly, endeavouring to move them in that poſition, by taking the advantage of the free rotation which the thigh bone has in the *cotiloidal* cavity of the haunches: aſſiſted by this exerciſe, the knees will follow the ſame direction, and return as it were to their proper poſition. The kneepan (which ſeems intended to prevent the knee from being thrown too far backward from its inſertion) will ſtand perpendicular over the point of the foot, while the thigh and leg thus placed deſcribe a line that will enſure firmneſs and ſtability to the whole body.

The ſecond remedy to be uſed is, to keep the knees in a conſtant bend, and to make them appear very much ſtretched, without their being really ſo. This muſt be the reſult of long and conſtant practice; but when the habit is firmly contracted, it is impoſſible to return to the former vicious poſition, without cauſing an inſupportable pain and numbneſs. Some dancers have been able to conceal this defect ſo artfully, that it was entirely undiſcoverable unleſs in dancing ſtrait-capers or in very quick movements. The reaſon of its becoming viſible at ſuch times is, that the contraction of the muſcles in the effort of leaping makes them ſtiff about the articulation, and forces every part into its former and natural ſituation; the knees thus ſtrained, turn inwardly and (for the time) regain their uſual protuberance, which becomes an obſtacle to the diſplay of the *entre-chat*. The more theſe parts connect, to the greater diſtance will the lower extremities be thrown; hence the legs, neither being able to beat nor croſs, remain motionleſs at the time of the knees rolling over each other, while the *entre-chat*, being neither cut, beat, nor croſſed by the feet, is deprived of that life and brilliancy which are its chief merit.

A perſon thus formed, ſhould entirely renounce the *entre-chat*, *cabrioles*, and every kind of dance that requires very quick and complicated movements, as it will infallibly render him weak and powerleſs; for the haunches being ſo ſtrait, the muſcles that are attached to them (whereon the motions of the trunk depend), have not a proper and eaſy play, which will be always in proportion to the dimenſion of theſe bones, becauſe then the muſcles ſhoot out or divide from a point more diſtanced from the centre of gravity: therefore the grander ſort of dancing, and *terra á terre*, is the beſt adapted to ſuch dancers; and we may add, that whatever they loſe on the ſcore of ſtrength, they regain in elegance and addreſs. They are luxuriant and ſhining in the ſimpleſt parts; eaſy, even in difficult ones, where no great efforts are required; juſt in their execution; elegant in their diſplay; and their ſpring is always exerted with an infinity of grace, as they dexterouſly employ every reſource with the motion of the inſtep can give them. Theſe are advantages which atone for want of perſonal ſtrength; and in dancing agility and addreſs are always preferable to the mere efforts of force

The art of concealing or overcoming the defect of ſuch performers as we have characteriſed by being *arqué* or bow-legged, is in a great meaſure the oppoſite of the former; namely, by endeavouring to bring together the parts that are too much ſeparated, and leſſening that vacancy which is particularly obſervable between the knees. Theſe require no leſs exerciſe than the former in turning the thighs outwardly, and generally are leſs able to diſguiſe their faults; for being more robuſt and vigorous, there is leſs pliability in their muſcles, and their joints move leſs eaſily. And it muſt be added, if the deformity reſults from a natural diſtortion of the bone, labour will be as uſeleſs as all the aids of art will be impotent.

It was remarked, that dancers of the firſt claſs, or *jarreté*, ſhould preſerve a ſlight genuflexion or bend in their performance; while theſe, for the oppoſite reaſon, ought to keep their limbs either extended or ſtretched, and to croſs more cloſely, by that means diminiſhing the vacancy occaſioned by the natural ſeparation. Such dancers are nervous, lively, and brilliant in all caſes which require more ſtrength than elegance; vigour and agility may be inferred from their muſcular force, and the firmneſs and reſiſtance of their articular ligaments; lively in their dancing, becauſe they croſs low rather than high; and requiring on that account leſs ſpace in beating time, they perform it with more livelineſs: they diſplay more brilliancy, becauſe the light becomes viſible between the limbs at the moment of croſſing and recroſſing: and this is preciſely the *clair-obſcure* of dancing; for if the time in the *entre-chat* or croſs-caper is neither cut nor beat, but rolled or huddled over, there is no light to give diſtinction to the ſhadows, and the limbs ſo cloſely joined, preſent an indiſtinct and effectleſs maſs.

Theſe dancers have leſs addreſs than the others, as they generally depend on their ſtrength; and indeed their ſtrength is a conſtant obſtacle to eaſe and pliancy; if it forſakes them a ſingle moment, they appear aukward and ridiculous: nor can they conceal their ſituation by any trifling diſplay; that requiring mere addreſs, would give them time to recover, which their want of natural elaſticity otherwiſe prevents.

Dancers who are *jarretés*, are weak, ſlender, and delicate; the others, ſtrong and vigorous, large made and nervous. It is a common opinion, that ſtout, ſquat-built men, are heavy and ſluggiſh; which they doubtleſs are in reſpect of bodily weight: but the notion is erroneous ſo far as regards dancing; for activity owes its very exiſtence to muſcular ſtrength, and every man who has not a requiſite ſhare of that will always fall heavy. The reaſon is evident; the weak parts, in the inſtant of falling, not being able to reſiſt the ſtronger (that is the weight of the body, which acquires a *momentum* in proportion to the height it falls or deſcends from), yield and bend; and it is at the moment of relaxation or flexion that the noiſe of the fall is heard; a circumſtance greatly leſſened, or rather entirely avoided, when the body is able to maintain itſelf in a perpendicular direction; and while the muſcular ſpring is ſufficient to oppoſe that deſcending force.

force, and vigorouſly reſiſt a ſhock which would otherwiſe deſtroy it.

Nature has not exempted the fair ſex from thoſe imperfections we have been taking notice of; but art, and the uſe of petticoats, come fortunately to the help of the female dancer. The hoop conceals a multitude of defects, which the critic's curious eye cannot aſcend to diſcover. Moſt of them dance with their knees open, as if they were naturally *arquees;* but, thanks to this bad habit, and to the petticoats, they appear more brilliant than the men; becauſe, as they beat from the lower part of the leg, they perform the time quicker than men, who, concealing nothing from the ſpectator, are obliged to beat at a greater extent, and to do it originally from the haunch.

The vivacity of the ſex contributes much to the brilliancy of their execution; though certainly not leſs is owing to the petticoats, which, by concealing the length of the limbs, catch the attention, and fix it more advantageouſly: thus all the fire of the beats being united in one point, appears more lively and brilliant; while the eye embraces one object only, without being hurried and confuſed, in proportion to the ſpace it has to overlook.

To perfection in dancing, Mr Noverre obſerves, nothing is more neceſſary than the outward turn of the thigh; yet nothing is more natural to mankind than the contrary poſition: it is born with us. It will be ſuperfluous, in eſtabliſhing this truth, to cite for example the Aſiatics, the Africans, or any people who dance, or rather leap and move, without art or principle. If we attend only to children, or the ruſtic inhabitants of the villages, we ſhall ſee that they all turn their feet inwardly. The other poſition is purely invention; and a proof, far from equivocal, of this fault being an imaginary one, is, that a painter would tranſgreſs as much againſt nature as the rules of his art, were he to place the feet of his portrait in the ſituation of a dancer's. It is plain, then, that to dance elegantly, walk gracefully, or addreſs ourſelves with eaſe and manlineſs, we muſt abſolutely reverſe the nature of things; and force our limbs, by artificial applications equally tedious and painful, to aſſume a very different ſituation from what they originally received.

Such a change, however neceſſary in this art, can only be accompliſhed by laying its foundation in the earlieſt ſtages of infancy, when every bone and muſcle is in a ſtate of pliability, and capable of receiving any direction which we chooſe to give them.

The difficulty of attaining the outward poſition of the limbs is owing to our ignorance of the proper arts to be employed. Moſt beginners perſuade themſelves that it is to be acquired by forcing the feet to turn outward; and though this part may readily take ſuch a direction, from their ſuppleneſs, and being ſo eaſily moved at their articulation with the leg; yet this method is ſo far falſe, as it tends to diſplace the ancle-bones, and beſides has not any effect upon either the knees or thighs.

Neither is it poſſible to throw the knees outwardly without the aſſiſtance of the thigh. The knees have only two motions, bending and extenſion; the one drawing the leg backward, the other throwing it forward: they have no power, therefore, of themſelves to determine or aſſume an outward poſition; but muſt eventually depend on the thigh, which entirely commands all the lower parts of the body, and turns them in conſequence of its own rotatory motion; ſo that, in fact, whatever motion or poſition that takes, the knee, foot, and leg, are obliged to follow.

M. Noverre condemns the *tourne-haunch* as a clumſy and uſeleſs invention, which, inſtead of producing any good effect, ſerves only to lame thoſe who uſe it, by giving a diſtortion to the waiſt, much more diſagreeable than what it was intended to remove.

The ſimpleſt and moſt natural means are thoſe which reaſon and good ſenſe ought to adopt; and of theſe a moderate but continual exerciſe is indiſpenſable: the practice of a circular motion or turning of the legs, both inwardly and outwardly, and of boldly beating at full extent from the haunch, is the only certain exerciſe to be preferred. It inſenſibly gives freedom, ſpring, and pliancy; while the motions acquired by uſing the machine have more an air of conſtraint, than of that liberty and eaſe which ſhould ſhine conſpicuous in them.

It has been maintained, that a ſtrong and vigorous perſon ought to ſpring higher and better than a ſlender or weaker man. But experience (ſays M. Noverre) daily proves the contrary. We ſee many dancers, who cut the time very ſtrong, who beat with much vigour and firmneſs, and yet cannot ſpring to any conſiderable perpendicular elevation: for an oblique elevation, or on one ſide, ought here to be diſtinguiſhed from the former; the latter is faint, and depends entirely upon addreſs in the dancer. There are others, again, whoſe ſlender form renders their execution leſs bold, and rather elegant than forcible, rather lively than nervous, but who can riſe to an extraordinary height: it is to the ſhape and formation of the foot, and to the length and elaſticity of the tendon, that this power of elevation is originally owing; the knees, the loins, and the arms, all co-operate in this action; the ſtronger the preſſure upon the muſcles, the greater is the re-action, and the ſpring or leap is proportionably high. The alternate motion of the knees participate with thoſe of the inſtep and *tendo Achillis*, though the latter are ſtill the moſt eſſential auxiliaries; the muſcles of the trunk lend their aſſiſtance, and preſerve the body in a perpendicular direction; while the arms, running imperceptibly to the mutual aſſiſtance of all the parts, ſerve as wings to counterbalance the machine.

Obſerve all thoſe animals that have long and ſlender ancles, as ſtags, roebucks, ſheep, cats, monkeys, &c. and you will perceive that they have a quickneſs and facility of ſpringing and leaping, which animals differently formed in that part can never obtain.

But were a man endowed with all the other qualities eſſential to the perfection of the art, yet ſtill without ſtrength and firmneſs in his loins he never can be a good dancer. This ſtrength is certainly the gift of nature; but it may be much improved by the aſſiduity of an able teacher. We daily ſee dancers who have neither perpendicularity nor firmneſs, and whoſe performance is altogether unſtable and irregular: and we likewiſe ſee others, who, though they poſſeſs not ſo great a degree of native force, have all the appearance of ſinewy firmneſs and muſcular ſtrength, in their haunches, back, and loins. Art has furniſhed a ſubſtitute for nature, in the leſſons of ſome excellent teacher, who has convinced them, that when once they forego an attention to the loins, it is impoſſible to keep themſelves in a right perpendicular line; and therefore all their exertions will be devoid of taſte: that all wavering and inſtability in this part is inconſiſtent with perpendicularity and firmneſs, and will certainly cauſe diſtortion of the ſhape and waiſt: that the depreſſure and ſinking of the body deprives the lower parts of that liberty which is neceſſary to their eaſy motion: that hence the body is undetermined in its poſitions; frequently drags the limbs; and conſtantly loſes the centre of gravity; and therefore cannot recover an equilibrium, but after various efforts and contortions totally repugnant to the graceful and harmonious motion of good dancing.

Such is the performance of thoſe dancers who have no ſtrength in their loins, or at leaſt do not exert what they poſſeſs. In order to dance well, the body ſhould be firm and ſteady; it ſhould particularly be motionleſs and free from wavering while the legs are in exertion; for when the body follows the actions of the feet, it diſplays as many grimaces and diſtortions as the legs execute different ſteps; the performance is then robbed of its eaſe, uniformity, harmony, exactneſs, firmneſs, perpendicularity, and equilibrium; in a word, of all thoſe beauties and graces which are ſo eſſential to make dancing give pleaſure and delight.

Many dancers are of opinion, that to be ſoft and luxuriant, the knees muſt be bent very low. But in this they are moſt certainly miſtaken; for a more than ordinary flexion of the knees gives rather a dryneſs and inſipidity to dancing; and a dancer may be very inelegant, and jerk, as it were, all his movements, as well in bending very low as in not bending at all. The reaſon will appear natural and evident, when we reflect, that the time and motions of the dancer are ſtrictly ſubordinate to the time and movements of the muſic: purſuing this principle, it is not to be doubted, that when the flexion of the knees is greater than what the air or time of the dance requires, the meaſure then drawls along, languiſhes, and is loſt. To recover and catch again the time which this unneceſſary flexion had deſtroyed, the extenſion of the knee muſt be equally quick; and it is this ſudden tranſition which gives ſuch a harſhneſs and ſterility to the execution, and renders it as diſguſtful as the oppoſite fault of ſtiffneſs and inflexibility.

That luxuriant ſoftneſs requires more to its perfection than merely an exact flexion and extenſion of the knees; the ſpring of the inſtep muſt add its aſſiſtance, while the loins muſt balance the body to preſerve theſe ſprings in proper bounds. It is this rare harmony of motion (ſays M. Noverre) which has procured the celebrated Dupré the glorious title of the *God of Dance*.

There are many dancers, and of an inferior claſs only, who can diſplay a great variety of ſteps, badly enough choſen to be ſure, and often diſplayed without either judgment or taſte; but it is very uncommon to find among them that exactneſs of ear (that rare but innate talent of a dancer), which gives life to and ſtamps a value upon ſteps, and which diffuſes over all their motions a ſpirit that animates and enlivens them.

There are ſome ears ſtupid and inſenſible even to the moſt ſimple, plain, and ſtriking movements; there are others, more cultivated or refined, that can feel and comprehend the meaſure, but cannot ſeize its intricacies; and there are others again to whom the moſt difficult airs and movements are eaſy and intelligible, and at once comprehended. It is nevertheleſs certain, that a dancer may have a very perfect and nice feeling, and yet not make his feelings intelligible to the audience, if he has not the art of commanding thoſe reſources which depend upon a proper exertion of the *coup-de-pied*: aukwardneſs becomes viſible where the exacteſt proportion was neceſſary; and every ſtep which would have been becoming, and produced the happieſt effect, had it been ſmartly introduced at the concluſion of the meaſure, will now be cold and lifeleſs, if all the limbs are in motion at once. It requires more time to move the whole body than to exert any ſingle member; the flexion and extenſion of the inſtep is more readily and quickly made than the reciprocal motion of all the joints. This principle allowed, that the dancer is deſtitute of preciſion, who (ſuppoſing he poſſeſſes a muſical ear) knows not how to time his ſteps; the elaſticity of the inſtep, and the more or leſs active play of the muſcles, add to the natural ſenſibility of the ear, and ſtamp value and brilliancy on the dance. The joint charms of the harmony ſpringing from the movements of the muſic, and the motions of the dancer, captivates even thoſe whoſe ears are the moſt inſenſible and leaſt ſuſceptible of muſical impreſſion.

There are ſome countries where the inhabitants in general are endowed with this innate muſical taſte. The Palatinate, Wirtemberg, Saxony, Brandenburg, Auſtria, and Bohemia, ſupply the orcheſtres of the German princes with many excellent muſicians and eminent compoſers. The Germans, indeed, are born with a very lively and juſt taſte for muſic, and have in them the ſeeds of true harmony; nothing is more common than to hear concerts, both in the ſtreets and in the ſhops of their mechanics, performed with the greateſt ſkill and exactneſs.

Such a natural and native taſte of muſic as we have been mentioning, is uſually accompanied by, or includes in it, a ſimilar one for dancing; they are kindred arts; the tender and harmonious accents of the one excites and produces the agreeable and expreſſive motions of the other, and their union entertains the eye and ear with animated pictures of ſentiment; theſe two ſenſes, again, convey to the heart the intereſting images which affect them, while the heart, in its turn, communicates them to the mental faculty: thus the pleaſure reſulting from the harmony and intelligence of theſe two arts, enchants the ſpectator, and fills him with the moſt ſeducing pleaſures of voluptuouſneſs.

Dancing is probably no where varied to ſuch a degree as in the provinces of Germany; where the well known dances of one village are ſtrangers in the adjacent hamlet; their ſongs of mirth and merriment have no leſs different airs and movements, though they are all marked with that of gaiety. Their dances are pleaſing and engaging, becauſe the offſpring of ſimple nature; their motions expreſs joy and pleaſure; and the exactneſs with which the whole is performed, gives a peculiar agreeableneſs to their ſteps, geſtures, and attitudes. Do they ſpring?—a hundred perſons, aſſembled round an oak, or ſome ancient pillar, ſeize the time at one inſtant, bound up, and deſcend with the ſame exactneſs. Do they wiſh to mark the meaſure by a *coup-de-pied?*—all ſtrike with one conſent; or when they catch up their women, you ſee them all in the air at an equal height, nor do they deſcend but at the preciſe note that marks the time.

The counter-point, which is doubtleſs the touchſtone of a delicate ear, is to them an object of no difficulty; hence their dance is ſo particularly animated, and the nicety of that organ has the effect of giving their different motions an air of gaiety and variety altogether exquiſite.

A dancer whoſe ear is untuned to harmony, diſplays his ſteps without order or regularity, wanders from his part, and purſues the meaſure without being able to reach it: devoid of judgment, his dancing has neither ſentiment nor expreſſion; and the muſic which ſhould direct his motions, regulate his ſteps, and guide his time, ſerves only to expoſe his imperfections and inſufficiency. The ſtudy of muſic ſhould therefore be applied to for the purpoſe of obviating this defect, and giving more ſenſibility and exactneſs to the organs of hearing.

It will not be expected that we ſhould proceed to give a deſcription of all the intricacies and combinations of ſteps that are or can be exerted in dancing; or enlarge upon the mechanical particulars of the art. A diſſertation on the latter would be inſipid and diſguſtful; for the language of the feet and limbs is addreſſed to the eyes, not to the ears: and a detail of the former would be endleſs, ſince every dancer has his peculiar manner of joining or varying the time. It may be ſufficient juſt to mention on this point, that it is in dancing as in muſic, and with dancers as with muſicians: Dancing does not abound with more fundamental ſteps than muſic with notes; but there are octaves, breves, ſemibreves, minims, crotchets, double and treble crotchets; times to count and meaſures to follow. This mixture, however, of a ſmall number of ſteps, and a few notes, furniſhes dancers with a multitude of connections and a variety of figures: taſte and genius will always find a ſource of novelty in arranging them in different manners, and to expreſs various ideas. Slow and lengthened, or quick and precipitate ſteps, and the time correſpondently varied, give birth to this endleſs diverſity.

Country-Dance. See *Country-Dance*.

Country-Dance, commonly ſo written, and hence ſeeming to imply a ruſtic way of dancing borrowed from country people or peaſants, is by others ſuppoſed to be a corruption of the French *Contre-danſe*, where a number of perſons placing themſelves oppoſite one to another begin a figure.

Rope-Dancer, *ſchœnobates*, a perſon who walks, leaps, dances, and performs ſeveral other feats upon a ſmall rope or wire.

The ancients had their rope-dancers as well as we. Theſe had four ſeveral ways of exerciſing their art: The firſt vaulted, or turned round the rope like a wheel round its axis, and there hung by the heels or neck. The ſecond flew or ſlid from above, reſting on their ſtomach, with the arms and legs extended. The third ran along a rope ſtretched in a right line or up and down. Laſtly, the fourth not only walked on the rope, but made ſurpriſing leaps and turns thereon. They had likewiſe, the *cremnobates* and *orobates*; that is, people who walked on the brinks of precipices: Nay more, Suetonius *in Galba*, c. 6. Seneca in his 85th Epiſtle, and Pliny, *lib.* viii. *c.* 2. make mention of elephants that were taught to walk on the rope.

St Vitus's Dance. See Medicine-*Index*.

DANCETTE, in heraldry, is when the outline of any bordure, or ordinary, is indented very largely, the largeneſs of the indentures being the only thing that diſtinguiſhes it from indented.

DANCING. See Dance.

Dancing-Girls of Egypt. See Alme.

Dancing-girls are employed all over the eaſt, as affording great diverſion at all public entertainments. They are all proſtitutes; and by the laws of their ſociety are bound to refuſe no one for their price, which is rated according to their beauty and other accompliſhments. There are even particular ſets of them appropriated to the ſervice of the Gentoo temples and the uſe of the bramin prieſts who attend them. Theſe poor creatures ſay that they were firſt debauched by their *god*, and afterwards by him conſigned over to the uſe of the prieſts who belong to his temples.

Theſe dancing-girls, whether in a ſettled or unſettled condition, live in a band or community under the direction of ſome ſuperannuated female of the ſame profeſſion, under whom they receive a regular education, and are trained up in all the arts of love and leaſing, like ſcholars in an academy. Thus they acquire the art of captivating the affections of the other ſex to ſuch a degree, that nothing is more common than for one of the princes or chief people of the country to take a liking to one of theſe girls, and waſte immenſe ſums on her, though at the ſame time their own haram is ſtocked with beauties far ſuperior, and who are beſides poſſeſſed of the natural modeſty of the ſex, to which the others have not the ſmalleſt pretenſions. Thus ſome of theſe girls acquire immenſe wealth. In the neighbourhood of Goa, for inſtance, on a part of the continent bordering on the diſtrict of that iſland, the dancing girls founded a village, after being driven from Goa by the zeal of the archbiſhop. Here they reſide in a body corporate, and attend the parties of pleaſure of the noblemen and principal inhabitants, for it is not every one's purſe that can afford them. Here many of them acquire conſiderable fortunes by this ſcandalous traffic, and throw it into a common ſtock for the ſake of carrying on merchandiſe; being concerned in ſhipping and the moſt profitable voyages, for which they have regular factors and brokers.

The dreſs of theſe women varies according to the country they live in; but in all it is the moſt gorgeous imaginable. They are loaded with jewels, literally from top to toe, ſince even on their toes they wear rings. Their necks are adorned with carcanets, their arms with bracelets, and their ancles with chains of gold and ſilver, often enriched with precious ſtones. They alſo wear noſe-jewels, which at firſt have an odd appearance, but to which the eye is ſoon reconciled. In Indoſtan, theſe dancing-girls, as well as the other women of the country, have a peculiar method of preſerving and managing their breaſts, which at the ſame time makes no inconſiderable part of their finery.

They incloſe them in a pair of hollow caſes, exactly fitted to them; made of very light wood, linked together, and buckled at the back. Theſe at once confine their breaſts ſo that they cannot grow to any diſguſtfully exuberant ſize; though, from their ſmoothneſs and pliancy, they play ſo freely with every motion of the body, that they do not cruſh the tender texture of the fleſh in that part, like the ſtiff whalebone ſtays in uſe among the Europeans. The outſide of them is ſpread over with a thin plate of gold or ſilver, or ſet with gems, if they can afford it. Another occaſional ornament the dancing-girls put on, particularly when they reſort to their gallants, viz. a necklace of many looſe turns, compoſed of flowers ſtrung together, which they call *mogrees*, ſomewhat reſembling Spaniſh double jeſſamy, but of a much ſtronger and more agreeable fragrant odour, and far preferable to any perfumes. "They have nothing (ſays Mr Groſe) of that nauſeous boldneſs which characteriſes the European proſtitutes, their ſtyle of ſeduction being all ſoftneſs and gentleneſs."

With regard to the performances of theſe women as dancers, we have various accounts. The author of Memoirs of the late War in Aſia, acquaints us, "that their attitudes as well as movements are not ungraceful. Their perſons are delicately formed, gaudily attired, and highly perfumed. By the continuation of wanton attitudes, they acquire, as they grow warm in the dance, a frantic laſciviouſneſs themſelves, and communicate, by a natural contagion, the moſt voluptuous deſires to the beholders." Mr Ives ſeems to have been very cool on this ſubject. "I could not (ſays he) ſee any thing in their performance worthy of notice. Their movements are more like tumbling or ſhowing poſtures than dancing. Their dreſs is thin and light; and their hair, necks, ears, arms, wriſts, fingers, legs, feet, and even the toes, are covered with rings of gold and ſilver, made after a clumſy manner. They wear two rings in their noſes; and by their ſtaring looks and odd geſticulations, you would rather ſuſpect them to be mad women than morris-dancers. The band of muſic that attends them is not leſs ſingular in its way: it is chiefly compoſed of three or four men, who hold two pieces of bell metal in their hands, with which they make an inceſſant noiſe; another man beats what he is pleaſed to call a drum; and that they may not want vocal muſic to complete the band, there are always two others appointed to ſing. Theſe laſt generally lay in their mouths a good loading of beetel nut before they begin; which, after having been well chewed, tinges the ſaliva with ſuch a redneſs, that a ſtranger would judge them to bleed at the mouth by too violent an exertion of their voice. Theſe gentry are called *ticky-taw* boys, from the two words *ticky-taw*, which they continually repeat, and chant with great vehemence. The dancing-girls are ſometimes made uſe of in their religious ceremonies, as when the prieſts bring forth the images of their gods into the open fields on a car ornamented with laſcivious figures, theſe girls dance before the images amidſt a great crowd of people; and having been ſelected for their ſuperior beauty, are very profitable to their maſters, the prieſts, who are ſaid to proſtitute them to all comers."

Mr Groſe informs us, that "theſe dances would hardly at firſt reliſh with Europeans, eſpecially as they are accompanied with a muſic far from delightful, conſiſting of little drums called *gumgums*, cymbals, and a ſort of fife, which make a hideous din, and are played on by men, whoſe effeminacy, grimaces, and uncouth ſhrivelled features, all together ſhock the eye and torture the ear. However, by uſe we become reconciled to the noiſe, and may obſerve ſome not unpleaſing airs, with which the dancers keep time: the words often expreſs the matter of a pantomime dance, ſuch as a lover courting his miſtreſs; a procureſs bringing a letter, and endeavouring to ſeduce a woman from one gallant in favour of another; a girl timorous and afraid of being caught in an intrigue. All theſe love-ſcenes the girls execute in character dances, and with no deſpicable expreſſion, if they are proficients in their art; for then their geſtures, air, and ſteps, are marking and well adapted. In ſome of their dances, even in public, modeſty is not much reſpected by the laſcivious attitudes into which they throw themſelves, without expoſing any nudity; being richly clad and bedecked with jewels after their manner. But in private parties to which they are called, as in gardens, they give themſelves a greater looſe, and have dances in reſerve; in which, though ſtill without any groſſneſs in diſcovering their bodies, they are miſtreſſes of ſuch motions and lewdneſs of looks and geſtures as are perhaps more provoking.

DANDELION, in botany. See LEONTODON.

DANDINI (Pietro), an eminent painter, was born at Florence in 1646, and received his firſt inſtruction in the art of painting from Valerio Spada, who excelled in ſmall drawings with a pen. Whilſt he was under the care of that artiſt, he gave ſuch evident proofs of a ready genius, that he was then placed as a diſciple with his uncle Vincentio Dandini, a maſter of great reputation through all Italy, who had been bred up under Pietro da Cortona. He afterwards travelled through moſt of the cities of Italy, ſtudying the works of thoſe who were moſt diſtinguiſhed; and reſided for a long time at Venice, where he copied the paintings of Titian, Tintoretto, and Paolo Veroneſe. He next viſited Parma and Modena, to deſign the works of Correggio; omitting no opportunity that might contribute to improve his hand or his judgment. When he returned to Florence, the grand duke Coſmo III. the grand ducheſs Victoria, and the prince Ferdinand, kept him perpetually employed, in freſco painting as well as in oil; his ſubjects being taken not only from ſacred or fabulous hiſtory, but from his own invention and fancy, which frequently furniſhed him with ſuch as were odd and ſingular, and eſpecially with whimſical caricatures. He died in 1712.—This maſter had a moſt extraordinary talent for imitating the ſtyle of even the moſt celebrated ancient painters of every ſchool, particularly Titian, Veroneſe, and Tintoretto; and with a force and elegance, equal to his ſubjects of hiſtory, he painted portraits, landſcapes, architecture, flowers, fruit, battles, animals of all kinds, and likewiſe ſea-pieces; proving himſelf an univerſal artiſt, and excellent in every thing he undertook.

He had a ſon, Octavio, who proved not inferior to him in any branch of his profeſſion, and was an honour to his family and his country.

DANDINI (Cæſare), hiſtory painter, was born at

Florence; and was the elder brother and firſt inſtructor of Vincentio Dandini the uncle of Pietro. This maſter had ſucceſſively ſtudied as a diſciple with Cavalier Curradi, Paſſignano, and Chriſtofano Allori: from whom he acquired a very pleaſing manner of deſigning and colouring. He was extremely correct in his drawing, and finiſhed his pictures highly. Several noble altar-pieces in the churches of Florence are of his hand; and one, which is in the chapel l'Annonciata, is particularly admired.

DANEGELT, an annual tax laid on the Anglo-Saxons, firſt of 1 s. afterwards 2 s. for every hide of land through the realm, for maintaining ſuch a number of forces as were thought ſufficient to clear the Britiſh ſeas of Daniſh pirates, which heretofore greatly annoyed the coaſts.

Danegelt was firſt impoſed as a ſtanding yearly tax on the whole nation, under king Ethelred, A. D. 991. That prince, ſays Cambden, *Britan.* 142. much diſtreſſed by the continual invaſions of the Danes, to procure a peace, was compelled to charge his people with heavy taxes, called *danegelt*.—At firſt he paid 10,000 l. then 16,000 l. then 24,000 l. after that 36,000 l. and laſtly 48,000 l.

Edward the Confeſſor remitted this tax: William I. and II. reaſſumed it occaſionally. In the reign of Henry I. it was accounted among the king's ſtanding revenues; but king Stephen, on his coronation-day, abrogated it for ever.

No church or church-land paid a penny to the *danegelt*; becauſe, as is ſet forth in an ancient Saxon law, the people of England placed more confidence in the prayers of the church than in any military defence they could make.

DANDOLO (Henry), doge of Venice, a brave admiral and politician. With a Venetian fleet he took Conſtantinople in 1203, and had the moderation to refuſe to be emperor. He died in 1250.

DANET (Peter), abbot of St Nicholas de Verdun, was one of the perſons choſen by the duke of Montauſier to write on the claſſics for the uſe of the dauphin. He had a ſhare in Phædrus, which he publiſhed with notes and explications in Latin. He alſo wrote a dictionary in Latin and French, and another in French and Latin. He died at Paris in 1709.

DANIEL, the fourth of the greater prophets, was born in Judea of the tribe of Judah, about the 25th year of the reign of Joſiah. He was led captive to Babylon, with other young Hebrew lords, after the taking of Jeruſalem by Nebuchadnezzar, who took them into his ſervice. That prince gave them maſters to inſtruct them in the language and ſciences of the Chaldeans, and ordered them to be fed with the moſt delicate viands; but they, fearing that they ſhould eat meat forbidden by the law of Moſes, deſired the king's officers to allow them only pulſe. The wiſdom and conduct of Daniel pleaſing Nebuchadnezzar, that prince gave him ſeveral poſts of honour. It is commonly believed, that this prophet when but 12 years of age, made known the innocence of the chaſte Suſannah; but the learned are not agreed, that the young Daniel, who confounded the old men, was the ſame with this prophet. However, he explained Nebuchadnezzar's dream of the myſterious ſtatue, which foretold the four great monarchies; on which account he was made prefect of the province of Babylon. In the reign of Darius the king of the Medes, he refuſed to adore the golden ſtatue of the king, and was caſt into the lions den, when thoſe beaſts, tho' pinched with hunger, did him no manner of hurt. And he explained the characters written on the wall of the room where Belſhazzar was feaſting.

It is believed that Daniel died in Chaldea, and that he did not take advantage of the permiſſion granted by Cyrus to the Jews of returning to their own country. St Epiphanius ſays he died at Babylon; and herein he is followed by the generality of hiſtorians.

The prophecies of Daniel concerning the coming of the Meſſiah, and the other great events of after-times, are ſo clear and explicit, that, as St Jerom tells us, Porphyry objected to them, that thoſe which related to the kings of Syria and Egypt, chap. xi. muſt have been written after the times of Antiochus Epiphanes; whereas this prophecy was tranſlated into Greek 100 years before his time, and the tranſlation was in the hands of the Egyptians, who had no great kindneſs for the Jews and their religion. And thoſe prophecies fortelling the ſucceſſes of Alexander, chap. viii. 5. xi. 3. were ſhown to Alexander by the Jews, in conſequence of which they obtained ſeveral privileges from him; (*Ant. lib.* xi. c. 8.) The ſtyle of Daniel is not ſo lofty and figurative as that of the other prophets; it is clear and conciſe, and his narrations and deſcriptions ſimple and natural: in ſhort, he writes more like a hiſtorian than a prophet.

The Jews do not reckon Daniel among the prophets; part of his book, that is, from the fourth verſe of his ſecond chapter to the end of the ſeventh chapter, was originally written in the Chaldee language; the reaſon of which was, that in that part he treats of the Chaldean or Babyloniſh affairs: all the reſt of the book is in Hebrew. The ſix firſt chapters of the book of Daniel are a hiſtory of the kings of Babylon, and what befel the Jews under their government. In the ſix laſt he is altogether prophetical, foretelling not only what ſhould happen to his own church and nation, but events in which foreign princes and kingdoms were concerned.

DANIEL (Samuel), an eminent poet and hiſtorian, was born near Taunton in Somerſetſhire in the year 1562, and educated at Oxford: but leaving that univerſity without a decree, he applied himſelf to Engliſh hiſtory and poetry under the patronage of the earl of Pembroke's family. He was afterwards tutor to the lady Ann Clifford; and, upon the death of Spencer was created poet-laureat to queen Elizabeth. In king Jame's reign he was appointed gentleman extraordinary, and afterwards one of the grooms of the privy-chamber to the queen conſort, who took great delight in his converſation and writings. He wrote an hiſtory of England, ſeveral dramatic pieces, and ſome poems; and died in 1619.

DANIEL (Gabriel), a celebrated Jeſuit, and one of the beſt French hiſtorians, was born at Rouen in 1649. He taught polite literature, philoſophy, and divinity, among the Jeſuits; and was ſuperior of their houſe at Paris, where he died in 1728. There are a great number of his works publiſhed in French, of which the principal are, 1. An Hiſtory of France, of which he alſo wrote an abridgement in nine volumes 12mo.

2. An Hiſtory of the French Militia, in 2 vols 4to. 3. An Anſwer to the Provincial Letters. 4. A Voyage to the World of Deſcartes. 5. Letters on the Doctrines of the Theoriſts, and on Probability. 6. New difficulties relating to the knowledge of Brutes: And, 7. A theological treatiſe on the Efficacy of Grace.

DANMONII, an ancient Britiſh nation, ſuppoſed to have inhabited that tract of country which is now called Cornwal and Devonſhire, bounded on the ſouth by the Britiſh Ocean, on the weſt by St George's Channel, on the north by the Severn Sea, and on the eaſt by the country of the Durotriges. Some other Britiſh tribes were alſo ſeated within theſe limits; as the Coſſini and Oſtidamnii, which were probably particular clans of the Danmonii; and, according to Mr Baxter, they were the keepers of their flocks and herds. As the ſeveral tribes of the Danmonii ſubmitted without much reſiſtance to the Romans, and never joined in any revolt againſt them, that people were under no neceſſity of building many forts, or keeping many garriſons in their country. This is the reaſon why ſo few Roman antiquities have been found in that country, and ſo little mention is made of it and its ancient inhabitants by Roman writers. Ptolemy names a few places, both on the ſea-coaſts and in the inland parts of this country, which were known to, and frequented by, the Romans. The moſt conſiderable of theſe places are the two famous promontories of Bolerium and Ocrinum, now the Landſend and the Lizard; and the towns of Iſca Danmoniorum and Tamare, now Exeter and Saltaſh. As the Danmonii ſubmitted ſo tamely to the Romans, they might perhaps permit them to live, for ſome time at leaſt, under their own princes and their own laws; a privilege which we know they granted to ſome other Britiſh ſtates. In the moſt perfect ſtate of the Roman government in Britain, the country of the Danmonii made a part of the province called Flava Cæſarienſis, and was governed by the preſident of that province. After the departure of the Romans, kingly government was immediately revived amongſt the Danmonii in the perſon of Vortigern, who was perhaps deſcended from the race of their ancient princes, as his name ſignifies in the Britiſh language a chieftain or the head of a family.

DANTE (Aligheri), one of the firſt poets of Italy, was born at Florence in 1265, of an ancient and honourable family. Boccacio, who lived in the ſame period, has left a very curious and entertaining treatiſe, on the life, the ſtudies, and manners of this extraordinary poet; whom he regarded as his maſter, and for whoſe memory he profeſſed the higheſt veneration. This biographer relates, that Dante, before he was nine years old, conceived a paſſion for the lady whom he has immortalized in his ſingular poem. Her age was near his own; and her name was Beatrice, the daughter of Folco Portinari, a noble citizen of Florence. The paſſion of Dante, however, like that of his ſucceſſor Petrarch, ſeems to have been of the chaſte and platonic kind, according to the account he has himſelf given of it, in one of his early productions intitled *Vita Nuova*; a mixture of myſterious poetry and proſe; in which he mentions both the origin of his affection and the death of his miſtreſs, who, according to Boccacio, died at the age of 24. The ſame author aſſerts, that Dante fell into a deep melancholy in conſequence of this event, from which his friends endeavoured to raiſe him, by perſuading him to marriage. After ſome time he followed their advice, and repented it; for he unfortunately made choice of a lady who bore ſome reſemblance to the celebrated Xantippe. The poet, not poſſeſſing the patience of Socrates, ſeparated himſelf from her with ſuch vehement expreſſions of diſlike, that he never afterwards admitted her to his preſence, though ſhe had born him ſeveral children. In the early part of his life he gained ſome credit in a military character: diſtinguiſhing himſelf by his bravery in an action where the Florentines obtained a ſignal victory over the citizens of Arezzo. He became ſtill more eminent by the acquiſition of civil honours; and at the age of 35 he roſe to be one of the chief magiſtrates of Florence, when that dignity was conferred by the ſuffrages of the people. From this exaltation the poet himſelf dated his principal misfortunes, as appears from the fragment of a letter quoted by Lionardo Bruni, one of his early biographers, where Dante ſpeaks of his political failure with that liberal frankneſs which integrity inſpires. Italy was at that time diſtracted by the contending factions of the Ghibellins and the Guelphs; the latter, among whom Dante took an active part, were again divided into the Blacks and the Whites. Dante, ſays Gravina, exerted all his influence to unite theſe inferior parties: but his efforts were ineffectual, and he had the misfortune to be unjuſtly perſecuted by thoſe of his own faction. A powerful citizen of Florence, named Corſo Donati, had taken meaſures to terminate theſe inteſtine broils, by introducing Charles of Valois, brother to Philip the Fair king of France. Dante, with great vehemence, oppoſed this diſgraceful project, and obtained the baniſhment of Donati and his partizans. The exiles applied to the pope (Boniface VIII.), and by his aſſiſtance ſucceeded in their deſign. Charles of Valois entered Florence in triumph, and thoſe who had oppoſed his admiſſion were baniſhed in their turn. Dante had been diſpatched to Rome as the ambaſſador of his party; and was returning, when he received intelligence of the revolution in his native city. His enemies, availing themſelves of his abſence, had procured an iniquitous ſentence againſt him, by which he was condemned to baniſhment, and his poſſeſſions were confiſcated. His two enthuſiaſtic biographers, Boccacio and Manetti, expreſs the warmeſt indignation againſt this injuſtice of his country. Dante, on receiving the intelligence, took refuge in Siena, and afterwards in Arezzo, where many of his party were aſſembled. An attempt was made to ſurpriſe the city of Florence, by a ſmall army which Dante is ſuppoſed to have attended: the deſign miſcarried, and our poet is conjectured to have wandered to various parts of Italy, till he found a patron in the great Can della Scala, prince of Verona, whom he has celebrated in his poem. The high ſpirit of Dante was ill ſuited to courtly dependence; and he is ſaid to have loſt the favour of his Veroneze patron by the rough frankneſs of his behaviour. From Verona he retired to France, according to Manetti; and Boccacio affirms that he diſputed in the theological ſchools of Paris with great reputation. Bayle queſtions his viſiting Paris at this period of his life; and thinks it improbable, that a man, who had been one of the chief magiſtrates of Florence, ſhould condeſcend to engage in the public ſquabbles of the Pariſian theologiſts; but the ſpirit both of Dante and the times in which he lived ſufficiently account for this exerciſe of his talents; and his reſidence in France at this ſeaſon is confirmed by Boccacio, in his life of our poet, which Bayle ſeems to have had no opportunity of conſulting.

The election of Henry count of Luxemburgh to the empire, in November 1308, afforded Dante a proſpect of being reſtored to his native city, as he attached himſelf to the intereſt of the new emperor, in whoſe ſervice he is ſuppoſed to have written his Latin treatiſe De Monarchia, in which he aſſerted the rights of the empire againſt the encroachments of the Papacy. In the year 1311, he inſtigated Henry to lay ſiege to Florence; in which enterpriſe, ſays one of the biographers, he did not appear in perſon, from motives of reſpect towards his native city. The emperor was repulſed by the Florentines; and his death, which happened in the ſucceeding year, deprived Dante of all hopes concerning re-eſtabliſhment in Florence. After this diſappointment, he is ſuppoſed to have paſſed ſome years in roving about Italy in a ſtate of poverty and diſtreſs, till he found an honourable eſtabliſhment at Ravenna, under the protection of Guido Novello da Polenta, the lord of that city, who received this illuſtrious exile with the moſt endearing liberality, continued to protect him through the few remaining years of his life, and extended his munificence to the aſhes of the poet.

Eloquence was one of the many talents which Dante poſſeſſed in an eminent degree. On this account he is ſaid to have been employed on fourteen different embaſſies in the courſe of his life, and to have ſucceeded in moſt of them. His patron Guido had occaſion to try his abilities in a ſervice of this nature, and diſpatched him as his ambaſſador to negociate a peace with the Venetians, who were preparing for hoſtilities againſt Ravenna. Manetti aſſerts that he was unable to procure a public audience at Venice, and returned to Ravenna by land, from his apprehenſions of the Venetian fleet; when the fatigue of his journey, and the mortification of failing in his attempt to preſerve his generous patron from the impending danger, threw him into a fever, which terminated in death on the 14th of September 1321. He died, however, in the palace of his friend; and the affectionate Guido paid the moſt tender regard to his memory. This magnificent patron (ſays Boccacio) commanded the body to be adorned with poetical ornaments, and, after being carried on a bier through the ſtreets of Ravenna by the moſt illuſtrious citizens, to be depoſited in a marble coffin. He pronounced himſelf the funeral oration, and expreſſed his deſign of erecting a ſplendid monument in honour of the deceaſed: a deſign which his ſubſequent misfortunes rendered him unable to accompliſh. At his requeſt, many epitaphs were written on the poet: the beſt of them (ſays Boccacio) by Giovanni del Virgilio of Bologna, a famous author of that time, and the intimate friend of Dante. Boccacio then cites a few Latin verſes, not worth tranſcribing, ſix of which are quoted by Bayle as the compoſition of Dante himſelf, on the authority of Paul Jovius. In 1483 Bernardo Bembo, the father of the celebrated cardinal, raiſed a handſome monument over the neglected aſhes of the poet, with the following inſcription:

Exigua tumuli Danthes hic ſorte jacebas
  Squalenti nulli cognita pæne ſitu;
At nunc marmoreo ſubnixus conderis arcu,
  Omnibus et cultu ſplendidiore nites:
Nimirum Bembus, Muſis incenſus Etruſcis.
  Hoc tibi, quem in primis hæ coluere, dedit.

Before this period the Florentines had vainly endeavoured to obtain the bones of their great poet from the city of Ravenna. In the age of Leo X. they made a ſecond attempt, by a ſolemn application to the pope for that purpoſe; and the great Michael Angelo, an enthuſiaſtic admirer of Dante, very liberally offered to execute a magnificent monument to the poet. The hopes of the Florentines were again unſucceſsful. The particulars of their ſingular petition may be found in the notes to Condivi's Life of Michael Angelo.

At what time, and in what place, he executed the great and ſingular work which has rendered him immortal, his numerous commentators ſeem unable to determine. Boccacio aſſerts, that he began it in his 35th year, and had finiſhed ſeven cantos of his Inferno before his exile; that in the plunder of his houſe, on that event, the beginning of his poem was fortunately preſerved, but remained for ſome time neglected, till its merit being accidently diſcovered by an intelligent poet named Dino, it was ſent to the marquis Marcello Maleſpina, an Italian nobleman, by whom Dante was then protected. The marquis reſtored theſe loſt papers to the poet, and intreated him to proceed in a work which opened in ſo promiſing a manner. To this incident we are probably indebted for the poem of Dante, which he muſt have continued under all the diſadvantages of an unfortunate and agitated life. It does not appear at what time he completed it; perhaps before he quitted Verona, as he dedicated the Paradiſe to his Veroneſe patron. The critics have variouſly accounted for his having called his poem Comedia. He gave it that title (ſaid one of his ſons), becauſe it opens with diſtreſs and cloſes with felicity. The very high eſtimation in which this production was held by his country, appears from a ſingular inſtitution. The republic of Florence, in the year 1373, aſſigned a public ſtipend to a perſon appointed to read lectures on the poem of Dante: Boccacio was the firſt perſon engaged in this office; but his death happening in two years after his appointment, his comment extended only to the ſeventeen firſt cantos of the Inferno. The critical diſſertations that have been written on Dante are almoſt as numerous as thoſe to which Homer has given birth; the Italian, like the Grecian bard, has been the ſubject of the higheſt panegyric, and of the groſſeſt invective. Voltaire has ſpoken of him with that precipitate vivacity, which ſo frequently led that lively Frenchman to inſult the reputation of the nobleſt writers. In one of his entertaining letters, he ſays to an Italian abbé, "Je fais grand cas du courage, avec lequel vous avez oſé dire que Dante etoit un fou, et ſon ouvrage un monſtre.—Le Dante pourra entrer dans les bibliotheques des curieux, mais il ne ſera jamais lu." But more temperate and candid critics have not been wanting to diſplay the merits of this original poet. Mr Warton has introduced into his laſt volume on Engliſh poetry, a judicious and ſpirited ſummary of Dante's performance.

Dante (John Baptiſt), a native of Perugia, an excellent mathematician, called the *new Dædalus*, for the wings he made himſelf, and with which he flew ſeveral times over the lake Thraſymenus. He fell in one of his enterpriſes; the iron work with which he managed one of his wings having failed; by which accident he broke his thigh: but it was ſet by the ſurgeons, and he was afterwards called to Venice to profeſs mathematics.

DANTZIC, the capital of Poliſh Pruſſia, ſtanding on a branch of the Viſtula, about four miles above where it falls into the Baltic; in E. Long. 18. 36. N. Lat. 54. 20. This city is famous in hiſtory on many accounts, particularly that of its being formerly at the head of the Hanſeatic aſſociation, commonly called the *Hanſe-towns*. It is large, beautiful, populous, and rich; its houſes generally are five ſtories high; and many of its ſtreets are planted with cheſnut-trees. One of the ſuburbs is called *Scotland*; and the Scots have great privileges in conſequence of their gallant defence of the town, under one of the family of Douglas, when it was beſieged by the Poles. It is ſaid there are upwards of 30,000 pedlars of that nation in Poland who travel on foot, and ſome with three, four, or five horſes. In king Charles II.'s time they were about 53,000: in that reign Sir John Denham and Mr Killigrew were ſent to take the number of them, and to tax them by the poll, with the king of Poland's licence; which having obtained, they brought home L. 10,000 Serling, beſides their charges in the journey. Dantzic has a fine harbour; and is ſtill a moſt eminent commercial city, although it ſeems to be ſomewhat paſt its meridian glory, which was probably about the time that the preſident de Thou wrote his much eſteemed *Hiſtoria ſui Temporis*, wherein, under the year 1607, he ſo highly celebrates its commerce and grandeur. It is a republic, claiming a ſmall adjacent territory about forty miles round it, which were under the protection of the king and the republic of Poland. Its magiſtracy, and the majority of its inhabitants, are Lutherans; although the Romaniſts and Calvaniſts be equally tolerated in it. It has 26 pariſhes, with many convents and hoſpitals. The inhabitants have been computed to amount to 200,000; but later computations fall very conſiderably ſhort of it, as appears by its annual bill of mortality, exhibited by Dr Buſching, who tells us, that in the year 1752, there died but 1846 perſons. Its own ſhipping is numerous; but the foreign ſhips conſtantly reſorting to it are more ſo, whereof 1014 arrived there in the year 1752; in which year alſo 1288 Poliſh veſſels came down the Viſtula, chiefly laden with corn, for its matchleſs granaries; from whence that grain is diſtributed to many foreign nations, Poland being juſtly deemed the greateſt magazine of corn in all Europe, and Dantzic the greateſt port for deſtributing it every where: beſides which, Dantzic exports great quantities of naval ſtores, and vaſt variety of other articles. Dr Buſching affirms, that it appears from ancient records, as early as the year 997, that Dantzic was a large commercial city, and not a village or inconſiderable town, as ſome pretend. The inhabitants of Dantzic have often changed their maſters, and have ſometimes been under the protection of the Engliſh and Dutch; but generally have ſhown a great predilection for the kingdom and republic of Poland, as being leſs likely to rival them in their trade, or abridge them of their immunities, which reach even to the privilege of coining money. Though ſtrongly fortified, and poſſeſſed of 150 large braſs cannon, it could not, through its ſituation, ſtand a regular ſiege, being ſurrounded with eminences. In 1734, the inhabitants diſcovered a remarkable attachment and fidelity towards Staniſlaus king of Poland, not only when his enemies, the Ruſſians, were at their gates, but even in poſſeſſion of the city. This city was exempted by the late king of Pruſſia from thoſe claims which he made on the neighbouring countries; notwithſtanding which, his Pruſſian majeſty ſoon after thought proper to ſeize on the territories belonging to Dantzic, under pretence of their having been formerly part of Poliſh Pruſſia. He then proceeded to poſſeſs himſelf of the port-duties belonging to that city, and erected a cuſtom-houſe in the harbour, where he laid arbitrary and inſupportable duties upon goods exported or imported. To complete the ſyſtem of oppreſſion, cuſtom-houſes were erected at the very gates of Dantzic, ſo that no perſons could go in or out of the town without being ſearched in the ſtricteſt manner. Such is the treatment which the city of Dantzic has received from the king of Pruſſia, though few cities have ever exiſted which have been comprehended in ſo many general and particular treaties, and whoſe rights and liberties have been ſo frequently ſecured, and guarantied by ſo many great powers, and by ſuch a long and regular ſucceſſion of public acts, as that of Danzic has been. In the year 1784, it was blockaded by his troops on various pretences; but by the interpoſition of the empreſs of Ruſſia and of the king of Poland, they were withdrawn; and a compromiſe having taken place, the city was reſtored to its former immunities. Nevertheleſs, its trade has ſince been rather upon the decline, the merchants chooſing to ſettle where their property may be more ſecure.

DANUBE, the largeſt and moſt conſiderable river in Europe, riſing in the Black Foreſt, near Zunberg; and running N. E. through Swabia by Ulm, the capital of that country; then running E. through Baſſaria and Auſtria, paſſes by Ratiſbon, Paſſau, Ens, and Vienna. It then enters Hungary, and runs S. E. from Preſburg to Buda, and ſo on to Belgrade; after which it divides Bulgaria from Molachia and Moldavia, diſcharging itſelf by ſeveral channels into the Black Sea, in the province of Beſſarabia. Towards the mouth, it was called the *Iſter* by the ancients; and it is now ſaid, that four of the mouths are choaked up with ſand, and that there are only two remaining. It begins to be navigable for boats at Ulm, and receives ſeveral large rivers as it paſſes along. It is ſo deep between Buda and Belgrade, that the Turks and Chriſtians have had men of war upon it; and yet it is not navigable to the Black Sea, on account of the cataracts. The Danube was generally ſuppoſed to be the northern boundary of the Roman empire in Europe. It was worſhipped as a deity by the Scythians.

DAPHNE, a daughter of the river Peneus by the goddeſs Terra, of whom Apollo became enamoured. This paſſion had been raiſed by Cupid; with whom Apollo, proud of his late conqueſt of the ſerpent Python, had diſputed the power of his darts. Daphne heard with horror the addreſſes of the god, and endeavoured to remove herſelf from his importunities by flight. Apollo purſued her, and Daphne, fearful of being caught, intreated the aſſiſtance of the gods, who changed her into a laurel. Apollo crowned his head with the leaves of the laurel, and for ever ordered that that tree ſhould be ſacred to his divinity. Some ſay that Daphne was admired by Leucippus, ſon of Œnomaus king of Piſa, who to be in her company diſguiſed his ſex and attended her in the woods in the habit of a huntreſs. Leucippus gained Daphne's eſteem and love; but Apollo, who was his powerful rival, diſcovered his ſex, and Leucippus was killed by the companions of Diana. Daphne was alſo the name of a daughter of Tireſias, prieſteſs in the temple of Delphi. She was conſecrated to the ſervice of Apollo by the Epigoni, or according to others by the goddeſs Tellus. She was called *Sibyl* on account of the wildneſs of her looks and expreſſions when ſhe delivered oracles. Her oracles were generally in verſe; and Homer, according to ſome accounts, has introduced much of her poetry in his compoſitions.

DAPHNE (anc. geog.), a ſmall village near to, or in the ſuburbs of, Antiochia of Seleucis in Syria; with a large grove, well watered with ſprings: In the middle of the grove ſtood the temple of Apollo and Diana. Its extent was 80 ſtadia or 10 miles; the diſtance from the city five miles: A place pleaſant and agreeable, from the plenty of water and the temperature of the air, and its ſoft breathing breezes. The grove was of bay-trees, intermixed with cypreſs; which laſt multiplied ſo faſt, as to occupy the whole of it. Pompey gave ſome land for enlarging the grove. Antiochus Epiphanes built a very large temple of Daphnæus Apollo. The place at length became ſo infamous, that people of modeſty and character avoided reſorting thither: ſo that *Daphnici mores* became proverbial.

DAPHNE (anc. geog.), a ſmall diſtrict on the lake Samachonitis, in the Higher Galilee, very pleaſant and plentifully watered with ſprings, which feed the Leſs Jordan; whence its name ſeems to ariſe, probably in imitation of that near Antioch of Syria on the river Orontes.

DAPHNE, *Spurge-laurel*; a genus of the monogynia order, belonging to the octandria claſs of plants; and in the natural method ranking under the 31ſt order, *Vepreculæ*. There is no calyx; the corolla is quadrifid and marceſcent, incloſing the ſtamina. The fruit is a monoſpermous berry. There are 15 ſpecies; of which the following are the moſt remarkable.

1. Mezereum, the mezereon or ſpurge-olive, is a low deciduous ſhrub. It is a native of Germany, and has been alſo diſcovered in England in ſome woods near Andover in Hampſhire. Of this elegant plant there are four varieties: 1. The white; 2. The pale-red; 3. The crimſon; and, 4. The purple-flowering.—Hanbury is very laviſh of his praiſe of theſe ſhrubs. He ſays, "they have each every perfection to recommend them as flowering-ſhrubs. In the firſt place, they are of low growth, ſeldom ariſing to more than three or four feet in height, and therefore are proper even for the ſmalleſt gardens. In the next place, they will be in bloom when few trees, eſpecially of the ſhrubby tribe, preſent their honours. It will be in February, nay, ſometimes in January; then will the twigs be garniſhed with flowers all around from one end to the other. Each twig has the appearance of a ſpike of flowers of the moſt conſummate luſtre; and as the leaves are not yet out, whether you behold this tree near or at a diſtance, it has a moſt enchanting appearance. But this is not all; the ſenſe of ſmelling is peculiarly regaled by the flowers; their ſpicy ſweetneſs is diffuſed around, and the air is perfumed with their odours to a conſiderable diſtance. Many flowers, deemed ſweet, are not liked by all; but the agreeable inoffenſive ſweetneſs of the mezereon has ever delighted the ſenſe of ſmelling, whilſt the luſtre of its blow has feaſted the eye. Neither is this the only pleaſure the tree beſtows: for beſides the beauty of the leaves, which come out after the flowers are fallen, and which are of a pleaſant green colour and an oblong figure, it will be full of red berries in June, which will continue growing till the autumn. Of theſe berries the birds are very fond; ſo that whoever is delighted with thoſe ſongſters, ſhould have a quantity of them planted all over the outſides of his wilderneſs quarters."

2. Gnidium, the flax-leaved daphne, is a low deciduous ſhrub; native of Italy, Spain, and about Montpelier. This ſpecies ſeldom grows higher than three feet. The branches are very ſlender, and ornamented with narrow, ſpear-ſhaped, pointed leaves, much like thoſe of the common flax. The flowers are produced in panicles at the ends of the branches: They are ſmall, come out in June, but are rarely ſucceeded by ſeeds in England.

3. Cneorum, the ſpear-leaved daphne or cneorum, is a very low deciduous ſhrub; native of Switzerland, Hungary, the Alps, and Pyrenean mountains. This riſes with a ſhrubby, branching ſtalk, to about a foot or a foot and an half high. The leaves are narrow, ſpear-ſhaped, and grow irregularly on the branches. The flowers are produced in cluſters at the ends of the little twigs: They make their appearance in March, are of a purple colour, and poſſeſſed of a fragrance little inferior to that of the mezereon; but they are ſeldom ſucceeded by ſeeds in England.

4. Tartonraira, the oval leaved daphne or tartonraira, a very low deciduous ſhrub, is a native of France and Italy. This riſes with a woody ſtalk to the height of about two feet. The branches are numerous, irregular, tough, and covered with a light-brown-coloured bark. The leaves are oval, very ſmall, ſoft to the touch, and ſhining. The flowers are produced in cluſters from the ſides of the ſtalks: They are white, come out in June, and are ſucceeded by roundiſh berries which ſeldom ripen in England. This ſort ſhould have a dry ſoil and warm ſituation.

5. Alpina, the alpine daphne or chamelæa, is a low deciduous ſhrub native of the Alps, Geneva, Italy, and Auſtria. This will grow up to the height of about a yard. The leaves are ſpear-ſhaped, obtuſe, and hoary underneath. The flowers came out in cluſters from the ſides of the branches, and are very fragrant: They appear in March, and are ſucceeded by red berries that ripen in September.

6. Thymelæa, the milkwort-leaved daphne or the

thymelæa; a low deciduous ſhrub, native of Spain and the ſouth of France. The thymelæ will grow up to the height of a yard. The ſtalks of this ſpecies are upright, branched, and covered with a light-brown bark. The leaves are ſpear-ſhaped, ſmooth, and in ſome reſpect reſemble thoſe of milk-wort. The flowers are produced in cluſters from the ſides of the ſtalks: They are of a greeniſh colour, have no foot-ſtalks, appear in March, and are ſucceeded by ſmall yellowiſh berries, which will be ripe in Auguſt. This ſort requires a dry ſoil and a warm ſituation.

7. Viloſa, the hairy-leaved daphne, a very low deciduous ſhrub, native of Spain and Portugal. The ſtalks are ligneous, about two feet high, and ſend forth branches alternately from the ſides. The leaves are ſpear-ſhaped, plane, hairy on both ſides, and grow on very ſhort footſtalks. The flowers have very narrow tubes, are ſmall and make no great ſhow: They come out in June, and are not ſucceeded by ripe ſeeds in England. This ſhrub, in ſome ſituations, retains its leaves all winter in ſuch beauty as to cauſe it to be ranked among the low-growing evergreens; but as in others it is ſometimes ſhattered with the firſt bleak winds, it is left to the gardener whether to place this ſhrub among the deciduous trees or evergreens.

8. Laureola, the ſpurge laurel or evergreen daphne; a low evergreen ſhrub, common in ſome parts of England, alſo in Switzerland and France. This ſhrub ſeldom grows more than a yard or four feet high; it ſends out many branches from the bottom, and theſe are covered with a ſmooth light-brown bark that is very thick. The bark on the younger branches is ſmooth and green; and theſe are very cloſely garniſhed with leaves of a delightful ſtrong lucid green colour. Theſe leaves ſit cloſe to the branches, and are produced in ſuch plenty, that they have the appearance, at a ſmall diſtance, of cluſters at the ends of the branches. They are ſpear-ſhaped, ſhining, ſmooth, and thick: their edges are entire. Hanbury extols this plant with a degree of enthuſiaſm: continuing, "and this is another excellent property of this tree, that it is thus poſſeſſed of ſuch delightful leaves for its ornament. Theſe leaves, when growing under the drip of trees, ſpread open, and exhibit their green pure and untarniſhed, in its natural colour; when planted ſingly in expoſed places, they naturally turn back with a kind of twiſt, and the natural green of the leaf is often alloyed with a browniſh tinge. This ſhrub is alſo valuable on account of its flowers; not becauſe they make any great ſhow, but from their fragrance, and the time they appear; for it will be in blow the beginning of January, and will continue ſo until the middle or latter end of April before the flowers fall off; during which time they never fail to diffuſe abroad their agreeable odours which are refreſhing and inoffenſive. In the evenings eſpecially, they are more than commonly liberal; inſomuch that a few plants will often perfume the whole end of a garden; and when this happens early, before many flowers appear, the unſkilful in flowers, perceiving an uncommon fragrancy, are at once ſtruck with ſurprize, and immediately begin enquiring from whence it can proceed. Neither are its odours confined to a garden only; but, when planted near windows, they will enter parlours, and aſcend even into bed-chambers, to the great comfort of the poſſeſſor, and ſurprize of every freſh viſitor." Theſe flowers make but little ſhow; for they are ſmall, and of a greeniſh-yellow. They are produced amongſt the leaves from the ſides of the ſtalks, in ſmall cluſters, and will often be ſo hid by them, as to be unnoticed by any but the curious. They are ſucceeded by oval berries, which are firſt green, and afterwards black when ripe. Theſe berries will be in ſuch plenty as to be very ornamental; but will ſoon be eaten up by the birds; which is another good property of this tree, as it invites the different ſorts of whiſtling birds to flock where it is planted in great plenty.

Propagation. The mezereon ripens its ſeeds in Britain, which may at any time be eaſily obtained, if they are ſecured from birds. Previous therefore to ſowing, the healthieſt and moſt thriving trees of the white, the pale, and the deep-red ſorts, ſhould be marked out, and as ſoon as the berries begin to alter from green, they muſt be covered with nets, to ſecure them from the birds, which would otherwiſe devour them all. The berries will be ripe in July; and due obſervance muſt be had to pick them up as they fall from the trees, and to keep the ſorts ſeparate. As ſoon as they are all fallen, or you have enough for your purpoſe, they may then be ſown. The beſt ſoil for theſe plants is a good fat black earth, ſuch as is found in kitchen-gardens that have been well manured and managed for many years. In ſuch ſoil as this they will not only come up better, but will grow to a greater height than in any other. No particular regard need be paid to the ſituation; for as this tree is a native of the northern parts of Europe, it will grow in a north border, and flouriſh there as well as in a ſouth; nay, if there be any difference the north border is more eligible than the ſouth. The ground being made fine, and cleared of roots of all ſorts, the ſeeds ſhould be ſown hardly half an inch depth. The mould being riddled over them that depth, let the beds be netted up, and they will want no other attention until the ſpring. Theſe ſeeds will ſometimes remain in the ground two years; but for the moſt part they come up the ſpring after ſowing; and the ſeedlings will require no other care during the ſummer than weeding, and gentle watering in dry weather. After they have been in the ſeed-bed one year, the ſtrongeſt may be drawn out, and planted in the nurſery, to make room for the others; though, if they do not come up very cloſe, it would be as well to let them remain in the ſeed-bed until the ſecond autumn: when they ſhould be taken up with care, and planted in beds at a foot aſunder each way. This will be diſtance enough for theſe low-growing ſhrubs. October is the beſt month for planting them out finally; for although they will grow if removed any time between then and ſpring, yet that will certainly be a more proper ſeaſon than when they are in full blow. Such is the culture of this ſhrub. The other ſpecies of this genus require a different management.

The ſpurge laurel is propagated by ſeeds, in the ſame manner, as the common mezereon. The ſeeds muſt be preſerved from the birds by nets, until they are ripe. Soon after, they muſt be ſown as is directed for the mezereon. They will often be two years before they come up; during which time, and afterwards, they may have the ſame management as has

Daphne.

been laid down for the common mezereon until they be finally ſet out. This ſhrub will grow in almoſt any ſoil or ſituation, but flouriſhes moſt under the ſhade and drip of taller plants, giving a peculiar cheerfulneſs to the bottoms of groves and clumps in winter.

All the other ſorts are with ſome difficulty propagated and retained. They will by no means bear removing, even when ſeedlings; and if ever this is attempted, not one in an hundred muſt be expected to grow. They are raiſed by ſeeds, which are received from the places where they grow naturally; and he who is deſirous of having theſe plants, muſt manage them in the following manner: Let a compoſt be prepared of theſe equal diviſions; one-fourth part of lime-rubbiſh; one-fourth part of drift or ſea ſand; another of ſplinters of rocks, ſome broad and others ſmaller; and the other part of maiden earth from a rich paſture. Let theſe be mixed all together, and filled into largiſh pots. In each of theſe pots put a ſeed or two, about half an inch deep, in the fineſt of the mould. We receive the ſeeds in the ſpring; ſo that there is little hopes of their coming up until the ſpring following: Let, therefore, the pots be ſet in the ſhade all the ſummer, and in the autumn removed into a warm ſituation, where they may enjoy every influence of the ſun's rays all winter. In March let them be plunged into a moderate hot-bed, and the plants will ſoon after appear. This bed will cauſe them to be ſtrong plants by the autumn; and when all danger of froſt is over, they may be uncovered wholly, and permitted to enjoy the open air. In the autumn, they ſhould be removed into the greenhouſe, or ſet under an hot-bed frame all winter; and in ſpring they ſhould be placed where they are to continue, moulding them up the height of the pot; the pots being ſufficiently broken to make way for their roots as they ſhoot, and then left to nature.—The ſituation of the four tenderer ſorts muſt be well ſheltered: and if it be naturally rocky, ſandy, and dry, it will be the better; for in the places where they grow naturally, they ſtrike into the crevices of rocks, and flouriſh where there is hardly any appearance of ſoil.

This is one method of obtaining theſe ſhrubs. Another way is, by ſowing the ſeeds in the places where they are to remain. The ſituation and nature of the ſoil ſhould be as near that above deſcribed as poſſible; and the mould ſhould be made fine in ſome places, and a ſeed or two ſown in each. After this, pegs ſhould be ſtuck down on each ſide of them, to direct to the places were they are ſown. The exacteſt care muſt be obſerved, all ſummer to pull up the weeds as often as they appear; for if they are permitted to get ſtrong, and have great roots they will pull up the ſeeds with them. In the ſpring following, if the ſeeds are good, the plants will appear. During the ſummer, they ſhould be watered in dry weather; and, for the firſt winter or two, ſhould have ſome furze-buſhes pricked all round them, at a proper diſtance, which will break the keen edge of the froſty winds, and preſerve the young plants until they are ſtrong enough to defend themſelves.

The cneorum and the alpine chamelæa are very hardy, and will grow in the coldeſt ſituation; but the other ſorts ſhould have a warm ſoil, and a well-ſheltered ſite, or they will be ſubject to be deſtroyed in bad weather.

Daphne, Daphnephoria.

Medicinal properties. The root of the mezereon was long uſed in the Liſbon dietdrink for venereal complaints, particularly nodes and other ſymptoms reſiſting the uſe of mercury; but with the compoſition of this article we were unacquainted, till an account of it was publiſhed in the Edinburgh Phyſical Eſſays, by Dr Donald Monro of London. On chewing it a little, it proves very pungent, and its acrimony is accumulated about the fauces, and is very durable. It is employed chiefly under the form of decoction; and it enters the decoctum ſarſaparillæ compoſitum of the London college; but it has alſo been uſed in powder combined with ſome inactive one, as that of liquorice root. It is apt to occaſion vomiting and purging; ſo muſt be begun in grain-doſes, and gradually increaſed. It is often uſefully combined with mercury. The bark of the root contains moſt acrimony, though ſome prefer the woody part. Mezereon has alſo been uſed with good effects in tumors and cutaneous eruptions not venereal. The whole plant is very corroſive. Six of the berries will kill a wolf. A woman gave 12 grains of the berries to her daughter who had a quartan ague; ſhe vomited blood, and died immediately.

DAPHNEPHORIA, a feſtival in honour of Apollo, celebrated every ninth year by the Bœotians. It was then uſual to adorn an olive bough with garlands of laurel and other flowers, and placed on the top a brazen globe, on which were ſuſpended ſmaller ones. In the middle was placed a number of crowns, and a globe of inferior ſize, and the bottom was adorned with a ſaffron coloured garment. The globe on the top repreſented the ſun or Apollo. That in the middle was an emblem of the moon, and the others of the ſtars. The crowns, which were 65 in number, repreſented the ſun's annual revolution. This bough was carried in ſolemn proceſſion by a beautiful youth of an illuſtrious family, and whoſe parents were both living. The youth was dreſſed in rich garments which reached to the ground, his hair hung looſe and diſhevelled, his head was covered with a golden crown, and he wore on his feet ſhoes called *Iphicratidæ*, from Iphicrates an Athenian, who firſt invented them. He was called Δαφνηφορος, *laurel-bearer*; and at that time he executed the office of prieſt of Apollo. He was preceded by one of his neareſt relations, bearing a rod adorned with garlands, and behind him followed a train of virgins with branches in their hands. In this order the proceſſion advanced as far as the temple of Apollo, ſurnamed Iſmenius, where ſupplicatory hymns were ſung to the god.—This feſtival owes its origin to the following circumſtance: When an oracle adviſed the Ætolians, who inhabited Arne and the adjacent country, to abandon their ancient poſſeſſions and go in queſt of a ſettlement, they invaded the Theban territories, which at that time were pillaged by an army of Pelaſgians. As the celebration of Apollo's feſtival was near, both nations, who religiouſly obſerved it, laid aſide all hoſtilities, and according to cuſtom cut down laurel boughs from mount Helicon, and in the neighbourhood of the river Melas, and walked in proceſſion in honour of the divinity. The day that this ſolemnity was obſerved, Polematas the general of the Bœotian army ſaw a youth in a dream, that preſented him with a complete ſuit of armour, and commanded the Bœotians to offer ſolemn prayers to Apollo, and walk in proceſſion with laurel boughs in their hands every ninth year. Three days after this dream, the Bœotian general made a ſally and cut off the greateſt part of the beſiegers, who were compelled by this blow to relinquiſh their enterpriſe. Polematas immediately inſtituted a novennial feſtival to the god, who ſeemed to be the patron of the Bœotians.

DAPIFER, the dignity or office of grand-maſter of a prince's houſehold. This title was given by the Emperor of Conſtantinople to the Czar of Ruſſia as a teſtimony of favour. In France the like officer was inſtituted by Charlemagne, under the title of *dapiferat;* and the dignity of dapifer is ſtill ſubſiſting in Germany, the elector of Bavaria aſſuming the title of *arch dapifer of the empire,* whoſe office is, at the coronation of the emperor, to carry the firſt diſh of meat to table on horſeback.

DAPPLE-BAY, in the manege: When bay horſes have marks of a dark bay, they are called *dapple-bays.*

DAPPLE *Black:* When a black horſe has got ſpots or marks more black or ſhining than the reſt of his ſkin, he is called a *dapple-black.*

DARANTASIA, (anc. geog.), called *Forum Claudii* by the Romans; a town of the Centrones in Gallia Narbonenſis, ſituated between Lemincum and Auguſta Prætoria. Now *Mouſtiers,* and *Mouſtiers en Tarantaiſe,* in Savoy.

DARAPTI, among logicians, one of the modes of ſyllogiſms of the third figure, whoſe premiſes are univerſal affirmatives, and the concluſion is a particular affirmative: thus,

DAR- Every body is diviſible;
AP- Every body is a ſubſtance;
TI, Therefore, ſome ſubſtance is diviſible.

DARDA, a town and fort of Lower Hungary, built by the Turks in 1686, and taken by the Imperialiſts the next year, in whoſe hands it remains. It is ſeated on the rive Draw, 10 miles from its confluence with the Danube, and at the end of the bridge of Eſſeck. E. Long. 19. 10. N. Lat. 45. 45.

DARDANELLES, two ancient and ſtrong caſtles of Turkey, one of which is in Romania, and the other in Natolia, on each ſide the canal formerly called the *Helleſpont.* This keeps up a communication with the Archipelago, and the Propontis or ſea of Marmora. The mouth of the canal is four miles and a half over: and the caſtles were built in 1659, to ſecure the Turkiſh fleet from the inſults of the Venetians. The ſhips that come from Conſtantinople are ſearched at the caſtle on the ſide of Natolia, to ſee what they have on board.

DARDANIA, (anc. geog.), a diſtrict of Mœſia Superior to the South. Now the ſouth part of Servia, towards the confines of Macedonia and Illyricum, *Dardani* was the name of the people, who ſeem to have been deſcendants of the *Dardani* of Troas. Alſo a ſmall diſtrict of Troas, along the Helleſpont, (Mela, Virgil.) —And the ancient name of *Samothracia,* (Pliny); from *Dardanus,* who removed thither.

DARDANIUM PROMONTORIUM, (Pliny); *Dardanis,* (Strabo): A promontory of Troas, near Abydos, running out into the Helleſpont; with a cognominal town at it, called alſo *Dardanus* and *Dardanum:* All which give name to the *Dardanelles.*

DARDANUS, a ſon of Jupiter and Electra, who, after the death of his brother Jaſion, left Samothrace his country, and paſſed into Aſia Minor, where he married Batia, the daughter of Teucria, king of Teucria. After the death of his father-in-law he aſcended the throne, and reigned 62 years. He built the city of Dardania, and was reckoned the founder of the kingdom of Troy. He was ſucceeded by Erichthonius. According to ſome, Corybas, his nephew, accompanied him to Teucria, where he introduced the worſhip of Cybele. Dardanus taught his ſubjects to worſhip Minerva, and he gave them two ſtatues of the goddeſs, one of which is well known by the name of *Palladium.* According to Virgil, Dardanus was an Italian by origin.

DARE, in ichthyology, the ſame with dace. See DACE.

DARES, a Phrygian, who lived during the Trojan war, in which he was engaged, and of which he wrote the hiſtory in Greek. This hiſtory was extant in the age of Ælian; the Latin tranſlation, now extant, is univerſally believed to be ſpurious, though it is attributed by ſome to Cornelius Nepos. This tranſlation firſt made its appearance A. D. 1477, at Milan. Homer ſpeaks of him, *Il.* v. 10. and 27.

DARIC, in antiquity, a famous piece of gold, firſt coined by Darius the Mede about 538 years before Chriſt; probably during his ſtay at Babylon, out of the vaſt quantity of gold which had been accumulated in the treaſury. From thence it was diſperſed over the eaſt, and alſo into Greece; ſo that the Perſian daric, which was alſo called *ſtater,* was the gold coin beſt known in Athens in ancient times. According to Dr Bernard, it weighed two grains more than one of our guineas; but as it was very fine, and contained little alloy, it may be reckoned worth about 25s. ſterling. Plutarch informs us, that the darics were ſtamped on one ſide with an archer clothed in a long robe, and crowned with a ſpiked crown, holding a bow in his left hand and an arrow in his right; and on the other ſide with the effigies of Darius. All the other pieces of gold of the ſame weight and value that were coined by the ſucceeding kings, both of the Perſian and Macedonian race, were called *darics,* from Darius, in whoſe reign this coin commenced. Of theſe there were whole darics and half darics; and they are called in thoſe parts of Scripture written after the Babyloniſh captivity, *adarkonim;* and by the talmudiſts, *darkonoth.* Greaves ſays that the daric is ſtill found in Perſia; but it is certainly very ſcarce and perhaps of doubtful antiquity.

DARIEN, or the Iſthmus of Panama, is a province between South and North America, being a narrow iſthmus, or neck of land, which joins them together. It is bounded on the north by the North Sea, on the South by the South Sea, on the eaſt by the gulph or river of Darien, and on the weſt by another part of the South Sea and the province of Veragua. It lies in the form of a bow, or creſcent, about the great bay of Panama, in the South Sea; and is 300 miles in length and 60 in breadth. This province is not the richeſt, but is of the greateſt importance to Spain, and has been the ſcene of more actions than any other in America. The wealth of Peru is brought hither, and from hence exported to Europe. This has induced many enterpriſing people to make attempts on Panama,

nama, Porto-Bello, and other towns of this province, in hopes of obtaining a rich booty.

The Scotch got poſſeſſion of part of this province in 1699, and attempted to form an eſtabliſhment which would have proved one of the moſt uſeful and important that ever was projected. Of the riſe, progreſs, and cataſtrophe, of this well-imagined, but ill-fated, undertaking, Sir John Dalrymple, in the 2d volume of his Memoirs of Great Britain and Ireland, has given a very intereſting account, authenticated in every particular by unqueſtionable documents. The projector and leader of the Darien expedition was a clergyman of the name of *Paterſon*; who having a violent propenſity to ſee foreign countries, he made his profeſſion the inſtrument of indulging it by going to the new weſtern world, under the pretence of converting the Indians to the religion of the old. In his courſes there he became acquainted with Cap. Dampier and Mr Wafer, who afterwards publiſhed, the one his Voyages and the other his Travels, in the region where the ſeparation is narroweſt between the Atlantic and the South Seas; and both of whom, particularly the firſt, appear by their books to have been men of conſiderable obſervation. But he got much more knowledge from men who could neither write nor read, by cultivating the acquaintance of ſome of the old Buccaneers, who after ſurviving their glories and their crimes, ſtill in the extremity of age and misfortune, recounted with tranſport the eaſe with which they had paſſed and repaſſed from the one ſea to the other, ſometimes in hundreds together, and driving ſtrings of mules before them loaded with the plunder of friends and of foes. Paterſon having examined the places, ſatisfied himſelf, that on the Iſthmus Darien there was a tract of country running acroſs from the Atlantic to the South Sea, which the Spaniards had never poſſeſſed, and inhabited by a people continually at war with them; that along the coaſt, on the Atlantic ſide, there lay a ſtring of iſlands called the *Sambaloes*, uninhabited and full of natural ſtrength and foreſts, from which laſt circumſtance one of them was called the *iſland of the Pines*; that the ſeas there were filled with turtle and the manatee or ſea-cow; that midway between Porto-Bello and Carthagena, but near 50 leagues diſtant from either, at a place called *Acta*, in the mouth of the river of Darien, there was a natural harbour, capable of receiving the greateſt fleets, and defended from ſtorms by other iſlands which covered the mouth of it, and from enemies by a promontory which commanded the paſſage, and by hidden rocks in the paſſage itſelf; that on the other ſide of the iſthmus, and in the ſame tract of country, there were natural harbours, equally capacious and well defended; that the two ſeas were connected by a ridge of hills, which by their height, created a temperate climate in the midſt of the moſt ſultry latitudes, and were ſheltered by foreſts, yet not renderod damp by them, becauſe the trees grew at a diſtance from each other, having very little under-wood; that, contrary to the barren nature of hilly countries, the ſoil was of a black mould two or three feet deep, and producing ſpontaneouſly the fine tropical fruits and plants, and roots and herbs; that roads could be made with eaſe along the ridge, by which mules, and even carriages, might paſs from the one ſea to the other in the ſpace of a day; and conſequently this paſſage ſeemed to be pointed out by the finger of nature, as a common centre to connect together the trade and intercourſe of the univerſe.

Paterſon knew that ſhips which ſtretch in a ſtraight line from one point to another, and with one wind, run leſs riſks, and require fewer hands, than ſhips which paſs through many latitudes, turn with many coaſts, and require many winds; in evidence of which, veſſels of ſeven or eight hundred tons burden are often to be found in the South Seas, navigated by no more than eight or ten hands, becauſe theſe hands have little elſe to do than to ſet their ſails when they begin their voyage, and to take them in when they end it; that as ſoon as ſhips from Britain got ſo far ſouth as to reach the trade-wind, which never varies, that wind would carry them to Darien, and the ſame wind would carry ſhips from the bay of Panama, on the oppoſite ſide of the iſthmus, to the Eaſt-Indies; that as ſoon as ſhips coming from the Eaſt-Indies to the bay of Panama got ſo far north as the latitude of 40, to reach the weſterly winds, which, about that latitude, blow almoſt as regularly from the weſt as the trade-winds do from the eaſt, theſe winds would carry them, in the track of the Spaniſh Acapulco ſhips, to the coaſt of Mexico; from whence the land-wind, which blows for ever from the north to the ſouth, would carry them along the coaſt of Mexico into the bay of Panama. So that in going from Britain, ſhips would encounter no uncertain winds, except during their paſſage ſouth into the latitude of the trade-wind; in coming from India to the bay of Panama no uncertain winds, except in their paſſage north to the latitude of the weſterly winds; and in going from the other ſide of the iſthmus to the eaſt, no uncertain wind whatſoever. —Gold was ſeen by Paterſon in ſome places of the iſthmus; and hence an iſland on the Atlantic ſide was called the *Golden Iſland*, and a river on the ſide to the South Sea was called the *Golden River*; but theſe were objects which he regarded not at that time, becauſe far greater were in his eye; the removing of diſtances, the drawing nations near to each other, the preſervation of the valuable lives of ſeamen, and the ſaving in freight, ſo important to merchants, and in time ſo important to them, and to an animal whoſe life is of ſo ſhort a duration as that of man.

By this obſcure Scotſman, a project was formed to ſettle, on this neglected ſpot, a great and powerful colony; not as other colonies have for the moſt part been ſettled, by chance, and unprotected by the country from whence they went; but by ſyſtem, upon foreſight, and to receive the ample protection of thoſe governments to whom he was to offer his project. And certainly no greater idea has been formed ſince the time of Columbus.

Paterſon's original intention was to offer his project to England, as the country which had moſt intereſt in it, not only from the benefit common to all nations, of ſhortening the length of voyages to the Eaſt Indies, but by the effect which it would have had to connect the intereſts of her European, Weſt Indian, American, African, and Eaſt Indian trade. But Paterſon having few acquaintance, and no protection in London, thought of drawing the public eye upon him, and ingratiating himſelf with monied men, and with great men, by aſſiſting them to model a project, which was at that time in embryo, for erecting the Bank of England. But that happened to him which has happened to many in his ſituation: the perſons to whom he applied made uſe of his ideas, took the honour of them to themſelves, were civil to him for a while, and neglected him afterwards. He therefore communicated his project of a colony only to a few perſons in London, and theſe few diſcouraged him.

He next made offer of his project to the Dutch, the Hamburghers, and the Elector of Brandenburgh; becauſe, by means of the paſſage of the Rhine and Elbe through their ſtates, he thought, that the great additional quantities of Eaſt Indian and American goods, which his colony would bring into Europe, would be diſtributed through Germany. The Dutch and Hamburgh merchants, who had moſt intereſt in the ſubject of his viſit, heard him with indifference: The Elector, who had very little intereſt in it, received him with honour and kindneſs. But court-arts and falſe reports loſt him even that prince's favour.

Paterſon, on his return to London, formed a friendſhip with Mr Fletcher of Salton, whoſe mind was inflamed with the love of public good, and all of whoſe ideas to procure it had a ſublimity in them. Fletcher brought Paterſon down to Scotland with him, preſented him to the Marquis of Tweeddale, then Miniſter for Scotland; and then, with that power which a vehement ſpirit always poſſeſſes over a diffident one, perſuaded the Marquis, by arguments of public good, and the honour which would redound to his adminiſtration, to adopt the project. Lord Stair and Mr Johnſton, the two ſecretaries of ſtate, patroniſed thoſe abilities in Paterſon which they poſſeſſed in themſelves: and the Lord Advocate Sir James Stuart, the ſame man who had adjuſted the Prince of Orange's declaration at the Revolution, whoſe ſon was married to a niece of Lord Stair, went naturally along with his connections. Theſe perſons, in June 1695, procured a ſtatute from parliament, and afterwards a charter from the crown in terms of it, for creating a trading company to Africa and the new world, with power to plant colonies and build forts, with conſent of the inhabitants, in places not poſſeſſed by other European nations.

Paterſon, now finding the ground firm under him, and that he was ſupported by almoſt all the power and talents of his country, the character of Fletcher, and the ſanction of an act of parliament and royal charter, threw his project boldly upon the public, and opened a ſubſcription for a company. The frenzy of the Scots nation to ſign the ſolemn league and covenant never exceeded the rapidity with which they ran to ſubſcribe to the Darien Company. The nobility, the gentry, the merchants, the people, the royal burghs without the exception of one, moſt of the other public bodies, ſubſcribed. Young women threw their little fortunes into the ſtock, widows ſold their jointures to get the command of money for the ſame purpoſe. Almoſt in an inſtant L.400,000 were ſubſcribed in Scotland, altho' it be now known, that there was not at that time above L.800,000 of caſh in the kingdom. The famous Mr Law, then a youth, afterwards confeſſed, that the facility with which he ſaw the paſſion of ſpeculation communicate itſelf from all to all, ſatiſfied him of the poſſibility of producing the ſame effect from the ſame cauſe, but upon a larger ſcale, when the Duke of Orleans, in the year of the Miſſiſippi, engaged him againſt his will to turn his bank into a bubble. Paterſon's project, which had been received by ſtrangers with fears when opened to them in private, filled them with hopes when it came to them upon the wings of public fame: For Colonel Erſkine, ſon to Lord Cardroſs, and Mr Haldane of Gleneagles, the one a generous branch of a generous ſtem, and the other a country gentleman of fortune and character, having been deputed to receive ſubſcriptions in England and on the continent, the Engliſh ſubſcribed L.300,000, and the Dutch and Hamburghers L.200,000 more.

In the mean time the jealouſy of trade (continues our author), which has done more miſchief to the trade of England than all other cauſes put together, created an alarm in England; and the Houſes of Lords and Commons, without previous inquiry or reflection, on the 13th of December 1695, concurred in a joint addreſs to the King, againſt the eſtabliſhment of the Darien Company as detrimental to the intereſt of the Eaſt India company. Soon after, the commons impeached ſome of their own countrymen for being inſtrumental in erecting the company and alſo ſome of the Scots nation, one of whom was a peer, Lord Belhaven; that is to ſay, they arraigned the ſubjects of another country for making uſe of the laws of their own. Among 600 legiſlators, not one had the happy ray of genius to propoſe a committee of both parliaments, to inquire into the principles and conſequences of the eſtabliſhment; and if theſe ſhould, upon inquiry, be found that the benefit of it ſhould be communicated, by a participation of rights, to both nations. The king's anſwer was, “That he had been ill adviſed in Scotland.” He ſoon after changed his Scottiſh miniſters, and ſent orders to his reſident at Hamburgh to preſent a memorial to the ſenate, in which he diſowned the company and warned them againſt all connections with it. The ſenate ſent the memorial to the aſſembly of merchants, who returned it with the following ſpirited anſwer: “We look upon it as a very ſtrange thing, that the King of Britain ſhould offer to hinder us, who are a free people, to trade with whom we pleaſe; but are amazed to think that he would hinder us from joining with his own ſubjects in Scotland, to whom he had lately given ſuch large privileges, by ſo ſolemn an act of parliament.” But merchants, though mighty prone to paſſion, are eaſily intimidated: The Dutch, Hamburg, and London merchants withdrew their ſubſcriptions.

The Scots, not diſcouraged, were rather animated by this oppreſſion; for they converted it into a proof of the envy of the Engliſh, and of their conſciouſneſs of the great advantages which were to flow to Scotland from the colony. The company proceeded to build ſix ſhips in Holland, from 36 to 60 guns, and they engaged 1200 men for the colony; among whom were younger ſons of many of the noble and moſt ancient families of Scotland, and 60 officers who had been diſbanded at the peace, who carried with them ſuch of their private men, generally raiſed on their own, or the eſtates of their relations, as they knew to be faithful and brave; and moſt of theſe were Highlanders. The

Scots parliament, on the 5th Auguſt 1698, unanimouſly addreſſed the King to ſupport the company. The Lord Preſident Sir Hugh Dalrymple, brother to Lord Stair and head of the bench, and the Lord Advocate Sir James Stuart, head of the bar, jointly drew memorials to the King, able in point of argument, information, and arrangement; in which they defended the rights of the company upon the principles of conſtitutional and of public law. And neighbouring nations, with a mixture of ſurpriſe and reſpect, ſaw the pooreſt kingdom of Europe ſending forth the moſt gallant and the moſt numerous colony that had ever gone from the old to the new world.

On the 26th day of July of the year 1698, the whole city of Edinburgh poured down upon Leith, to ſee the colony depart, amidſt the tears and prayers and praiſes of relations and friends and of their countrymen. Many ſeamen and ſoldiers, whoſe ſervices had been refuſed, becauſe more had offered themſelves than were needed, were found hid in the ſhips, and, when ordered aſhore, clung to the ropes and timbers, imploring to go without reward with their companions. Twelve hundred men ſailed in five ſtout ſhips, and arrived at Darien in two months, with the loſs of only 15 of their people. At that time it was in their power, moſt of whom were well born, and all of them hardily bred, and inured to the fatigues and dangers of the late war, to have gone from the northmoſt part of Mexico to the ſouthmoſt of Chili, and to have overturned the whole empire of Spain in the South Seas: But modeſt, reſpecting their own and their country's character, and afraid of being accuſed that they had plunder, and not a ſettlement, in view, they began with purchaſing lands from the natives, and ſending meſſages of amity to the Spaniſh governors within their reach: and then fixed their ſtation at Acta, calling it *New St Andrew*, from the name of the tutelar ſaint of Scotland, and the country itſelf *New Caledonia*. One of the ſides of the harbour being formed by a long narrow neck of land which ran into the ſea, they cut it acroſs ſo as to join the ocean and the harbour. Within this defence they erected their fort, planting upon it 50 pieces of cannon. On the other ſide of the harbour there was a mountain a mile high, on which they placed a watch-houſe, which, in the rarefied air within the tropics, ſo favourable for viſion, gave them an immenſe range of proſpect, to prevent all ſurpriſe. To this place, it was obſerved, that the Highlanders often repaired, to enjoy a cool air, and to talk of their friends they had left behind in their hills; friends whoſe minds were as high as their mountains. The firſt public act of the colony was to publiſh a declaration of freedom of trade and religion to all nations. This luminous idea originated with Paterſon.

But the Dutch Eaſt India Company having preſſed the king, in concurrence with his Engliſh ſubjects, to prevent the ſettlement at Darien, orders had been ſent from England to the governors of the Weſt Indian and American colonies, to iſſue proclamations againſt giving aſſiſtance, or even to hold correſpondence with the colony; and theſe were more or leſs harſhly expreſſed, according to the tempers of the different governors. The Scots, truſting to far different treatment, and to the ſupplies which they expected from thoſe colonies, had not brought proviſions enough with them, they fell into diſeaſes from bad food and from want of food. But the more generous ſavages, by hunting and fiſhing for them, gave them that relief which fellow Britons refuſed. They lingered eight months, awaiting, but in vain, for aſſiſtance from Scotland; and almoſt all of them either died out or quitted the ſettlement. Paterſon, who had been the firſt that entered the ſhip at Leith, was the laſt who went on board at Darien.

During the ſpace of two years, while the eſtabliſhment of this colony had been in agitation, Spain had made no complaint to England or Scotland againſt it. The Darien council even averred in their papers (which are in the Advocates Library), that the right of the company was debated before the king, in preſence of the Spaniſh ambaſſador, before the colony left Scotland. But now, on the 3d of May 1696, the Spaniſh ambaſſador at London preſented a memorial to the king, which complained of the ſettlement at Darien as an inroachment on the rights of his maſter.

The Scots, ignorant of the misfortunes of their colony, but provoked at this memorial, ſent out another colony ſoon after of 1300 men, to ſupport an eſtabliſhment which was now no more. But this laſt expedition having been more haſtily prepared than the firſt, was unlucky in its paſſage. One of the ſhips was loſt at ſea, many men died on ſhip-board, and the reſt arrived at different times, broken in their health and diſpirited, when they heard the fate of thoſe who had gone before them.—Added to the misfortunes of the firſt colony, the ſecond had a misfortune peculiar to itſelf: The General Aſſembly of the Church of Scotland ſent out four miniſters, with orders, "to take charge of the ſouls of the colony, and to erect a preſbytery, with a moderator, clerk, and record of proceedings: to appoint ruling elders, deacons, overſeers of the manners of the people, and aſſiſtants in the exerciſe of church diſcipline and government, and to hold regular kirk-ſeſſions." When they arrived, the officers and gentlemen were occupied in building houſes for themſelves with their own hands, becauſe there was no help to be got from others; yet the four miniſters complained grievouſly that the council did not order houſes to be immediately built for their accommodation. They had not had the precaution to bring with them letters of recommendation from the directors at home to the council abroad. On theſe accounts, not meeting with all the attention they expected from the higher, they paid court to the inferior ranks of the coloniſts, and by that means threw diviſions into the colony. They exhauſted the ſpirits of the people, by requiring their attendance at ſermon four or five hours at a ſtretch, relieving each other by preaching alternately, but allowing no relief to their hearers. The employment of one of the days ſet aſide for religious exerciſe, which was a Wedneſday, they divided into three parts, thankſgiving, humiliation, and ſupplication, in which three miniſters followed each other. And as the ſervice of the church of Scotland conſiſts of a lecture with a comment, a ſermon, two prayers, three pſalms, and a bleſſing, the work of that day, upon an average of the length of the ſervice of that age, could not take up leſs than twelve hours: during which ſpace of time the colony was collected, and kept cloſe together in the guard-room, which was uſed as a church; in a tropical climate, and in a ſickly ſeaſon. They preſented a paper to the council, and made it public, requiring them to ſet aſide a day for a ſolemn faſting and humiliation, and containing their reaſons for their requiſition; in which, under pretence of enumerating the ſins of the people, they poured abuſe on their rulers. They damped the courage of the people, by continually preſenting hell to them as the termination of life to moſt men, becauſe moſt men are ſinners. Carrying the preſbyterian doctrine of predeſtination to extremes, they ſtopped all exertions, by ſhowing that the conſequence of them depended not on thoſe by whom they were made. They converted the numberleſs accidents to which ſoldiers and ſeamen are expoſed, into immediate judgments of God againſt their ſins. And having reſolved to quit the ſettlement, they, in excuſe for their doing ſo, wrote bitter letters to the General Aſſembly againſt the characters of the coloniſts, and the advantages of the colony itſelf.

One of them, in a kind of hiſtory of the colony which he publiſhed, with a ſavage triumph exulted over the misfortunes of his countrymen in the following words:—“ They were ſuch a rude company, that I believe Sodom never declared ſuch impudence in ſinning as they. Any obſervant eye might ſee, that they were running the way they went: hell and judgment was to be ſeen upon them, and in them, before the time: Their cup was full; it could hold no more: They were ripe; they muſt be cut down with the ſickle of the wrath of God.”

The laſt party that joined the ſecond colony at Darien, after it had been three months ſettled, was Captain Campbell of Finab, with a company of the people of his own eſtate, whom he had commanded in Flanders, and whom he carried to Darien in his own ſhip. On their arrival at New St Andrew, they found intelligence had been lately received, that a Spaniſh force of 1600 men, which had been brought from the coaſt of the South Sea, lay encamped at Tubucantee, waiting there till a Spaniſh ſquadron of eleven ſhips which was expected ſhould arrive, when they were jointly to attack the fort. The military command was offered to Captain Campbell, in compliment to his reputation and to his birth, who was deſcended from the families of Breadalbane and Athole. In order to prevent a joint attack, he reſolved to attack firſt; and therefore, on the ſecond day after his arrival, he marched with 200 men to Tubucantee, before his arrival was known to the enemy, ſtormed the camp in the night-time, diſſipated the Spaniſh force with much ſlaughter, and returned to the fort the fifth day: But he found the Spaniſh ſhips before the harbour, their troops landed, and almoſt all hopes of help or proviſion cut off; yet he ſtood a ſiege near ſix weeks, till almoſt all the officers were dead, the enemy by their approaches had cut off his wells, and his balls were ſo far expended, that he was obliged to melt the pewter diſhes of the garriſon into balls. The garriſon then capitulated, and obtained not only the common honours of war and ſecurity for the property of the company, but, as if they had been conquerors, exacted hoſtages for performance of the conditions. Captain Campbell alone deſired to be excepted from the capitulation, ſaying, he was ſure the Spaniards could not forgive him the miſchief which he ſo lately had done them. The brave, by their courage, often eſcape that death which they ſeem to provoke: Captain Campbell made his eſcape in his veſſel, and, ſtopping nowhere, arrived ſafely at New York, and from thence to Scotland, where the company preſented him with a gold medal, in which his virtue was commemorated, to inflame his family with the love of heroic actions. And the Lord Lyon King at Arms, whoſe office it is in Scotland (and ſuch offices ſhould be every where) to confer badges of diſtinction according to the rules of heraldry upon honourable actions, give him a Highlander and an Indian for ſupporters to his coat of arms.

A harder fate attended thoſe whom Captain Campbell left at Darien. They were ſo weak in their health as not to be able to weigh up the anchors of the Riſing Sun, one of their ſhips, which carried 60 guns: But the generous Spaniards aſſiſted them. In going out of the harbour ſhe ran aground: The prey was tempting; and to obtain it, the Spaniards had only to ſtand by and look on: but ſhowed that mercy to the Scots in diſtreſs, which one of the countrymen of thoſe Scots, General Elliot, returned to the poſterity of the Spaniards at the end of the late conflagration at the ſiege of Gibraltar. The Darien ſhips being leaky and weakly manned, were obliged in their voyage to take ſhelter in different ports belonging to Spain and England. The Spaniards in the new world ſhowed them kindneſs; the Engliſh governments ſhowed them none; and in one place one of their ſhips was ſeized and detained. Of theſe only Captain Campbell's ſhip and another ſmall one were ſaved: The Royal Sun was loſt on the bar of Charleſtown; and of the colony, not more than 30, ſaved from war, ſhipwreck, or diſeaſe, ever ſaw their country again.

Paterſon, who had ſtood the blow, could not ſtand the reflection of misfortune. He was ſeized with a lunacy in his paſſage home after the ruin of the firſt colony; but he recovered in his own country, where his ſpirit, ſtill ardent and unbroke, preſented a new plan to the company, founded on the idea of King William, that England ſhould have the joint dominion of the ſettlement with Scotland.

He ſurvived many years in Scotland, pitied, reſpected, but neglected. After the union of the two kingdoms, he claimed reparation of his loſſes from the equivalent-money given by England to the Darien Company, but got nothing; becauſe a grant to him from a public fund would have been only an act of humanity, not a political job.

Thus ended the colony of Darien. Men look into the works of poets for ſubjects of ſatire; but they are more often to be found in the records of hiſtory. The application of the Dutch to King William againſt the Darien Company, affords the ſureſt of all proofs, that it was the intereſt of the Britiſh iſlands to ſupport it. England, by the imprudence of ruining that ſettlement, loſt the opportunity of gaining and continuing to herſelf the greateſt commercial empire that probably ever will be upon earth. Had ſhe treated with Scotland, in the hour of the diſtreſs of the company, for a joint poſſeſſion of the ſettlement, or adopted the union of the kingdoms, which the ſovereign of both propoſed to them, that poſſeſſion could certainly have been obtained. Had ſhe treated with Spain to relinquiſh an imaginary right, or at leaſt to give a paſſage acroſs the iſthmus, upon receiving duties ſo high as to overbalance all the chance of loſs by a contraband trade, ſhe had probably obtained either the one or the other. Had ſhe broke with Spain for the ſake of gaining by force one of thoſe favours, ſhe would have loſt far leſs than ſhe afterwards did by carrying a war into that country for many years, to force a king upon the Spaniards againſt their will. Even a rupture with Spain for Darien, if it had proved ſucceſsful, would have knit the two nations together by the moſt ſolid of ties, their mutual intereſt: for the Engliſh muſt then have depended upon Spain for the ſafety of their caravans by land, and the Spaniards upon England for the ſafety of their fleets by ſea. Spain and England would have been bound together as Portugal and England have long been; and the Spaniſh treaſures have ſailed, under the wings of Engliſh navies, from the Spaniſh main to Cadiz, in the ſame manner as the treaſures of Portugal have ſailed under the ſame protection, ſacred and untouched, from the Brazils to Liſbon.

It has been made a queſtion, Whether King William behaved with his ordinary ſincerity and ſteadineſs, in the aſſurances of favour which he gave more than once to the company during their diſtreſſes. The following anecdote makes it probable, that there was a ſtruggle in his breaſt between the part which he was obliged to act to pleaſe his Engliſh and Dutch at the expence of his Scots ſubjects and his own feelings. A proviſion ſhip of the firſt colony, in which were 30 gentlemen paſſengers, and ſome of them of noble birth, having been ſhipwrecked at Carthagena, the Spaniards believing, or pretending to believe, that they were ſmugglers, caſt them into a dungeon and threatened them with death. The company deputed Lord Baſil Hamilton from Scotland to implore King William's protection for the priſoners. The king at firſt refuſed to ſee him, becauſe he had not appeared at court when he was laſt in London. But when that difficulty was removed by explanation, an expreſſion fell from the king which ſhowed his ſenſe of the generous conduct of another, although influenced by the Engliſh and Dutch Eaſt India Companies, he could not reſolve to imitate it in his own. For Lord Baſil's audience having been put off from time to time, but at laſt fixed to be in the council-chamber after a council was over, the king, who had forgot the appointment, was paſſing into another room, when Lord Baſil placed himſelf in the paſſage, and ſaid, "That he came commiſſioned by a great body of his majeſty's ſubjects to lay their misfortunes at his feet; that he had a right to be heard, and would be heard:" The king returned, liſtened with patience, gave inſtant orders to apply to Spain for redreſs; and then turning to thoſe near him, ſaid, "This young man is too bold, if any man can be too bold in his country's cauſe." I had this anecdote from the preſent Earl of Selkirk, grandſon to Lord Baſil.

King William's deſertion of a company erected upon the faith of his own charter, and the Engliſh oppreſſions of it, were the reaſons why ſo many of the Scots, during four ſucceſſive reigns, diſliked the cauſe of the Revolution and of the Union. And that diſlike, joined to Engliſh diſcontents, brought upon both countries two rebellions, the expenditure of many millions of money, and (which is a far greater loſs) the downfal of many of their nobleſt and moſt ancient families.—*Sir John Dalrymple's Memoirs of Great Britain and Ireland*, vol. ii.

DARII, in logic, one of the modes of ſyllogiſm of the firſt figure, wherein the major propoſition is an univerſal affirmative, and the minor and concluſion particular and affirmative: thus,

Da- Every thing that is moved, is moved by another;
ri- Some body is moved;
i, Therefore, ſome body is moved by another.

DARIORIGUM (anc. geog.), a town of the Veneti in Gallia Celtica; called in the Notitia Lugdunenſis, *Civitas Venetum*, after the manner of the lower age. Now *Vannes*, or *Vennes*, in Brittany. W. Long. 2. 37. Lat. 47. 40.

DARIUS, the name of ſeveral kings of Perſia. See (*Hiſtory* of) Persia.

DARKING, a market-town of Surrey in England, ſituated ten miles eaſt of Guilford. The market is noted for corn and proviſions, more eſpecially for fowls. W. Long. 8. 20. N. Lat. 51. 18.

DARKNESS, the abſence, privation, or want of natural light. "Darkneſs was upon the face of the deep" (Gen. i. 2.); that is to ſay, the chaos was plunged in thick darkneſs, becauſe hitherto the light was not created. One of the moſt terrible ſorts of darkneſs was that which Moſes brought upon Egypt as a plague to the inhabitants of it. The Septuagint, our tranſlation of the Bible, and indeed moſt others, in explaning Moſes's account of this darkneſs, render it, "a darkneſs which may be felt:" and the Vulgate has it, "a palpable darkneſs;" that is, a darkneſs conſiſting of black vapours and exhalations, ſo condenſed that they might be perceived by the organs of feeling or ſeeing; but ſome commentators think that this is carrying the ſenſe too far, ſince in ſuch a medium as this mankind could not live an hour, much leſs for the ſpace of three days, as the Egyptians are ſaid to have done during the time this darkneſs laſted; and therefore they imagine, that inſtead of a darkneſs that may be felt, the Hebrew phraſe may ſignify a darkneſs wherein men went groping and feeling about for every thing they wanted. Le Clerc is of this opinion, and thinks that Philo, in his life of Moſes, underſtood the paſſage in its right ſenſe. "For in this darkneſs (ſays he), whoever were in bed, durſt not get up; and ſuch as their natural occaſions compelled to get up, went feeling about by the walls, or any thing they could lay hold on, as if they had been blind." What it was that occaſioned this darkneſs, whether it was in the air or in the eyes; whether it was a ſuſpenſion of light from the ſun in that country, or a black thick vapour which totally intercepted it, there is reaſon to think that the deſcription which the author of the book of Wiſdom (xvii. 1, 2, 3, &c.) gives us of their inward terrors and conſternation, is not altogether conjectural, viz. that they were not only priſoners of darkneſs, and fettered with the bonds of a long night, but were horribly aſtoniſhed likewiſe, and troubled with ſtrange apparitions; for while over them was ſpread an heavy night, they were to themſelves more grievious than darkneſs.

During the laſt three hours that our Saviour hanged upon the croſs, a darkneſs covered the face of the earth, to the great terror and amazement of the people preſent at his execution. This extraordinary alteration in the face of nature (ſays Dr Macknight, in his *Harmony of the Goſpels*), was peculiarly proper, whilſt the Sun of righteouſneſs was withdrawing his beams from the land of Iſrael and from the world; not only becauſe it was a miraculous teſtimony borne by God himſelf to his innocence; but alſo becauſe it was a fit emblem of his departure and its effects, at leaſt till his light ſhone out anew with additional ſplendour in the miniſtry of his apoſtles. The darkneſs which now covered Judea and the neighbouring countries, beginning about noon and continuing till Jeſus expired, was not the effect of an ordinary eclipſe of the ſun: for that can never happen but at the new moon, whereas now it was full moon; not to mention, that the total darkneſs occaſioned by eclipſes of the ſun never continues above twelve or fifteen minutes; wherefore it muſt have been produced by the divine power, in a manner we are not able to explain. Accordingly, Luke (xxiii. 44, 45.), after relating that there was darkneſs over all the earth, adds, "and the ſun was darkened;" which perhaps may imply, that the darkneſs of the ſun did not occaſion, but proceeded from, the darkneſs that was over all the land. Further, the Chriſtian writers, in their moſt ancient apologies to the Heathens, affirm, that as it was full moon at the paſſover when Chriſt was crucified, no ſuch eclipſe could happen by the courſe of nature. They obſerve alſo, that it was taken notice of as a prodigy by the Heathens themſelves.

DARLINGTON, a town of the county of Durham, ſituated on a flat on the river Skerne, which falls into the Tees. It is a pretty large place, has ſeveral ſtreets, and a ſpacious market-place. It gives title of earl to the Vane family. W. Long. 1. 15. N. Lat. 54. 30.

DARMSTADT, a town of Germany in the circle of the Upper Rhine, and capital of the Langravate of Heſſe-Darmſtadt, with a handſome caſtle, where its own prince generally reſides. It is ſeated on a river of the ſame name, in Long. 8. 40. N. Lat. 49. 50.

DARNEL, in botany. See LOLIUM.

DARNLEY (Lord). See (*Hiſtory* of) SCOTLAND.

DARTFORD, a town of the county of Kent in England, ſeated on the river Darent not far from its influx into the Thames. E. Long. 0. 16. N. Lat. 51. 25.

DARTMOUTH, a ſea-port town in Devonſhire, ſeated on the river Dart, near its fall into the ſea. It is a well frequented and populous place, having a commodious harbour, and a conſiderable trade by ſea. The town is large and well built; but the ſtreets are narrow and bad, though all paved. It has the title of an earldom, and ſends two members to parliament. W. Long. 4. 0. N. Lat. 50. 25.

DARTOS, in anatomy, one of the coats which form the ſcrotum. It is called the *dartos muſcle;* but Dr Hunter ſays, that no ſuch muſcle can be found, and Albinus takes no notice of it in his tables.

DASYPUS, the ARMADILLO or *Tatou*, in zoology; a genus of quadrupeds, belonging to the order of bruta. The daſypus has neither foreteeth nor dog-teeth; it is covered with a hard bony ſhell, interſected with diſtinct moveable zones or belts: this ſhell covers the head, the neck, the back, the flanks, and extends even to the extremity of the tail; the only parts to which it does not extend, are the throat, the breaſt, and the belly, which are covered with a whitiſh ſkin of a coarſe grain, reſembling that of a hen after the feathers are pulled off. The ſhell does not conſiſt of one entire piece, like that of the tortoiſe; but is divided into ſeparate belts, connected to each other by membranes, which enable the animal to move it, and even to roll itſelf up like a hedge-hog. The number of theſe belts does not depend on the age of the animal, as ſome have imagined; but is uniformly the ſame at all times, and ſerves to diſtinguiſh the different ſpecies. All the ſpecies of this animal were originally natives of America: they were entirely unknown to the ancients; and modern travellers mention them as peculiar to Mexico, Braſil, and the ſouthern parts of America; though ſome indeed have confounded them with two ſpecies of manis or ſhell-lizard, which are found in the Eaſt Indies: others report that they are natives of Africa, becauſe ſome of them have been tranſported from Braſil to the coaſt of Guinea, where a few have ſince been propagated: but they were never heard of in Europe, Aſia, or Africa, till after the diſcovery of America.—They are all endowed with the faculty of extending and contracting their bodies, and of rolling themſelves up like a ball, but not into ſo complete a ſphere as the hedge-hog. They are very inoffenſive animals, excepting when they get into gardens, where they devour the melons, potatoes, and others roots. They walk quickly; but can hardly be ſaid to run or leap, ſo that they ſeldom eſcape the purſuit either of men or dogs. But nature has not left them altogether defenceleſs. They dig deep holes in the earth; and ſeldom go very far from their ſubterraneous habitations: upon any alarm they immediately go into their holes; but, when at too great a diſtance, they require but a few moments to make one. The hunters can hardly catch them by the tail before they ſink their body in the ground; where they ſtick ſo cloſe, that the tail frequently comes away and leaves the body in the earth; which obliges the hunters, when they want to take them alive and immutilated, to dilate the ſides of the hole. When they are taken, and find that there is no reſource, they inſtantly roll themſelves up, and will not extend their bodies unleſs they are held near a fire. When in deep holes, there is no other method of making them come out, but by forcing in ſmoke or water. They keep in their holes through the day, and ſeldom go abroad in queſt of ſubſiſtence but in the night. The hunters uſually chaſe them with ſmall dogs, which eaſily come up with them. When the dogs are near, the creatures inſtantly roll themſelves up, and in this condition the hunters carry them off. However, if they be near a precipice they often eſcape both the dogs and hunters: they roll themſelves up, and tumble down like a ball, without breaking their ſhell, or receiving any injury. The daſypus is a very fruitful animal: the female generally brings forth four young ones every month; which is the reaſon why the ſpecies are ſo numerous, notwithſtanding they are ſo much ſought after on account of the ſweetneſs of their fleſh. The Indians likewiſe make baſkets, boxes, &c. of the ſhells which cover their heads.

Linnæus enumerates ſix ſpecies of daſypus, principally diſtinguiſhed by the number of their moveable belts. See Plate CLV.

DATA, among mathematicians, a term for ſuch things or quantities as are given or known, in order to find other things thereby that are unknown. Euclid uſes the word *data* (of which he hath a particular tract) for ſuch ſpaces, lines, and angles as are given in magnitude, or to which we can aſſign others equal.

From the primary uſe of the word *data* in mathematics, it has been tranſplanted into other arts; as philoſophy, medicine, &c. where it expreſſes any quantity, which, for the ſake of a preſent calculation, is taken for granted to be ſuch, without requiring an immediate proof for its certainty; called alſo the *given* quantity, number, or power. And hence alſo ſuch things as are known, from whence either in natural philoſophy, the animal mechaniſm, or the operation of medicines, we come to the knowledge of others unknown, are now frequently in phyſical writers called *data*.

DATE, an addition or appendage in writings, acts, inſtruments, letter, &c. expreſſing the day and month of the year when the act or letter was paſſed or ſigned; together with the place where the ſame was done. The word is formed from the Latin *datum* "given," the participle of *do* "I give."

Ancient deeds had no dates, but only the month and year, to ſignify that they were not made in haſte, or in the ſpace of a day, but upon longer and more mature deliberation. The king's grants began with theſe words, *Præſentibus & futuris, &c.* but the grants of private perſons with *Omnibus præſentes literas inſpecturis, &c.*

A deed is good, though it mentions no date or hath a falſe date; or even if it hath an impoſſible date, as the 30th of February; provided the real day of its being dated or given, that is, delivered, can be proved. *Blackſt. Com.* vol. ii. p. 304.

DATE, the fruit of the great palm-tree. See PHOENIX.

DATI (Carlo), profeſſor of polite learning at Florence. His native country became very famous, as well on account of his works as of the eulogies which have been beſtowed on him by learned men. The chief work to which Dati applied himſelf, was *Della Pittura Antica*, of which he publiſhed an eſſay in the year 1667. He died in 1675, much lamented, as well for his humanity and amiable manners as for his parts and learning.

DATISCA, in botany: A genus of the dodecandria order, belonging to the dioecia claſs of plants; and in the natural method ranking under the 54th order, *Miſcellaneæ*. The male calyx is pentaphyllous; there is no corolla; the antheræ are ſeſſile, long, and 15 in number. The female calyx is bidented; no corolla; the ſtyles three; the capſule trangular, three-horned, unilocular, pervious, polyſpermous, inferior.

DATISI, in logic, a mode of ſyllogiſms in the third figure, wherein the major is an univerſal affirmative, and the minor and concluſion particular affirmative propoſitions. For example,

DA- All who ſerve God are kings;
TI- Some who ſerve God are poor;
SI, Therefore, ſome who are poor are kings.

DATIVE, in grammar, the third caſe in the declenſion of nouns; expreſſing the ſtate or relation of a thing to whoſe profit or loſs ſome other thing is referred. See GRAMMAR.

It is called *dative*, becauſe uſually governed by a verb implying ſomething to be given to ſome perſon. As, *commodare Socrati*, "to lend to Socrates;" *utilis reipublicæ*, "uſeful to the commonwealth;" *perniciofus eccleſiæ*, "pernicious to the church."

In Engliſh, where we have properly no caſes, this relation is expreſſed by the ſign *to*, or *for*.

DATUM, or DATUS, (anc. geog.), a town of Thrace, ſituated between Neapolis and the river Neſtus: A colony of the Thracians, according to Euſtathius: who places it on the ſea-coaſt, near the Strymon, in a rich and fruitful ſoil, famous for ſhip-building and mines of gold; hence the proverb Δατος Αγαθων, denoting proſperity and plenty, (Strabo.) Appian deſcribes it as ſeated on a ſteep eminence, the whole of which it covered. It was taken by Philip of Macedon, who changed its name to Philippi, being originally called Crenides on account of its ſprings. It was afterwards famous for the defeat of Brutus and Caſſius by Auguſtus and Antony.

DATURA, the THORN-APPLE, in botany: A genus of the monogynia order, belonging to the pentandria claſs of plants; and in the natural method ranking under the 28th order, *Luridæ*. The corolla is funnel-ſhaped, and plaited; the calyx tubular, angulated, and deciduous; the capſule quadrivalved. There are ſix ſpecies. The ſtramonium, or common thorn-apple, riſes a yard high, with an erect, ſtrong, round, hollow, green ſtalk, branching luxuriantly, having the branches widely extended on every ſide; large, oval, irregularly angulated, ſmooth, dark-green leaves; and from the diviſions of the branches, large white flowers ſingly, ſucceeded by large, oval, prickly capſules, growing erect, commonly called *thorn-apples*. At night the upper leaves riſe up and incloſe the flowers. The bloſſoms have ſometimes a tinge of purple or violet. The flowers conſiſt of one large, funnel-ſhaped petal, having a long tube, and ſpreading pentagonal limb, ſucceeded by large roundiſh capſules of the ſize of middling apples, cloſely beſet with ſharp ſpines. An ointment prepared from the leaves gives eaſe in external inflammations and in the hæmorrhoids. The ſeeds were lately recommended by Dr Storck to be taken internally in caſes of madneſs; but they ſeem to be a very unſafe remedy. Taken even in a ſmall doſe, they bring on a delirium, and in a large one would certainly prove fatal. Cows, horſes, ſheep, and goats, refuſe to eat this plant.

DAUCUS, the CARROT, in botany: A genus of the digynia order, belonging to the pentandria claſs of plants; and in the natural method ranking under the 45th order, *Umbellatæ*. The corolla is a little radiated, all hermaphrodite. The fruit briſtly with ſhort hairs. There are five ſpecies; but the only one which merits attention is the carota or common carrot. This is ſo well known as to need no deſcription. There are ſeveral varities, as the white, the orange, and the purple carrot; but of theſe the orange carrot is the moſt eſteemed. It grows longer, larger, and is commonly more handſome than the others, being often 15 or 18 inches long in the eatable part, and from two to four in diameter at top. Carrots are propagated by ſeeds, which are ſown at different ſeaſons of the year, in order to procure a ſupply of young roots for the table at all times. The ſeaſon for ſowing for the earlieſt crop is ſoon after Chriſtmas. They ſhould be ſown in an open ſituation, but near a wall; though if they are ſown cloſe under it they will be apt to run up to ſeed too faſt, and give no good roots; about eight inches diſtance is the moſt proper. They delight in a warm ſandy ſoil, which ſhould be light, and well dug to a good depth, that the roots may meet with no obſtruction in running down, ſo as to make them forked, and ſhoot out lateral branches. This will happen eſpecially when the ground has been too much dunged the ſame year that the ſeeds were ſown, which will alſo occaſion them to be worm-eaten. The hairyneſs of theſe ſeeds makes the ſowing of them difficult, on account of their being ſo apt to ſtick together. Before ſowing, therefore, they ſhould be put through a fine chaff ſieve; and a calm day ſhould be choſen for ſowing them. When ſown, they ſhould be trod in with the feet, and the ground raked level over them. When they firſt come up they ſhould be cut up to four inches diſtance, and a month after this they are to be cleared again; and if drawn while young, they are now to be left at ſix inches diſtance every way; if they are to ſtand to grow large, they muſt be ſeparated to ten inches diſtance. The ſecond ſeaſon for ſowing carrots is in February. This muſt be done under a wall or hedge, on warm banks: but thoſe which are to be on open large quarters ſhould not be ſown till the beginning of March. In July, carrots may be ſown for an autumnal crop; and laſtly, in the end of Auguſt, for thoſe which are to ſtand the winter. Theſe laſt will be fit for uſe in March, before any of the ſpring ones; but they are ſeldom ſo tender or well taſted. In order to preſerve carrots for uſe all winter, they are to be dug up in the beginning of November, and laid in a dry place in ſand; and theſe roots being again planted in February, will ripen ſeeds in Auguſt for ſucceeding crops: the longeſt and ſtraighteſt roots are to be choſen for this purpoſe.

Under the article AGRICULTURE, n° 44. we have taken notice of the good properties of carrots as a food for cattle. They have been greatly recommended as proper for fattening hogs; but from ſome experiments mentioned in the *Georgical Eſſays*, it appears, that though the bacon thus fed is of excellent quality, the feeding is conſiderably dearer than that fed with peaſe, pollard, &c. In the ſame eſſays, the following experiment is mentioned by Dr Hunter, concerning the propriety of raiſing carrots for the uſe of the diſtiller. “In the month of October (1773), I took 24 buſhels of carrots. After being waſhed, topped, and tailed, I put them into a large brewing copper with four gallons of water; and covering them up with cloths to haſten the maceration, I ordered a fire to be kindled underneath, which in a ſhort time reduced the whole into a tender pulp. They were then put into a common ſcrew-preſs, and the juice taken from them; which, together with the liquor left in the copper, was run through a flannel bag. The juice was then returned into the copper; and as it was my deſign to make it into ale, I put to it a proportionable quantity of hops. The liquor was then boiled about an hour, when it acquired both the colour and taſte of wort. It was next put into a cooler, and afterwards into the working veſſel, where the yeaſt was added to it. It worked kindly, and in all reſpects was treated as ale. I allowed it to remain in the caſk about four months, when I broached it, but found it of a thick, muddy appearance. I attempted to fine it, but in vain. The taſte was by no means diſpleaſing, as it much reſembled malt liquor. My firſt intention being fruſtrated, I threw it into the ſtill, being about 40 gallons in meaſure, and by two diſtillations obtained four gallons of a clean proof ſpirit. It had, however, contracted a flavour from the hop, which ſhould be left out when the intention is to reduce the liquor into ſpirit. From a groſs calculation, I am induced to think that a good acre of carrots manufactured in this manner, will leave a profit of L. 40. after deducting the landlord's rent, cultivation, diſtillation, and other incidental expences. In this calculation, I preſume that the ſpirit is worth ſix ſhillings per gallon, and not exciſed. An acre of barley will by no means produce ſo much ſpirit. A rich ſandy loam is the beſt land for carrots; which, after the crop is removed, will be in high cultivation for corn.”

Attempts have alſo been made to prepare ſugar from carrots, but without ſucceſs; a thick ſyrupy matter like treacle being only obtainable.—Raw carrots are given to children troubled with worms. They paſs through moſt people but little changed.—A poultice made of the roots hath been found to mitigate the pain and abate the ſtench of foul and cancerous ulcers.—Crickets are very fond of carrots; and are eaſily deſtroyed by making a paſte of powdered arſenic, wheatmeal, and ſcraped carrots, which muſt be placed near their habitations.—By their ſtrong antiſeptic qualities, a marmalade made from carrots has alſo been found uſeful in preventing and curing the ſea-ſcurvy.—The ſeeds have been reckoned carminative and diuretic; and were formerly much uſed as a remedy for the ſtone, but are at preſent diſregarded.—Carrots were firſt introduced into England by the Flemings, in the reign of queen Elizabeth.

DAVENANT (Sir William), an eminent poet in the 17th century, was born at Oxford in 1606. After ſome ſtay at the univerſity, he entered into the ſervice of Frances firſt ducheſs of Richmond, and afterward of Fulke Grevil, lord Brook; who having an excellent taſte for poetry, was much charmed with him. He got great eſteem by writing poems and plays; and upon the death of Ben Johnſon was created poet-laureat. He wrote his poem Gondibert at Paris. He formed a deſign for carrying over a conſiderable number of artificers, eſpecially weavers, to Virginia, by the encouragement of Henrietta Maria, the queen-mother of England, who obtained leave for him of the king of France. But he and his company were ſeized by ſome parliament ſhips, and he carried priſoner firſt to the iſle of Wight, and then to the Tower of London; but, by the Mediation of Milton and others, he got his liberty as a priſoner at large. At this time tragedies and comedies being prohibited, he contrived to ſet up an Opera, to be performed by declamations and muſic. This Italian opera began in Rutland-houſe in Charterhouſe-yard, 1656; but was afterwards removed to the

Cock-Pit in Drury-Lane, was much frequented for many years. In 1648, his Madagaſcar, with other poems, were printed. He died in 1668.

DAVENANT (Doctor Charles), an eminent civilian and writer, eldeſt ſon of the preceding, and educated in Cambridge: he wrote ſeveral political tracts; and likewiſe plays. He was (1685) impowered, with the maſter of the revels, to inſpect the plays deſigned for the ſtage, that no immoralities might be preſented. His Eſſays on Trade are in high eſteem; and were reprinted in 5 vols. 8vo, in 1771. Doctor Davenant was inſpector-general of exports and imports; and died in 1712.

DAVENTRY, or DAINTRY, a handſome town of Northamptonſhire in England, ſituated on the ſide of a hill on the great road to Cheſter and Carliſle. W. Long. 1. 15. N. Lat. 52. 12.

DAUGHTER, (*filia*), a female child. See the article CHILDREN.

Daughters, among the ancients, were more frequently expoſed than ſons, as requiring greater charge to educate and ſettle them in the world. See EXPOSING *of Children*. Thoſe who had no legitimate ſons were obliged, by the Athenian laws, to leave their eſtates to their daughters, who were confined to marry their neareſt relations, otherwiſe to forfeit their inheritance; as we find to have been practiſed likewiſe among the Jews, many of whoſe laws ſeem to have been tranſcribed by Solon.

If an heireſs happened to be married before her father's death, this did not hinder the neareſt relation to claim the inheritance, and even to take the woman from her huſband; which is ſaid to have been a common caſe.

DAVID, king of Iſrael, and Hebrew poet, was born at Bethlehem 1085, and died 1014 years B. C. His hiſtory is particularly recorded in the ſacred writings.

ST DAVID's, an epiſcopal town of Pembrokeſhire, in S. Wales; but has neither market nor fair. It is ſeated in a barren ſoil on the river Ilen, not a mile from the ſea-ſhore. It was once a conſiderable place, and had walls, which are now demoliſhed; but it is ſmall at preſent, and thinly inhabited; however, the cathedral is a pretty good ſtructure. From the cape, near this place, there is a proſpect into Ireland. W. Long. 5. 20. N. Lat. 52. 0.

St DAVID's, a town and fort of Aſia, in the peninſula on this ſide the Ganges, and on the coaſt of Coromandel, 80 miles S. of Fort St. George. E. Long. 79. 55. N. Lat. 11. 30. On the taking of Madraſs by the French in 1746, the preſidency of all the Engliſh ſettlements on the Coromandel coaſt was removed to Fort St David, and continued there till about the year 1752, when it was removed back to Madraſs. In June 1758, the fort was taken and demoliſhed by the French, and has never been rebuilt ſince.

DAVIDISTS, DAVIDICI, or DAVID GEORGIANS, a ſect of heretics, the adherents of David George, a native of Delft, who, in 1525, began to preach a new doctrine; publiſhing himſelf to be the true Meſſiah; and that he was ſent thither to fill heaven, which was quite empty for want of people to deſerve it. He is likewiſe ſaid to have denied the exiſtence of angels, good and evil, of heaven and hell, and to have rejected the doctrine of a future judgment. He rejected marriage, with the Adamites; held, with Manes, that the ſoul was not defiled by ſin; and laughed at the ſelf-denial ſo much recommended by Jeſus Chriſt. Such were his principal errors. He made his eſcape from Delft, and retired firſt into Frieſland and then to Baſil, where he changed his name, aſſuming that of John Bruck, and died in 1556.

He left ſome diſciples behind him, to whom he promiſed, that he would riſe again at the end of three years. Nor was he altogether a falſe prophet herein; for the magiſtrates of that city, being informed, at the three years end, of what he had taught, ordered him to be dug up and burnt, together with his writings, by the common hangman.

There are ſtill ſome remains of this ridiculous ſect in Holſtein, Frieſland, and other countries; whoſe temper and conduct ſeem to diſcredit the exaggerated account which ſome writers have given of their founder. He was probably a deluded fanatic and myſtic.

DAVILA (Henry Catherine), a celebrated hiſtorian, was the youngeſt ſon of Antonio Davila, grand conſtable of Cyprus, who on the taking of that iſland by the Turks in 1570, had been obliged to retire into Spain, whence this family ſuppoſed they had derived their name and origin. From Spain Antonio repaired to the court of France, and ſettled his ſon Louis and two daughters under the patronage of Catherine of Medicis; whoſe name he afterwards gave to the young hiſtorian, born 1576, at an ancient caſtle in the territories of Padua, though generally called a native of Cyprus. The little Davila was brought early into France; and at the age of 18, he ſignalized himſelf in the military ſcenes of that country. His laſt exploit there was at the ſiege of Amiens, where he fought under Henry IV. and received a wound in the knee, as he relates himſelf in his hiſtory. After peace was eſtabliſhed in France, he withdrew into Italy, and entered into the ſervice of the Venetians. Davila, while he was at Venice, wrote his admirable Hiſtory of the Civil Wars of France, which contains every thing worth notice that paſſed from the death of Henry II. in 1559, to the peace of Vervins in 1598. He continued to ſerve the republic of Venice with great reputation, till a moſt unfortunate adventure put an end to his life in 1631. Paſſing through Verona with his wife and family, on his way to Crema, which he was appointed to defend, and demanding, according to the uſual cuſtom of perſons in his ſtation, a ſupply of horſes and carriages for his retinue, a brutal Veroneſe, called *il Turco*, entered the room where he and his family were at ſupper, and being mildly reprimanded for his intruſion by Davila, diſcharged a piſtol at the hiſtorian, and ſhot him dead on the inſtant. His accomplices alſo killed the chaplain of Davila, and wounded many of his attendants. But his eldeſt ſon Antonio, a youth of 18, revenged the death of his father, by killing the murderer on the ſpot. All the confederates were ſecured next morning, and publicly executed at Verona. It is very remarkable, that Davila paſſed no cenſure on the maſſacre of St Bartholomew. His character of the queen mother has that partiality, which it was natural for him to ſhow to the patroneſs of his family; but his general veracity is confirmed by the great authority of the firſt duke of Epernon, who (to uſe the words of lord Bolingbroke) "had been an actor, and a principal actor too, in many of the ſcenes that Davila recites." Girard, ſecretary to this duke, and no contemptible biographer, relates, that this hiſtory came down to the place where the old man reſided in Gaſcony, a little before his death; that he read it to him; that the duke confirmed the truth of the narrations in it; and ſeemed only ſurpriſed by what means the author could be ſo well informed of the moſt ſecret councils and meaſures of thoſe times.

DAVIS (Sir John), an eminent lawyer and poet, born about the year 1570. He firſt diſtinguiſhed himſelf by his poem *Noſce Teipſum* on the Immortality of the Soul. He became attorney-general, and ſpeaker of the houſe of commons in Ireland; and afterward was appointed lord chief juſtice of the court of King's Bench in England, but died before his inſtallation, in 1626. He publiſhed many law tracts; but was eſteemed more of a ſcholar and a wit than of a lawyer.

Davis (John), a famous navigator in the 16th century, was born at Sandridge, near Dartmouth in Devonſhire; and diſtinguiſhed himſelf by making three voyages to the moſt northern parts of America, in order to diſcover a north-weſt paſſage to the Eaſt Indies; in which he diſcovered the Straits which bear his name. He afterwards performed five voyages to the Eaſt Indies; in the laſt of which he was ſlain in a deſperate fight with ſome Japaneſe, near the coaſt of Malacca, on the 27th of December 1605. He wrote an account of his ſecond voyage for the diſcovery of the north-weſt paſſage; a Voyage to the Eaſt-Indies; and other tracts.

Davis's Straits. See *New Britain.*

DAVIT, in a ſhip, a long beam of timber, repreſented by *a*, *a*, Plate CLXV. and uſed as a crane whereby to hoiſt the flukes of the anchor to the top of the bow, without injuring the ſides of the ſhip as it aſcends; an operation which, by mariners, is called *fiſhing the anchor*. The anchors being ſituated on both the bows, the davit may be occaſionally ſhifted, ſo as to project over either ſide of the ſhip, according to the poſition of that anchor on which it is employed. The inner end of the davit is ſecured by being thruſt into a ſquare ring of iron *b*, which is bolted to the deck, and forelocked under the beams. This ring, which is called the *ſpan-ſhackle*, exhibited at large by fig. 9. is fixed exactly in the middle of the deck, and cloſe behind the foremaſt. Upon the outer end of the davit is hung a large block *c*, through which a ſtrong rope traverſes, called the *fiſh-pendent*, *d*; to whoſe foremoſt end is fitted a large iron hook *e*, and to its after-end a tackle or complication of pullies *f*; the former of which is called the *fiſh-hook*, and the latter the *fiſh tackle*.

The davit, therefore, according to the ſea-phraſe, is employed to *fiſh the anchor*; which being previouſly *catted* the fiſh-hook is faſtened upon its flukes; and the effort of the tackle being tranſmitted to the hook, by means of the fiſh-pendent, draws up that part of the anchor ſufficiently high upon the bow to faſten it, which is done by the *ſhank-painter*. See that article. —There is alſo a davit of a ſmaller kind occaſionally fixed in the long-boat, and employed to weigh the anchor therein.

DAUPHIN is a title given to the eldeſt ſon of France, and preſumptive heir of the crown; on account of the province of Dauphiné, which in 1343 was given to Philip de Valois, on this condition, by Humbert dauphin of the Viennois. The Dauphin, in his letters patent, ſtyles himſelf, *By the grace of God, eldeſt ſon of France, and dauphin of Viennois.*

Dauphin was anciently the title or appellation of the prince of Viennois in France.

Moſt authors who have ſought the origin of the name *Dauphin* and *Dauphiné*, ſeem to have given too much looſe to conjecture. Du-Cheſne is of opinion, that it was the grandſon of Guy the Fat who firſt bore the name of *dauphin*. Chorier obſerves, that William, canon of Notre Dame at Grenoble, who has written the life of Margaret, daughter of Stephen earl of Burgundy married with Guy, ſon of Guy the Fat, calls the latter ſimply Guy the Old, and the former always count Dauphin; and adds, that no record, no monument, ever attributes the title of dauphin to Guy the Fat or any of his predeceſſors: ſo that it muſt neceſſarily have taken its riſe in his ſon, all whoſe ſucceſſors ſo conſtantly aſſumed it, that it became the proper name of the family. He died in 1142, in the flower of his youth; ſo that it muſt be about the year 1120 that the title commenced; and without doubt, adds he, on ſome illuſtrious occaſion. He obſerves farther, that this prince was of a military diſpoſition, and delighted in nothing but war; and again, that it was the cuſtom of the cavaliers to deck their caſks, coats of arms, and the houſing of their horſes, with ſome figure or device peculiar to themſelves, whereby they were diſtinguiſhed from all others engaged in the ſame combat or tournament. From all theſe circumſtances he conjectures, that this Guy choſe the dolphin for his ſignature; that this was the creſt of his helmet; and that he bore it on his coat in ſome notable tournament or battle, wherein he diſtinguiſhed himſelf. And this, Chorier makes no doubt, is the real origin of the appellation. Nothing was more common in thoſe times than to make proper names become the names of families or dignities. Witneſs the Ademars, Arthauds, Aynards, Alemans, Berengers, and infinite others; who all owe their names to ſome one of their anceſtors, from whom it has been tranſmitted throughout the family.

The ſeigneurs or lords of Auvergne have likewiſe borne the appellation of *dauphin*; but the dauphins of Auvergne had it not till a good while after thoſe of the Viennois, and even received it from them. The manner was this: Guy VIII. dauphin of Viennois, had by his wife Margaret, daughter of Stephen earl of Burgundy, a ſon and two daughters. The ſon was Guy IX. his ſucceſſor. Beatrix, one of the daughters, was married to the count d'Auvergne, who, according to Blondel, was William V. or rather, as Chorier and others hold, Robert VI. father of William V. This prince loſt the greateſt part of the county Auvergne, which was taken from him by his uncle William, aſſiſted by Louis the Young: and was only left maſter of the little canton whereof Vodable is the capital. He had a ſon whom he called Dauphin, on account of Guy, or Guigues, his uncle by the mother's ſide.

From his time his ſucceſſors, holding the ſame petty canton of Auvergne, ſtyled themſelves *Dauphins of Auvergne*, and bore a dolphin for their arms.

Dauphins, or *Delphins*, in literary hiſtory, a name given to the commentators on the ancient Latin authors, who were employed by order of Louis XIV. of France, for the benefit of the prince, under the care and direction of M. de Montauſier his governor, Boſſuet and Huet his preceptors. They were 39 in number.

DAUPHINY, a province of France, bounded on the weſt by the river Rhone, on the north by the Rhone, and Savoy, on the ſouth by Provence, and on the eaſt by the Alps. Hence the preſumptive heir of France is called the Dauphin. In ſome places it is very fertile; and produces corn, wine, olives, woad, copperas, ſilk, cryſtal, iron, and copper. But the greateſt part of this province is barren, and the inhabitants are obliged to go into other countries for ſubſiſtence. The mountains abound in ſimples and game of all ſorts; and here are fir-trees proper for maſts. The principal rivers are, the Rhone, the Durance, the Iſere, and the Drone. There is a great number of mineral ſprings; and Grenoble is the capital town.

DAURAT (John), an eminent French poet, born in 1507. In the reign of Henry II. he was preceptor to the king's pages, and Charles IX. who took great delight in his converſation, and honoured him with the title of his poet; but his generoſity and want of management placed him in that claſs of learned men who have been very near ſtarving. Conformable to the taſte of the age, he had ſo much ſkill in making anagrams, that ſeveral illuſtrious perſons gave him their names to anagrammatiſe: he alſo undertook to explain the Centuries of Noſtradamus. Making verſes was a diſeaſe in him: for no book was printed, nor did any perſon of conſequence die, but Daurat made ſome verſes on the occaſion; as if he had been poet in ordinary, or his muſe had been a hired mourner to the whole kingdom. Scaliger tells us, that he ſpent the latter part of his life in endeavouring to find all the bible in Homer. He died in 1588.

DAY, according to the moſt natural and obvious ſenſe of the word, ſignifies that ſpace of time during which it continues to be light; in contradiſtinction to night, being that partition of time wherein it is dark; but the ſpace of time in which it is light, being ſomewhat vague and indeterminate, the time between the riſing and the ſetting of the ſun is uſually looked on as the day; and the time which lapſes from its ſetting to its riſing again the night.

The word *day* is often taken in a large ſenſe, ſo as to include the night alſo; or to denote the time of a whole apparent revolution of the ſun round the earth; in which ſenſe it is called by ſome a natural day, and by others an artificial one: but, to avoid confuſion, it is uſual to call it in the former ſenſe ſimply the *day*, and in the latter a *nychthemeron*; by which term that acceptation of it is aptly denoted, as it implies both day and night.

The nychthemeron is divided into twenty-four parts, called *hours*; which are of two ſorts, equal and unequal or temporary. See the article Hour.

Different nations begin their day at a different hour. Thus the Egyptians begin their day at midnight; from whom Hippocrates introduced that way of reckoning into aſtronomy, and Copernicus and others have followed him: But the greateſt part of aſtronomers reckon the day to begin at noon, and ſo count twenty-four hours, till the noon of the next day; and not twice twelve, according to the vulgar computation. The method of beginning the day at midnight prevails alſo in Great Britain, France, Spain, and moſt parts of Europe.

The Babylonians began their day at ſun-riſing: reckoning the hour immediately before its riſing again, the twenty-fourth hour of the day; from whence the hours reckoned in this way are called the *Babylonic*. In ſeveral parts of Germany, they begin their day at ſun-ſetting, and reckon on till it ſets next day, calling that the *twenty-firth hour*: theſe are generally termed *Italian hours*. The Jews alſo began their nychthemeron at ſun-ſetting; but then they divided it into twice twelve hours, as we do, reckoning twelve for the day, be it long or ſhort, and twelve for the night, ſo that their hours continually varying with the day and night, the hours of the day were longer than thoſe of the night for one half year, and the contrary the other; from whence their hours are called temporary: theſe at the time of the equinoxes became equal, becauſe then thoſe of the day and night are ſo. The Romans alſo reckoned their hours after this manner, as do the Turks at this day.

This kind of hours is called *planetry*, becauſe the ſeven planets were anciently looked upon as preſiding over the affairs of the world, and to take it by turns each of theſe hours according to the following order: Saturn firſt, then Jupiter, Mars, the Sun, Venus, Mercury, and laſt of all the Moon: hence they denominated each day of the week from that planet whoſe turn it was to preſide the firſt hour of the nychthemeron. Thus, aſſigning the firſt hour of Saturday to Saturn, the ſecond will fall to Jupiter, the third to Mars, and ſo the twenty-ſecond of the ſame nychthemeron will fall to Saturn again, and therefore the twenty-third to Jupiter, and the laſt to Mars: ſo that on the firſt hour of the next day, it will fall to the ſun to preſide; and by the like manner of reckoning, the firſt hour of the next will fall to the Moon; of the next, to Mars; and the next, to Mercury; of the next, to Venus: hence the days of the week came to be diſtinguiſhed by the Latin names of *Dies Saturni, Solis, Lunæ, Martis. Mercurii, Jovis*, and *Veneris*; and among us, by the names of Saturday, Sunday, Monday, &c.

Day-Coal, in natural hiſtory, a name given by the miners of England, and the common people who live in coal-countries, to that ſeam or ſtratum of the coal which lies uppermoſt in the earth. The ſame vein or ſtratum of coal uſually runs a great way through the country, and dips and riſes in the earth at different places; ſo that this upper ſtratum, or day-coal, is, in the various parts of the ſame ſtratum, ſometimes near the ſurface and ſometimes many fathoms deep. The ſubterranean fires found in ſome of our coal-countries feed principally on this coal; and are nearer to or farther from the ſurface as it riſes or ſinks.

Day-Fly. See Ephemeris.

Day-Net, among fowlers. See Net.

Days of Grace, are thoſe granted by the court at the prayer of the defendant or plaintiff, in whoſe delay it is.

Days of grace, in commerce, are a cuſtomary number of days allowed for the payment of a bill of exchange, &c. after the ſame becomes due.

Three days of grace are allowed in Britain; ten in France and Dantzic; eight at Naples; ſix at Venice, Amſterdam, Rotterdam, and Antwerp; four at Francfort; five in Leipſic; twelve at Hamburg; ſix in Portugal; fourteen in Spain; thirty in Genoa, &c.

In Britain the days of grace are given and taken as a matter of courſe, the bill being only paid on the laſt day: but in other countries, where the time is much longer, it would be reckoned diſhonourable for a merchant to take advantage of it; bills are therefore paid on the very day they fall due.

Day's-Man, in the north of England, an arbitrator or perſon choſen to determine an affair in diſpute.

Intercalary Days. See *Intercalary Days*.

Day's-Work, among ſeamen, the reckoning or account of the ſhip's courſe during 24 hours, or between noon and noon, according to the rules of trigonometry. See *Dead-Reckoning*.

DAZE, in natural hiſtory, a name given by our miners to a glittering ſort of ſtone, which often occurs in their works; and, as it is an unprofitable ſubſtance, is one of thoſe things they call *weeds*. The word *daze* takes in with them every ſtone that is hard and glittering; and therefore it comprehends the whole genus of the telangia or ſtony nodules, which have the flakes of talk in their ſubſtance: theſe, according to the colour of the ſtony matter they are bedded in, and their own colour, give the names of *black daze, white, red,* and *yellow daze*, to theſe ſtones.

DEACON, Diaconus, a perſon in the loweſt degree of holy orders, whoſe buſineſs is to baptiſe, read in the church, and aſſiſt at the celebration of the euchariſt. The word is formed from the Latin *Diaconus*, of the Greek διακονος, miniſter, ſervant. Deacons were inſtituted ſeven in number, by the apoſtles, *Acts* chap. vi. which number was retained a long time in ſeveral churches. Their office was to ſerve in the Agapæ, and to diſtribute the bread and wine to the communicants. Another part of the office of deacons, was to be a ſort of monitors and directors to the people in the exerciſe of their public devotions in the church; for which purpoſe they made uſe of certain known forms of words, to give notice when each part of the ſervice began. Whence they are ſometimes called *eirokerukes*; "the holy cryers of the church."

Deacons had by licence and authority from the biſhop, a power to preach, to reconcile penitents and grant them abſolution, and to repreſent their biſhops in general councils. Their office out of the church was to take care of the neceſſitous, ſuch as orphans, widows, priſoners, and all the poor and ſick who had any title to be maintained out of the revenues of the church; to inquire into the morals and converſation of the people, and to make their report thereof to the biſhop. Whence, on account of the variety of buſineſs, it was uſual to have ſeveral deacons in the ſame church.

In the Romiſh church, it is the deacons office to incenſe the officiating prieſt or prelate; to lay the corporal on the altar; to receive the pattern or cup from the ſubdeacon, and to preſent them to the perſon officiating; to incenſe the choir; to receive the pax from the officiating prelate, and carry it to the ſubdeacon; and at the pontifical maſs, when the biſhops gives the bleſſing, to put the mitre on his head, and to take off the archbiſhop's pall and lay it on the altar. In England, the form of ordaining deacons, declares that it is their office to aſſiſt the prieſt in the diſtribution of the holy communion: in which, agreeably to the practice of the ancient church, they are confined to the adminiſtering the wine to the communicants. A deacon in England is not capable of any eccleſiaſtical promotion; yet he may be a chaplain to a family, curate to a beneficed clergyman, or lecturer to a pariſh-church. He may be ordained at 23 years of age, *anno currente*; but it is expreſsly provided, that the biſhop ſhall not ordain the ſame perſon a prieſt and deacon in the ſame day. Deacons, according to St Paul, ſhould be chaſte, ſincere, and blameleſs; neither great drinkers, nor given to filthy lucre: they ſhould hold the myſtery of the faith in a pure conſcience; and ſhould be well approved before they are admitted to the miniſtry. In the church of Scotland, the deacon's office is only to take care of the poor.

DEACONESS, *a female deacon*; an order of women who had their diſtinct offices and ſervices in the primitive church. The office appears as ancient as the apoſtolical age; for St Paul calls Phebe a ſervant of the church of Cenchrea. The original word is διακονος, anſwerable to the Latin word *miniſtra*. Tertullian calls them *viduæ*, widows, becauſe they were commonly choſen out of the widows of the church; and, for the ſame reaſon, Epiphanius, and the council of Laodicea, calls them πρεσβυτιδας, elderly women, becauſe none but ſuch were ordinarily taken into this office. For, indeed, by ſome ancient laws, theſe four qualifications were required in every one that was to be admitted into this order. 1. That ſhe ſhould be a widow. 2. That ſhe ſhould be a widow that had born children. 3. A widow that was but once married. 4. One of a conſiderable age, 40, 50, or 60 years old. Though all theſe rules admitted of exceptions. Concerning their ordination, whether it was always performed by impoſition of hands, the learned are much divided in their ſentiments. Baronius and Valeſius think they were not, and make no other account of them than as mere lay-perſons. But the author of the conſtitutions, ſpeaking of their ordination, requires the biſhop to uſe impoſition of hands, with a form of prayer which is there recited. We are not, however, to imagine, that this ordination gave them any power to execute any part of the ſacerdotal office. They were only to perform ſome inferior ſervices of the church, and thoſe chiefly relating to the women for whoſe ſakes they were ordained. One part of their office was to aſſiſt the miniſter at the baptizing of women, to undreſs them for immerſion, and to dreſs them again, that the whole ceremony might be performed with all the decency becoming ſo ſacred an action. Another part of their office was to be private catechiſts to the women-catechumens who were preparing for baptiſm. They were likewiſe to attend the women that were ſick and in diſtreſs; to miniſter to martyrs and confeſſors in priſon; to attend the womens gate in the church; and laſtly, to aſſign all women their places in the church, regulate their behaviour, and preſide over the reſt of the widows; whence in ſome canons they are ſtyled προκατϑεμεναι, "governeſſes." This order, which ſince the 10th or 12th century has been wholly laid aſide, was not aboliſhed every where at once, but continued in the Greek church longer than in the Latin, and in ſome of the Latin churches longer than in others.

DEACONRY, Diaconate, the order or miniſtry of a deacon or deaconeſs. See Deacon and Deaconess.

Deaconry, *Diaconia*, is alſo a name ſtill reſerved to the chapels and oratories in Rome, under the direction of the ſeveral deacons, in their reſpective regions or quarters.

To the deaconries were annexed a ſort of hoſpitals or boards for the diſtribution of alms, governed by the regionary deacons, called *cardinal deacons*, of whom there were ſeven, anſwering to the ſeven regions, there chief being called the *archdeacon*.

The hoſpital adjoining to the church of the deaconry had an adminiſtrator for the temporal concerns, called the *father of the deaconry*, who was ſometimes a prieſt and ſometimes a layman.

At preſent there are are fourteen of theſe deaconries or hoſpitals at Rome, which are reſerved to the cardinals. Du-Cange gives us their names: as, the deaconry of St Maria in the broad-way, the deaconry of St Euſtachio near the Pantheon, &c.

DEAD languages. See Philology, chap. iii.

Preſervation of Dead Bodies. See Embalming.

Feaſt of the Dead. See *Feast of the Dead.*

Dead-Lights, certain wooden ports which are made to faſten into the cabin windows, to prevent the waves from guſhing into the ſhip in a high ſea. As they are made exactly to fit the windows, and are ſtrong enough to reſiſt the waves, they are always fixed in on the approach of a ſtorm, and the glaſs lights taken out, which muſt otherwiſe be ſhattered to pieces by the ſurges, and ſuffer great quantities of water to enter the veſſel.

Dead-Mens-Eyes, in the ſea language, a kind of blocks with many holes in them, but no ſheevers, whereby the ſhrowds are faſtned to the chains: the crow feet reeve alſo through theſe holes: and, in ſome ſhips, the main-ſtays are ſet tight in them; but then they have only one hole, through which the lanyards are paſſed ſeveral times. See Plate CLXV.

Dead's Part. See Law, Nº lxxxi, 6.

Dead-Reckoning, in navigation, the judgment or eſtimation which is made of the place where a ſhip is ſituated; without any obſervation of the heavenly bodies. It is diſcovered by keeping an account of the diſtance ſhe has run by the log, and of her courſe ſteered by the compaſs; and by rectifying theſe data by the uſual allowances for drift, lee-way, &c. according to the ſhip's known trim. This reckoning, however, is always to be corrected, as often as any good obſervation of the ſun can be obtained.

Dead-Sea, in geography, a lake of Judea, into which the river Jordan diſcharges itſelf; being about 70 miles long and 20 broad. See Asphaltites.

Dead-Tops, a diſeaſe incident to young trees, and cured by cutting off the dead parts cloſe to the next good twig or ſhoot, and claying them over as in grafting.

Dead-Water, at ſea, the eddy-water juſt aſtern of a ſhip; ſo called, becauſe it does not paſs away ſo ſwift as the water running by her ſides does. They ſay that a ſhip makes much dead-watar when ſhe has a great eddy following her ſtern.

DEADLY-carrot. See Thapsia.

Deadly-Feud, in Engliſh law-books, a profeſſion of irreconcileable enmity, till a perſon is revenged by the death of his enemy. The word *feud* is derived from the German *Fehd*; which, as Hottoman obſerves, ſignifies *modo bellum, modo capitales inimicitias* *. Such enmity and revenge was allowed by law in the time of the Saxons, viz. If any man was killed, and a pecuniary ſatisfaction was not made to the kindred, it was lawful for them to take up arms to revenge themſelves on the murderer; which was called *deadly feud*. And this probably was the original of an Appeal.

DEAFNESS, the ſtate of a perſon who wants the ſenſe of hearing: or the diſeaſe of the ear, which prevents its due reception of ſounds. See Medicine-*Index*.

Deafneſs generally ariſes either from an obſtruction or a compreſſion of the auditory nerve; or from ſome collection of matter in the cavities of the inner ear; or from the auditory paſſage being ſtopped up by ſome hardened excrement; or laſtly, from ſome excreſence, a ſwelling of the glands, or ſome foreign body introduced within it.

Thoſe born deaf are alſo dumb, as not being able to learn any language, at leaſt in the common way. However, as the eyes in ſome meaſure ſerve them for ears, they may underſtand what is ſaid by the motion of the lips, tongue, &c. of the ſpeaker: and even accuſtom themſelves to move their own, as they ſee other people do, and by this means learn to ſpeak.—Thus it was that Dr Wallis taught two young gentlemen born deaf to know what was ſaid to them, and to return pertinent anſwers. Digby gives us another inſtance of the ſame within his own knowledge; and there was a Swiſs phyſician lately living at Amſterdam, one John Conrad Amman, who effected the ſame in ſeveral children born deaf with ſurpriſing ſucceſs. He has reduced the thing to a fixed art or method, which he has publiſhed in his *Surdus Loquens*, Amſtelod. 1692, and *de Loquela*, ibid. 1700.

In the Phil. Tranſ. Nº 312. we have an account by Mr Waller, R. S. Secr. of a man and his ſiſter, each about 50 years old, born in the ſame town with Mr Waller, who had neither of them the leaſt ſenſe of hearing: yet both of them knew, by the motion of the lips only, whatever was ſaid to them, and would anſwer pertinently to the queſtion propoſed. It ſeems they could both hear and ſpeak when children, but loſt their ſenſe afterwards; whence they retained their ſpeech, which though uncouth, was yet intelligible.

Such another inſtance is that of Mr Goddy's daughter, miniſter of St Gervais in Geneva, related by Biſhop Burnet. "At two years old they perceived ſhe had loſt her hearing; and ever ſince though ſhe hears great noiſes, yet hears nothing of what is ſaid to her. But by obſerving the motions of the mouth and lips of others, ſhe acquired ſo many words, that out of theſe ſhe hath formed a ſort of jargon, in which ſhe can hold converſation whole days with thoſe that can ſpeak her language. She knows nothing that is ſaid to her unleſs ſhe ſee the motion of their mouths that ſpeak to her, ſo that in the night they are obliged to light candles to ſpeak to her. One thing will appear the ſtrangeſt part of the whole narration: ſhe has a ſiſter, with whom ſhe has practiſed her language more than with any body elſe; and in the night, by laying her hand on her ſiſter's mouth, ſhe can perceive by that what ſhe ſaith, and ſo can diſcourſe with her in the dark." *Burn. Let.* IV. p. 248 *.

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* See. *Feud.*

* See further the article *Dumbneſs*.

It is obſervable that deaf perſons, and ſeveral others thick of hearing, hear better and more eaſily if a loud noiſe be raiſed at the time when you ſpeak to them: which is owing, no doubt to the greater tenſion of the ear-drum on that occaſion. Dr Wallis mentions a deaf woman, who if a drum were beat in the room could hear any thing very clearly; ſo that her huſband hired a drummer for a ſervant, that by this means he might hold converſation with his wife. The ſame author mentions another, who living near a ſteeple, could always hear very well if there was a ringing of three or four bells, but never elſe.

DEAL, a thin kind of fir-planks, of great uſe in carpentry. They are formed by ſawing the trunk of a tree into a great many longitudinal diviſions, of more or leſs thickneſs according to the purpoſes they are intended to ſerve.

A very good method of ſeaſoning planks of deal and fir is to throw them into ſalt water as ſoon as they are ſawed; and keep them there three or four days, frequently turning them. In this caſe they will be rendered much harder, by drying afterwards in the air and ſun: but neither this, nor any other method yet known will preſerve them from ſhrinking.

Rods of deal expand laterally, or croſs the grain, in moiſt weather, and contract again in dry; and thence have been found to make an uſeful hygrometer.

Deal, a town of Kent in England, lying between Dover and Sandwich, in E. Long. 1. 30. N. Lat. 51. 16. is ſuppoſed to be the *Dola* of Nennius, and is ſituated on a flat and level coaſt. This town, according to Dr Campbell, juſtifies an obſervation he had made in favour of ſituations of this kind *viz.* that they are leſs liable than others to be injured by the ſea. The town of Deal, as far as we are able to judge, except it may be the ſea's ſhrinking a little from it, is in much the ſame condition in which it ever was, even from the earlieſt accounts. The learned Dr Halley has proved, *Miſcellanea Curioſa*, vol. iii. p. 426, that Julius Cæſar landed here, Auguſt 26th, the year before the coming of Chriſt 55.—The great conveniency of landing has been of infinite ſervice to the place; ſo that it is large and populous, divided into the upper and lower towns, adorned with many fair buildings, and is in effect the principal place on the Downs.

DEAN, an eccleſiaſtical dignitary in cathedral and collegiate churches, and head of the chapter.

Rural Dean, called alſo *Arch preſbyter*, originally exerciſed juriſdiction over ten churches in the country, and afterwards became only the biſhop's ſubſtitute, to grant letters of adminiſtration, probate wills, &c.; to convocate the clergy; and to ſignify to them ſometimes by letters the biſhop's will, and to give induction to the archdeacon. Their office is now loſt in that of the archdeacons and chancellor.

Dean *of a Monaſtery*, was a ſuperior eſtabliſhed under the abbot, to eaſe him in taking care of ten monks; whence he was called *decanus*.

Dean *and Chapter*, are the council of the biſhop, to aſſiſt him with their advice in affairs of religion, and alſo in the temporal concerns of his ſee. When the reſt of the clergy were ſettled in the ſeveral pariſhes of each dioceſe, theſe were reſerved for the celebration of divine ſervice in the biſhop's own cathedral; and the chief of them, who preſided over the reſt, obtained the name of *decanus* or *dean*, being probably at firſt appointed to ſuperintend ten cannons or prebendaries.

All ancient deans are elected by the chapter by *conge d'eſlire* from the king, and letters miſſive of recommendation, in the ſame manner as biſhops; but in thoſe chapters that were founded by Henry VIII. out of the ſpoils of the diſſolved monaſteries, the deanery is donative, and the inſtallation merely by the king's letters patent. The chapter, conſiſting of canons or prebendaries, are ſometimes appointed by the king, ſometimes by the biſhop, and ſometimes elected by each other.

The dean and chapter are the nominal electors of a biſhop. The biſhop is their ordinary and immediate ſuperior; and has, generally ſpeaking, the power of viſiting them, and correcting their exceſſes and enormities. They had alſo a check on the biſhop at common law; for till the ſtatute 32 Hen. VIII. c. 28. his grant or leaſe would not have bound his ſucceſſors, unleſs confirmed by the dean and chapter.

Dean *of Guild*. See Law, N° clviii. 11.

DEANERY, the office of a dean.—Deaneries and prebends may become void, like a biſhopric, by death, by deprivation, or by reſignation either to the king or biſhop. If a dean, prebendary, or other ſpiritual perſon, be made a biſhop, all the preferments of which he was before poſſeſſed are void; and the king may preſent to them in right of his prerogative royal. But they are not void by the election, but only by the conſecration.

DEATH, is generally conſidered as the ſeparation of the ſoul from the body; in which ſenſe it ſtands oppoſed to life, which conſiſts in the union thereof.

Phyſicians uſually define death by a total ſtoppage of the circulation of the blood, and a ceſſation of the animal and vital functions conſequent thereon; as reſpiration, ſenſation, &c.

An animal body, by the actions inſeparable from life, undergoes a continual change. Its ſmalleſt fibres become rigid; its minute veſſels grow into ſolid fibres no longer pervious to the fluids; its greater veſſels grow hard and narrow; and every thing becomes contracted, cloſed, and bound up: whence the dryneſs, immobility, and extenuation, obſerved in old age. By ſuch means the offices of the minuter veſſels are deſtroyed; the humours ſtagnate, harden, and at length coaleſce with the ſolids. Thus are the ſubtiliſt fluids in the body intercepted and loſt, the concoction weakened, and the reparation prevented; only the coarſer juices continue to run ſlowly through the greater veſſels to the preſervation of life, after the animal functions are deſtroyed. At length, in the proceſs of theſe changes, death itſelf becomes inevitable, as the neceſſary conſequence of life. But it is rare that life is thus long protracted, or that death ſucceeds merely from the decays and impairment of old age. Diſeaſes, a long and horrid train, cut the work ſhort.

The ſigns of death are in many caſes very uncertain. If we conſult what Winſlow or Bruchier have ſaid on this ſubject, we ſhall be convinced, that between life and death the ſhade is ſo very undiſtinguiſhable, that even all the powers of art can ſcarcely determine where the one ends and the other begins. The colour of the viſage, the warmth of the body, and ſuppleneſs of the joints, are but uncertain ſigns of life ſtill ſubſiſting; while, on the contrary, the paleneſs of the complexion, the coldneſs of the body, the ſtiffneſs of the extremities, the ceſſation of all motion, and the total inſenſibility of the parts, are but uncertain marks of death begun. In the ſame manner alſo, with regard to the pulſe and breathing; theſe motions are often ſo kept under, that it is impoſſible to perceive them. By bringing a looking-glaſs near to the mouth of the perſon ſuppoſed to be dead, people often expect to find whether he breathes or not. But this is a very uncertain experiment: the glaſs is frequently ſullied by the vapour of the dead man's body; and often the perſon is ſtill alive, though the glaſs is no way tarniſhed. In the ſame manner, neither burning nor ſcarifying, neither noiſes in the ears nor pungent ſpirits applied to the noſtrils, give certain ſigns of the diſcontinuance of life; and there are many inſtances of perſons who have endured them all, and afterwards recovered without any external aſſiſtance, to the aſtoniſhment of the ſpectators. This ought to be a caution againſt haſty burials, eſpecially in caſes of ſudden death, drowning, &c.

Death in Law. In law, there is a natural death and a civil death: natural, where nature itſelf expires; civil, where a perſon is not actually dead, but adjudged ſo by law. Thus, if any perſon, for whoſe life an eſtate is granted, remains beyond ſea, or is otherwiſe abſent, ſeven years, and no proof made of his being alive, he ſhall be accounted naturally dead.

Brothers of Death, a denomination uſually given to the religious of the order of St Paul, the firſt hermit. They are called *brothers of death, fratres a morte*, on account of the figure of a death's head, which they were always to have with them, in order to keep perpetually before them the thoughts of death. This order, by its conſtitutions made in 1620, does not ſeem to have been eſtabliſhed long before Pope Paul V. Louis XIII. in 1621, permitted them to ſettle in France. The order was probably ſuppreſſed by Pope Urban VIII.

Law of Deathbed. See Law, N° clxxxi. 38—41.

Death-Watch, in natural hiſtory, a little inſect famous for a ticking noiſe, like the beat of a watch, which the vulgar have long taken for a preſage of death in the family where it is heard: whence it is alſo called *pediculus, fatidicus, mortiſuga, pulſatorius*, &c.

There are two kinds of death-watches. Of the firſt we have a good account in the Phil. Tranſ. by Mr Allen. It is a ſmall beetle, $\frac{5}{16}$ of an inch long, of a dark-brown colour, ſpotted; having pellucid wings under the vagina, a large cap or helmet on the head, and two antennæ proceeding from beneath the eyes, and doing the office of proboſcides. The part it beats withal, he obſerved, was the extreme edge of the face, which he chooſes to call the upper-lip, the mouth being protracted by this bony part, and lying underneath out of view.

This account is confirmed by Dr Derham; with this difference, that inſtead of ticking with the upper-lip, he obſerved the inſect to draw back its mouth, and beat with its forehead. That author had two death-watches, a male and a female, which he kept alive in a box ſeveral months; and could bring one of them to beat whenever he pleaſed, by imitating its beating. By this ticking noiſe he could frequently invite the male to get up upon the other in the way of coition. When the male found he got up in vain, he would get off again, beat very eagerly, and then up again: Whence the ingenious author concludes thoſe pulſations to be the way whereby theſe inſects woo one another, and find out and invite each other to copulation.

The ſecond kind of death-watch is an inſect in appearance quite different from the firſt. The former only beats ſeven or eight ſtrokes at a time, and quicker; the latter will beat ſeveral hours together without intermiſſion; and his ſtrokes are more leiſurely, and like the beat of a watch. This latter is a ſmall greyiſh inſect, much like a louſe when viewed with the naked eye.

It is very common in all parts of the houſe in the ſummer-months: it is very nimble in running to ſhelter, and ſhy of beating when diſturbed; but will beat very freely before you, and alſo anſwer the beating, if you can view it without giving it diſturbance, or ſhaking the place where it lies, &c. The author cannot ſay whether they beat in any other thing, but he never heard their noiſe except in or near paper. As to their noiſe, the ſame perſon is in doubt whether it be made by their heads, or rather ſnouts, againſt the paper; or whether it be not made after ſome ſuch a manner as graſhoppers and crickets make their noiſe. He inclines to the former opinion. The reaſon of his doubt is, that he obſerved the animal's body to ſhake and give a jerk at every beat, but could ſcarce perceive any part of its body to touch the paper. But its body is ſo ſmall and near the paper, and its motion in ticking ſo quick, that he thinks it might be, yet he not perceive it. The ticking, as in the other, he judges to be a wooing act; as having obſerved another, after much beating, come and make offers to the beating inſect, who, after ſome offers, left off beating, and got upon the back of the other. When they were joined, he left off again; and they continued ſome hours joined tail to tail, like dog and bitch in coition. Whether this inſect changes its ſhape and becomes another animal or not, he cannot ſay; though he has ſome cauſe to ſuſpect that it becomes a ſort of fly. It is at firſt a minute white egg, much ſmaller than the nits of lice; though the inſect is near as big as a louſe. In March it is hatched, and creeps about with its ſhell on. When it firſt leaves its ſhell, it is even ſmaller than its egg; though that be ſcarce diſcernible without a microſcope. In this ſtate it is perfectly like the mites in cheeſe. From the mite-ſtate they grow gradually to their mature perfect ſtate. When they become like the old ones, they are at firſt very ſmall, but run about much more ſwiftly than before.

DEBENTURE, a term of trade uſed at the cuſtom-houſe for a kind of certificate ſigned by the officers of the cuſtoms, which intitles a merchant exporting goods to the receipt of a bounty or draw-back. In Britain all merchandiſes that are deſigned to be taken on board for that voyage being entered and ſhipped, and the ſhip being regularly cleared out, and ſailed out of port on her intended voyage, debentures may be made out from the exporter's entries, in order to obtain the drawbacks, allowances, bounties, or premiums; which debentures for foreign goods are to be paid within one month after demand. And in making out theſe debentures, it muſt be obſerved, that every piece of vellum, parchment, or paper, containing any debenture for drawing back cuſtoms or duties, muſt, before writing, be ſtamped, and pay a duty of 8d.

The forms of debentures vary according to the merchandiſe exported. In the execution of debentures for tobacco, it muſt be particularly obſerved, 1. That debentures for the ſame quantity may be made on one or more parchments. 2. That the exporter's oath muſt be printed, ſpecifying whether he acts for himſelf or on commiſſion. 3. If exported to any other foreign ports than Ireland, the word *Ireland* muſt be added to the oath after *Great Britain*. 4. That as no tobacco may be conſumed on board of ſhips of war in Europe but what has paid full duties, and been manufactured in Great Britain, no drawback is to be allowed for tobacco exported in any man of war. 5. That the eight pounds *per* hogſhead of 350 pounds, or more, allowed for draught at importation, muſt not be deducted on exportation. 6. That debentures for tobacco exported to Ireland muſt not be paid till a certificate be produced, teſtifying the landing thereof. 7. That no perſons may ſwear to the exportation but ſuch as are permitted to ſwear to debentures for other goods. In debentures for all other foreign goods, no perſon may be admitted to ſwear to the exportation but the true exporter, either as a proprietor, or who, being employed by commiſſion, is concerned in the direction of the voyage. All kinds of debentures, before delivered or paid to the exporters, are entered into a ſeparate book kept for that purpoſe by the collector and comptroller of the cuſtoms.

DEBITA FUNDI. See LAW, N° clxvi. 1.

DEBITA Fructuum. See LAW, N° clxx. 17.

DEBILITY, among phyſicians, a relaxation of the ſolids, occaſioning oftentimes weakneſſes and faintings.

DEBIR (anc. geog.), a ſacerdotal city of Paleſtine, near Hebron; but neither diſtance, nor point of the compaſs on which it lies, can be determined. It was anciently called *Kariath-ſepher* or *Kirjath-ſepher*, and *Kirjath-ſanna* (Joſhua).—Another *Debir* in the tribe of Gad, beyond Jordan.

DEBRECHEN, a town of Upper Hungary, about 77 miles eaſt of Buda. E. Long. 21. 10. N. Lat 47. 45.

DEBRUIZED, in heraldry, a term peculiar to the Engliſh, by which is intimated the grievous reſtraint of any animal, debarred of its natural freedom, by any of the ordinaries being laid over it.

DEBT, in law, any thing due to another, whether it be money, goods, or ſervices; or the action brought for recovering the ſame.

National DEBT. See FUNDS and *NATIONAL Debt*.

DEBTOR, a perſon who owes any thing to another; in contradiſtinction to creditor, which is he to whom the debt is owing.

DEBTOR, in merchants accounts. See BOOK-KEEPING.

DECAGON, in geometry, a plane figure with ten ſides and ten angles.

DECADE, a word uſed by ſome old writers for the number ten, and *decades* for an enumeration by tens. The word is formed from the Latin *decas*, which is derived from a Greek word of the ſame import. The word has been more peculiarly appropriated to the number of books, *q. d. decades*, into which the Roman Hiſtory of Titus Livius is divided. Hence alſo came *decadal* arithmetic, the Decameron of Boccacio, &c.

DECAGYNIA (from δεκα *ten*, and γυν a *woman*), the name of an order, or ſecondary diviſion, in the claſs decandria, of the ſexual method, conſiſting of plants whoſe flowers are furniſhed with ten ſtamina and the ſame number of ſtyles; which laſt are conſidered by Linnæus and ſexualiſts as the female organs of generation in plants. Neurada and American nightſhade furniſh examples.

DECALOGUE, the ten precepts or commandments delivered by God to Moſes, after engraving them on two tables of ſtone.

The Jews, by way of excellence, call theſe commandments the *ten words*, from whence they had afterwards the name of *decalogue*: but it is to be obſerved, that they joined the firſt and ſecond into one, and divided the laſt into two. They underſtand that againſt ſtealing to relate to the ſtealing of men, or kidnapping; alleging, that the ſtealing one another's goods or property is forbidden in the laſt commandment.

The emperor Julian objected to the decalogue, that the precepts it contained (thoſe only excepted which concern the worſhip of falſe gods, and the obſervation of the ſabbath) were already ſo familiar to all nations, and ſo univerſally received, that they were unworthy, for that very reaſon, to be delivered, by ſo great a legiſlator, to ſo peculiar a people. The church of Rome has ſtruck the ſecond commandment quite out of the decalogue; and to make their number complete, hath ſplit the tenth into two: The reaſon of which may be eaſily conceived.

DECAN, a kingdom of Aſia, in the peninſula on this ſide the Ganges, bounded on the ſouth by the kingdom of Biſnagar, on the weſt by the ocean, on the north by Moguliſtan, and on the eaſt by the mountains which ſeparate it from Golconda.

DECANDRIA (δεκα *ten*, and ανηρ a *huſband*), Linnæus's tenth claſs, comprehending thoſe hermaphrodite plants which bear flowers with ten ſtamina. See BOTANY, p. 430.

DECANTATION, among chemiſts, &c. the gently pouring off a liquor from its fæces, by inclining the lip or canthus of the veſſel; whence the name.

DECANUS, in Roman antiquity, an officer who preſided over the other ten officers, and was head of the contubernium, or ſerjeant of a file of ſoldiers.

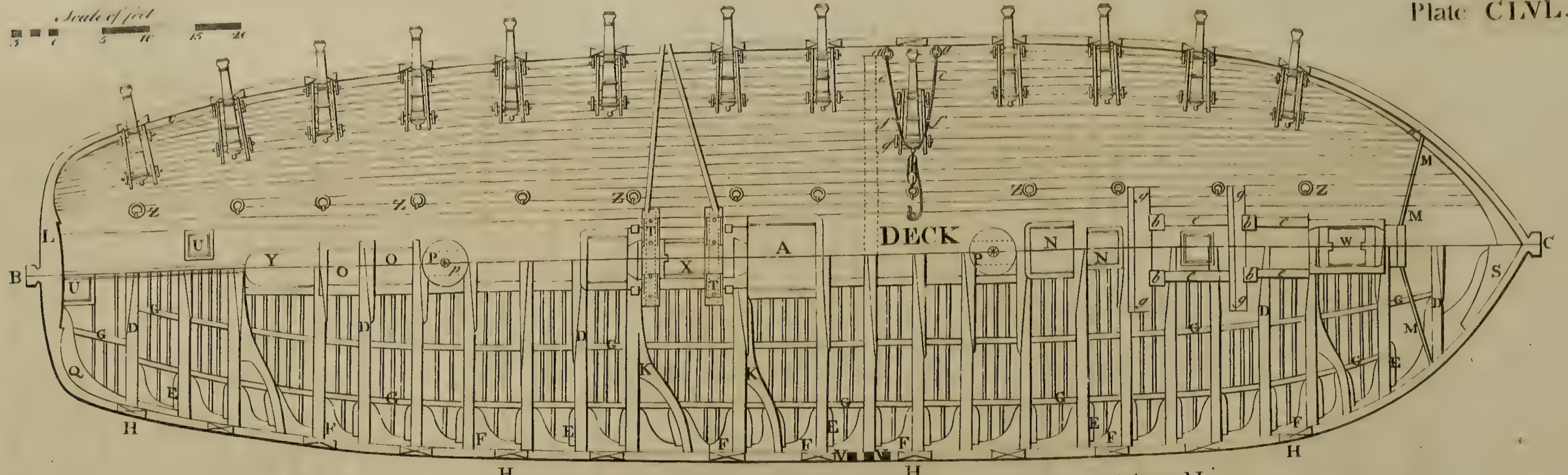
DECAPOLIS (anc. geog.), a diſtrict beyond Jordan, almoſt all of it belonged to the half tribe of Manaſſeh; before the captivity, called *Bethſan*; but after occupied by heathens, who could not be drived out. It compriſed, as the name denotes, ten principal cities on the other ſide the Jordan, if we except Scythopolis, which ſtood on this ſide, but its territory on the other.

DECAPROTI, DECEMPRIMI, in Roman antiquity, officers for gathering the tributes and taxes.

The decaproti were alſo obliged to pay for the dead, or to anſwer to the emperor for the quota parts of ſuch as died out of their own eſtates.

DECASPERMUM, in botany: a genus of the monogynia order, belonging to the icoſandria claſs of plants.

Plate CLVI.



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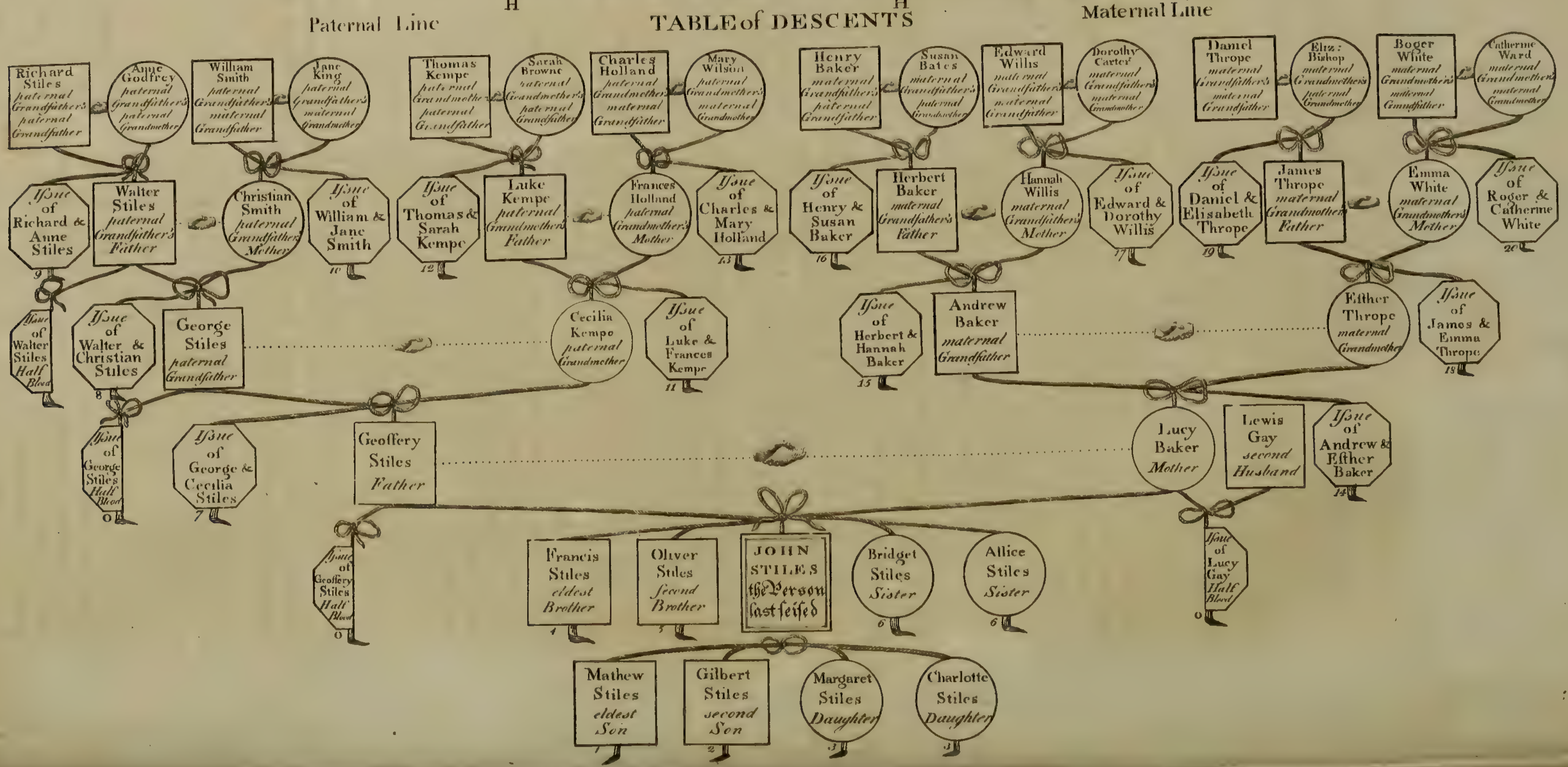
Paternal Line
Maternal Line
Richard Stiles paternal Grandfather's paternal Grandfather
Anne Godfrey paternal Grandfather's paternal Grandmother
William Smith paternal Grandfather's maternal Grandfather
Jane King paternal Grandfather's maternal Grandmother
Thomas Kempe paternal Grandmother's paternal Grandfather
Sarah Browne paternal Grandmother's paternal Grandfather
Charles Holland paternal Grandmother's maternal Grandfather
Mary Wilson paternal Grandmother's maternal Grandmother
Henry Baker maternal Grandfather's paternal Grandfather
Susan Bates maternal Grandfather's paternal Grandmother
Edward Willis maternal Grandfather's maternal Grandfather
Dorothy Carter maternal Grandfather's maternal Grandmother
Daniel Thrope maternal Grandfather's maternal Grandfather
Eliz: Bishop maternal Grandmother's paternal Grandmother
Roger White maternal Grandmother's maternal Grandfather
Catherine Ward maternal Grandmother's maternal Grandmother
Iſsue of Richard & Anne Stiles
9
Walter Stiles paternal Grandfather's Father
Christian Smith paternal Grandfather's Mother
Iſsue of William & Jane Smith
10
Iſsue of Thomas & Sarah Kempe
12
Luke Kempe paternal Grandmother's Father
Frances Holland paternal Grandmother's Mother
Iſsue of Charles & Mary Holland
13
Iſsue of Henry & Susan Baker
16
Herbert Baker maternal Grandfather's Father
Hannah Willis maternal Grandfather's Mother
Iſsue of Edward & Dorothy Willis
17
Iſsue of Daniel & Elisabeth Thrope
19
James Thrope maternal Grandmother's Father
Emma White maternal Grandmother's Mother
Iſsue of Roger & Catherine White
20
Iſsue of Walter Stiles Half Blood
Iſsue of Walter & Christian Stiles
8
George Stiles paternal Grandfather
Cecilia Kempe paternal Grandmother
Iſsue of Luke & Frances Kempe
11
Iſsue of Herbert & Hannah Baker
15
Andrew Baker maternal Grandfather
Efther Thrope maternal Grandmother
Iſsue of James & Emma Thrope
18
Iſsue of George Stiles Half Blood
0
Iſsue of George & Cecilia Stiles
7
Geoffery Stiles Father
Lucy Baker Mother
Lewis Gay second Husband
Iſsue of Andrew & Efther Baker
14
Iſsue of Geoffery Stiles Half Blood
0
Francis Stiles eldest Brother
4
Oliver Stiles second Brother
5
JOHN STILES the Person last seised
Bridget Stiles Sister
6
Allice Stiles Sister
6
Iſsue of Lucy Gay Half Blood
0
Mathew Stiles eldest Son
1
Gilbert Stiles second Son
2
Margaret Stiles Daughter
3
Charlotte Stiles Daughter
3

plants. The calyx is a turbinated perianthium, quinquefid at the apex. The corolla has five roundiſh petals. The ſtamina are many filiform filaments, a little ſhorter than the corolla. The pericarpium is a dry, globular, decemlocular berry, with ſolitary egg-ſhaped ſeeds.

DECASTYLE, in the ancient architecture, a building with an ordnanee of ten columns in front, as the temple of Jupiter Olympius was.

DECEIT, in law, a ſubtle trick or device, to which may be added all manner of craft and colluſion, or underhand practice, uſed to defraud another, by any means whatever.

DECEMBER, the laſt month of the year, wherein the ſun enters the tropic of Capricorn, and makes the winter ſolſtice.

In Romulus's year, December was the tenth month, whence the name, *viz.* from *decem* "ten:" for the Romans began their year in March.

The month of December was under the protection of Veſta. Romulus aſſigned it 30 days, Numa reduced it to 29, which Julius Cæſar increaſed to 31.

Under the reign of Commodus, this month was called, by way of flattery, *Amazonius*, in honour of a courteſan whom that prince paſſionately loved, and had got painted like an Amazon; but it only kept the name during that emperor's life.

At the latter end of this month they had the *juveniles ludi;* and the country people kept the feaſt of the goddeſs Vacuna in the fields, having then gathered in their fruits and ſown their corn; whence ſeems to be derived our popular feſtival called *harveſt-home.*

DECEM PAGI (anc. geog.), a town of Belgica: Now *Dieuſe*, in Lorrain, on the rivulet Seille or Selna, near the lake Lindre, about ſeven German miles to the north-eaſt of Nancy.

DECEMPEDA, Δεκαπους, *ten-feet rod*, an inſtrument uſed by the ancients in meaſuring.

The decempeda was a rule or rod divided into ten feet: whence its name, from *decem* "ten," and *pes, pedis*, "foot." The foot was ſubdivided into twelve inches, and each inch into ten digits. The decempeda was uſed both in meaſuring of land, like the chain among us; and by architects to give the proper dimenſions and proportions to the parts of their buildings, which uſe it ſtill retains. Horace, lib. ii. od. 15. blaming the magnificence and delicacy of the buildings of his time, obſerves, that it was otherwiſe in the times of Romulus and Cato; that in the houſes of private perſons there were not then known any porticoes meaſured out with the decempeda, nor turned to the north to take the cool air.

DECEMVIRI, ten magiſtrates of abſolute authority among the Romans. The privileges of the patricians raiſed diſſatisfaction among the plebeians; who, though freed from the power of the Tarquins, ſtill ſaw that the adminiſtration of juſtice depended upon the will and caprice of their ſuperiors, without any written ſtatute to direct them, and convince them that they were governed with equity and impartiality. The tribunes complained to the ſenate, and demanded that a code of laws might be framed for the uſe and benefit of the Roman people. This petition was complied with; and three ambaſſadors were ſent to Athens and all the other Grecian ſtates, to collect the laws of Solon and of all the other celebrated legiſlators of Greece. Upon the return of the commiſſioners it was univerſally agreed, that ten new magiſtrates called *Decemviri*, ſhould be elected from the ſenate to put the project into execution. Their power was abſolute, all other offices ceaſed after their election, and they preſided over the city with regal authority. They were inveſted with the badges of the conſul, in the enjoyment of which they ſucceeded by turns; and only one was preceded by the faſces, and had the power of aſſembling the ſenate and confirming decrees. The firſt decemvirs were Appius Claudius, T. Genutius, P. Sextus, Sp. Veturius, C. Julius, A. Manlius, Ser. Sulpitius, Pluriatius, T. Romulus, Sp. Poſthumius, in the year of Rome 302. Under them the laws which had been expoſed to public view, that every citizen might ſpeak his ſentiments, were publicly approved of as conſtitutional, and ratified by the prieſts and augurs in the moſt ſolemn and religious manner. They were ten in number, and were engraved on tables of braſs; two were afterwards added, and they were called the laws of the twelve tables, *leges duodecim tabularum*, and *leges decemvirales*. The decemviral power, which was beheld by all ranks of people with the greateſt ſatisfaction, was continued; but in the third year after their creation the decemvirs became odious on account of their tyranny, and the attempt of Ap. Claudius to raviſh Virginia totally aboliſhed the office. The people were ſo exaſperated againſt them, that they demanded them from the ſenate to burn them alive. Conſuls were again appointed, and tranquillity re-eſtabliſhed in the ſtate.—There were other officers in Rome called decemvirs, who were originally appointed in the abſence of the prætor to adminiſter juſtice. Their appointment became afterwards neceſſary, and they generally aſſiſted at ſales called *ſubhaſtationes*, becauſe a ſpear, *haſta*, was fixed at the door of the place where the goods were expoſed to ſale. They were called *decemviri litibus judicandis*. The officers whom Tarquin appointed to guard the Sibylline books were alſo called *decemviri*. They were originally two in number, called *duumviri*. till the year of Rome 388, when the number was increaſed to ten, five of which were choſen from the plebeians and five from the patricians. Sylla increaſed their number to fifteen, called *quindecemvirs*.

DECENNALIA, ancient Roman feſtivals, celebrated by the emperors every tenth year of their reign, with ſacrifices, games, and largeſſes for the people. The emperor Auguſtus firſt inſtituted thoſe ſolemnities, in which he was imitated by his ſucceſſors. At the ſame time the people offered up vows for the emperor, and for the perpetuity of the empire; which were therefore called *vota decennalia*. Auguſtus's view in eſtabliſhing the decennalia was to preſerve the empire and the ſovereign power without offence or reſtraint to the people. For during the celebration of this feaſt, that prince uſed to ſurrender up all his authority into the hands of the people; who filled with joy, and charmed with the goodneſs of Auguſtus immediately delivered it him back again.

DECHALES (Claudius Francis Milliet), an excellent mathematician, mechanic, and aſtronomer, deſcended from a noble family, and born at Chamberry in 1611. His principal performances are an edition of Euclid's elements of geometry in which the unſerviceable

able propoſitions are rejected, and the uſes of thoſe retained, annexed; a diſcourſe on fortification; and another on navigation. Theſe with others have been collected firſt in 3 vols folio, and afterwards in 4, under the title of *Mundus Mathematicus:* being indeed a complete courſe of mathematics. He died in 1678, profeſſor of mathematics in the univerſity of Turin.

DECIATES, or *Deciatii*, (anc. geog.) a people of Gallia Narbonenſis, next the borders of Italy, on the Mediterranean. Now the dioceſe of Graſe and Antibes. *Deciatum oppidum*, was a town ſituated between Antibes and Nice.

DECIDUOUS, an appellation chiefly uſed in reſpect of plants: thus, the calyx or cup of a flower is ſaid to be *deciduous*, when it falls along with the flower-petals; and, on the contrary, it is called *permanent*, when it remains after they are fallen. Again, deciduous leaves are thoſe which fall in autumn; in contradiſtinction to thoſe of the ever-greens, which remain all the winter. See DEFOLIATION.

DECIL, in aſtronomy, an aſpect or poſition of two planets, when they are diſtant from each other a tenth part of the zodiac.

DECIMAL ARITHMETIC, the art of computing by decimal fractions. See ARITHMETIC.

DECIMATION, a puniſhment inflicted by the Romans, on ſuch ſoldiers as quitted their poſts, or behaved themſelves cowardly in the field. The names of the guilty were put into an urn or helmet, and as many were drawn out as made the tenth part of the whole number, and thoſe were put to the ſword, and the others ſaved. This was called *decimare;* a word of the ancient Roman militia, who, to puniſh whole legions, when they had failed in their duty, made every tenth ſoldier draw lots, and put him to death for an example to the others.

As the Romans had their *decimatio*, they had alſo the *viceſimatio*, and even *centeſimatio*, when only the 20 or 100th man ſuffered by lot.

DECIPHERING, the art of finding the alphabet of a cipher. For the art both of Ciphering and Deciphering, ſee the article CIPHER.

DECIUS Mus, a celebrated Roman conſul, who, after many glorious exploits, devoted himſelf to the gods manes for the ſafety of his country in a battle againſt the Latins; about 340 years before the Auguſtan age. His ſon Decius imitated his example, and devoted himſelf in like manner in his fourth conſulſhip, when fighting againſt the Gauls and Samnites. His grandſon alſo did the ſame in the war againſt Pyrrhus and the Tarentines. This action of devoting oneſelf was of infinite ſervice to the ſtate. The ſoldiers were animated by the example, and induced to follow with intrepidity a commander who, arrayed in an unuſual dreſs, and addreſſing himſelf to the gods with ſolemn invocation, ruſhed into the thickeſt part of the enemy to meet his fate.

DECIUS (Cn. Metius, Q. Trajanus), a native of Pannonia, ſent by the Emperor Philip to appeaſe a ſedition in Mœſia. Inſtead of obeying his maſter's command, he aſſumed the imperial purple, and ſoon after marched againſt him, and at his death became the only emperor. He ſignalized himſelf againſt the Perſians; and when he marched againſt the Goths, he puſhed his horſe into a deep marſh, from which he could not extricate himſelf, and he periſhed with all his army by the darts of the barbarians, A. D. 251, after a reign of two years.

DECK *of a* SHIP, (from *decken*, Dan. to cover); the planked floors of a ſhip, which connect the ſides together, and ſerve as different platforms to ſupport the artillery and lodge the men, as alſo to preſerve the cargo from the ſea in merchant veſſels. As all ſhips are broader at the lower deck than on the next above it, and as the cannon thereof are always heavieſt, it is neceſſary that the frame of it ſhould be much ſtronger than that of the others; and for the ſame reaſon the ſecond or middle deck ought to be ſtronger than the upper deck or forecaſtle.

Ships of the firſt and ſecond rates are furniſhed with three whole decks, reaching from the ſtem to the ſtern, beſides a forecaſtle and a quarter-deck, which extends from the ſtern to the mainmaſt; between which and the forecaſtle a vacancy is left in the middle, opening to the upper deck, and forming what is called the *waiſt*. There is yet another deck above the hinder or aftmoſt part of the quarter-deck, called the *poop*, which alſo ſerves as a roof for the captain's cabin or couch.

The inferior ſhips of the line of battle are equipped with two decks and a half; and frigates, ſloops, &c. with one gun-deck and a half, with a ſpar-deck below to lodge the crew.

The decks are formed and ſuſtained by the beams, the clamps, the water-ways, the carlings, the ledges, the knees, and two rows of ſmall pillars called *ſtanchions*, &c. See thoſe articles.

That the figure of a deck, together with its correſponding parts, may be more clearly underſtood, we have exhibited a plan of the lower-deck of a 74 gun ſhip in Plate CLVI. And as both ſides of the deck are exactly ſimilar, the pieces by which it is ſupported appear on one ſide, and on the other ſide the planks of the floor of which it is compoſed, as laid up on thoſe upper pieces.

A, the principal or main hatch-way.

B, the ſtern-poſt.

C, the ſtem.

D, the beams, compoſed of three pieces, as exhibited by D, in one of which the dotted lines ſhow the arrangement of one of the beams under the other ſide of the deck.

E, part of the vertical or hanging knees.

F, the horizontal or lodging knees, which faſten the beams to the ſides.

G, the carlings ranging fore and aft, from one beam to another.

H, the gun-ports.

I, the pump-dales, being large wooden tubes, which return the water from the pumps into the ſea.

K, the ſpurs of the beams, being curved pieces of timber ſerving as half-beams to ſupport the decks, where a whole beam cannot be placed on account of the hatchways.

L, the wing-tranſom, which is bolted by the middle to the ſtern-poſt, and whoſe ends reſt upon the faſhion-pieces.

M, the bulk-head or partition, which incloſes the manger, and prevents the water which enters at the hawſe-holes from running aft between decks.

NN, the fore hatch-way.

OO, the after hatch-way.

P, the drum-head of the gear capſtern.

P p, the drum-head of the main capſtern

Q, The wing-tranſom knee.

R, one of the breaſt-hooks under the gun-deck.

S, the breaſt-hook of the gun-deck.

TT, the ſtation of the chain-pumps.

V, the breadth and thickneſs of the timbers at the height of the gun-deck.

UU, ſcuttles leading to the gunner's ſtore-room, and the bread-room.

W, the ſtation of the fore-maſt.

X, the ſtation of the main-maſt.

Y, the ſtation of the mizen-maſt.

Z, the ring-bolts of the decks, uſed to retain the cannon whilſt charging.

a a, The ring-bolts of the ſides whereon the tackles are hooked that ſecure the cannon at ſea.

c a a d, The water-ways, through which the ſcupper holes are pierced, to carry the water off from the deck into the ſea.

b b, Plan of the foremoſt and aftmoſt cable-bits, with their croſs-pieces g g, and their ſtandards e e.

Thus we have repreſented on one ſide all the pieces which ſuſtain the deck with its cannon; and on the other ſide, the deck itſelf, with a tier of 32 pounders planted in battery thereon. In order alſo to ſhow the uſe of the breeching and train-tackle, one of the guns is drawn in as ready for charging.

The number of beams by which the decks of ſhips are ſupported, is often very different, according to the practice of different countries; the ſtrength of the timber of which the beams are framed; and the ſervice for which the ſhip is calculated.

As the deck which contains the train of a fire-ſhip is furniſhed with an equipage peculiar to itſelf, the whole apparatus is particularly deſcribed in the article FIRE-*ſhip*.

Fluſh-DECK implies a continued floor laid from ſtem to ſtern, upon one line, without any ſtops or intervals.

Half-DECK, a ſpace under the quarter-deck of a ſhip of war, contained between the foremoſt bulk-head of the ſteerage and the fore-part of the quarter-deck. In the colliers of Northumberland the ſteerage itſelf is called the *half-deck*, and is uſually the habitation of the crew.

DECLAMATION, a ſpeech made in public, in the tone and manner of an oration, uniting the expreſſion of action to the propriety of pronunciation, in order to give the ſentiment its full impreſſion upon the mind. According to the manners and cuſtoms of the preſent age, public harangues are made only, 1. In the pulpit. 2. In the ſenate, in council, or other public aſſembly. 3. By public profeſſors. 4. On the theatre.

I. With regard to the declamation of the pulpit, the dignity and ſanctity of the place, and the importance of the ſubject, require the preacher to exert the utmoſt powers of his voice to produce a pronunciation that is perfectly diſtinct and harmonious, and that he obſerve a deportment and action which is expreſſive and graceful. No man, therefore, who is deſtitute of a voice, ſhould aſcend the pulpit, and there act the part of a pantomime before his audience. The preacher ſhould not, however, roar like a common cryer, and rend the ear with the voice of thunder; for ſuch kind of declamation is not only without meaning and without perſuaſion, but highly incongruous with the meek and gentle expreſſions of the goſpel. He ſhould likewiſe take particular care to avoid a monotony; his voice ſhould riſe from the beginning, as it were by degrees, and its greateſt ſtrength ſhould be exerted in the application. Each inflexion of the voice ſhould be adapted to the phraſe, and to the meaning of the words; and each remarkable expreſſion ſhould have its peculiar inflexion. The dogmatic requires a plain, uniform tone of voice only; and the menaces of the goſpel demand a greater force than do its promiſes and rewards; but the latter ſhould not be pronounced in the ſoft tone of a flute, nor the former with the loud ſound of a trumpet. The voice ſhould ſtill retain its natural tone in all its various inflexions. Happy is that preacher, to whom nature has given a voice that is at once ſtrong, flexible, and harmonious.

Bielfield's Elements.

An air of complacency and benevolence, as well as devotion, ſhould be conſtantly viſible in the countenance of the preacher. But every appearance of affectation muſt be carefully avoided: for nothing is ſo diſguſtful to an audience, as even the ſemblance of diſſimulation. Eyes conſtantly rolling, turned towards heaven, and ſtreaming with tears, rather denote a hypocrite, than a man poſſeſſed of the real ſpirit of religion, and that feels the true import of what he preaches. An air of affected devotion infallibly deſtroys the efficacy of all that the preacher can ſay, however juſt and important it may be. On the other hand, he muſt avoid every appearance of mirth or raillery, or of that cold unfeeling manner which is ſo apt to freeze the hearts of his hearers.

The body ſhould be in general erect, and in a natural and eaſy attitude. The perpetual movement, or contortion, of the body, has a ridiculous effect in the pulpit, and makes the figure of a preacher and a harlequin much too ſimilar. But, on the other hand, he ought not to remain conſtantly upright and motionleſs, like a ſpeaking ſtatue.

The motions of the hands give a ſtrong expreſſion to a diſcourſe; but they ſhould be conſtantly decent, grave, noble, and expreſſive. The preacher, who is inceſſantly in action, who is perpetually claſping his hands, or who menaces with a clenched fiſt, or counts his arguments on his fingers, will only excite mirth among his auditory. In a word, declamation is an art that the ſacred orator ſhould ſtudy with the utmoſt aſſiduity. The deſign of a ſermon is to convince, to affect, and to perſuade. The voice, the countenance, and the action, which are to produce this triple effect, are therefore the objects to which the preacher ſhould particularly apply himſelf.

II. The declamation of a miniſter or ſtateſman in the ſenate, in council, or other public aſſembly, is of a more unconfined nature. To perſuade, to move the paſſions, and gain an aſcendancy in a public aſſembly, the orator ſhould himſelf feel the force of what he ſays, and the declamation ſhould only expreſs that internal ſenſation. But nothing ſhould be carried to exceſs. A ſuavity in the tone of voice, a dignity of deportment, a graceful action, and a certain tranquillity of countenance, ſhould conſtantly accompany the ſtateſman when he ſpeaks in public, even when he is moſt earneſtly engaged in debate, or when he is addreſſing his ſovereign in perſon. A pleaſing tone of voice, and a diſtinct pronunciation, prejudice the hearers greatly in the ſpeaker's favour. A young man may improve theſe to a ſurpriſing degree. Demoſthenes, who had a natural impediment in his ſpeech, was accuſtomed to go to the ſea-ſhore, and partly filling his mouth with pebbles, he declaimed with a loud voice. The ſtones by degrees gave a volubility to his tongue, and the roaring of the waves reconciled him inſenſibly to the noiſe of the multitude.

III. The principal object of a public profeſſor is the inſtruction of the ſtudious youth: for which purpoſe, he is to convince and perſuade. Every tone of voice, every expreſſion of the countenance, or action of the body, which can produce this effect by enforcing the words, ſhould therefore be employed by thoſe who are to teach the ſciences. There is, moreover, one very eſſential reflection which every profeſſor ought to make, and which is, that the chair, from which he harangues, is ſurrounded by young ſtudents, naturally poſſeſſed with vivacity, not unfrequently ludicrous, and for the moſt part previouſly inſtructed in the preparatory ſciences. They are therefore conſtantly inclined to criticiſe, to jeſt, and to ridicule: for which reaſon, the profeſſor ſhould endeavour to inſpire them with reſpect and attention, by a grave, commanding, and venerable countenance; and carefully avoid all appearance of grimace in his action, and every kind of affectation in his diſcourſe, that he may not afford the leaſt opportunity for pleaſantry

IV. We are now come to *theatric declamation*. 1. This was very different among the ancients from what it is, and ought to be, with us, from the nature of the thing itſelf, and from the difference of circumſtances. Numberleſs paſſages in Quintilian, and other ancient hiſtorians, critics, grammarians, and commentators, evidently prove, that the ancient dramatic declamation was ſubſervient to the rules of the muſical rhythmus; and by this, according to Ariſtides*, their action, as well as recital, was regulated. But to explain this ſeeming paradox, it will be neceſſary to make here ſome preliminary remarks. The ancients gave a much more extenſive ſignification than we do to the word *muſic (muſica)*, which they derived from the muſes, or at leaſt from ſome of them. It is for this reaſon, that the ſame Ariſtides and Quintilian define it to be "An art that teaches all that relates to the uſe of the voice, and the manner of performing all the motions of the body with grace:" *Ars decoris in vocibus & motibus*. Therefore poetry, declamation, dancing, pantomimes, and many other geſtures and exerciſes, were ſubſervient to this art.

2. That part of general muſic which taught the art of declamation and geſture according to the rules of an eſtabliſhed method (and which we perform by inſtinct, or at moſt by the aid of common ſenſe), was diſtinguiſhed by the name of *hypocritic muſic:* and this muſical art was called by the Greeks *orcheſis*; and by the Romans *ſaltatio*. It was, however, ſo far from being an advantage to the ancients to have had this art, which we have not, that it was, on the contrary, a mark of great imperfection. For, in the firſt place, it was an inſtance of high abſurdity to repreſent a tragedy, or comedy, before an audience of twenty thouſand people, the far greateſt part of whom could neither hear nor ſee what paſſed to any good purpoſe, unleſs they were poſſeſſed of organs which we have not. The theatres of London and Paris may conveniently contain about a thouſand perſons; and that is found ſufficient in the moſt populous cities, where there are ſeveral places of entertainment on the ſame day, and where the people are reaſonable enough to ſucceed each other in their diverſions. As the features of the face could not be diſtinguiſhed at ſo great a diſtance, and ſtill leſs the alteration of countenance in order to repreſent the different paſſions, they were obliged to have recourſe to *maſks*; a wretched, childiſh invention, that deſtroyed all the ſtrength and variety of expreſſion. Their action became extravagant; and, at the ſame time, ſubſervient to a regular mechaniſm, which prevented all the refinement, and all the pleaſure of ſurpriſe, in the performance; and muſt have had an effect horribly diſagreeable to thoſe who were placed near the ſtage.

3. The egregious imperfection of their language likewiſe, which conſiſted of ſyllables long and ſhort, whoſe duration was determined by a ſet meaſure of time, and their manner of tuning ſyllables, after the method of the orcheſis of the Greeks, was another diſadvantage. For by this means they determined by notes and characters placed after the long and ſhort ſyllables, not only the nature, but the duration, of each action. Now, nothing could be more affected, more conſtrained and diſguſtful, than ſuch method of declaiming. How far ſuperior in this reſpect are the moderns, who conſult nature alone in their theatric declamation; who can make the audience hear each ſigh; who can accompany it with a proper attitude; who can inceſſantly vary their action; who can ſeize the lucky moment, and make the countenance fully expreſs the ſenſations of the mind? Nature does all here; and art, infinitely inferior to nature, did all among the ancients. Modern declamation cannot be ſubſervient to a muſical rhythmus, ſeeing we ſpeak rapidly, and without affectation. Our actors learn their art without art, from nature itſelf, aſſiſted by reflection; and they arrive at a degree of excellence infinitely greater than that of the ancients, by a method far more ſimple, and by efforts incomparably more eaſy.

4. We do not, moreover, preciſely know what the theatric declamation of the ancients was; nor what were the muſical inſtruments which accompanied that declamation. The title to the Eunuch of Terence ſays, for example, "That Flaccus, the freedman of Claudius, made the muſic of that piece, in which he employed the two flutes, the right and the left." Theſe flutes, it is likely, gave the tone to the actor; which muſt have had a very odd effect on the audience. Moſt of the ancient pieces have ſimilar titles. They who would be particularly informed of the art of declaiming among the Greeks and Romans, may read to advantage the Critical Reflections on Poetry and Painting by the Abbé du Bos. The third part of that work conſiſts entirely of learned reſearches and ingenious reflections on this ſilly practice of the ancients. But as this art has happily no place in modern declamation, and can at beſt ſerve only to make a parade

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* *De Muſica*, lib. i.

of erudition, we ſhall ſay no more of it, but paſs to matters of real utility.

5. We think there is good reaſon to believe, moreover, that the moſt poliſhed nations of modern Europe do not accompany their diſcourſes, in general, with ſo many geſticulations, as did the Greeks, the Romans, and other inhabitants of warm climates. They appear to have found the method of animating a diſcourſe, and giving it an expreſſion, by the ſimple inflections of the voice, and by the features of the countenance; which is far more decent, more juſt, and rational, than all thoſe contortions which perpetually derange the natural attitude of the body and its members, and give the ſpeaker the air of a harlequin.

6. *Expreſſion*, therefore, forms at once the eſſence and the end of declamation; and the means of producing it conſiſts in a pronunciation that is ſonorous, diſtinct, and pleaſing, ſupported by an action that is decent and proper to the ſubject. If the beſt dramatic poet has need of a good declaimer or actor to make his writing produce its proper effect, the actor has likewiſe need of a good poet to enable him to pleaſe and affect by his action: for it is to little purpoſe that he endeavours to charm his auditory by uniting, with nature, all the powers of art, if the poet has not furniſhed him with ſentiments that are rational and affecting.

7. The actor, in ſtudying his part before a large mirror, where he can ſee his whole figure, in order to determine the moſt proper expreſſion for every thought, ſhould conſult nature, and endeavour to imitate her. But, in this imitation, he ſhould take care not to make too ſervile a copy. He has this to obſerve, in common with his colleagues, the maſters in all the polite arts: The theatre is intended to exhibit an imitation of nature, and not nature itſelf. Tragedy and comedy form pictures of human life; but theſe pictures are alſo pieces of perſpective, which require ſtrokes ſomewhat ſtronger than nature, that they may be diſcerned at a diſtance. The actor is elevated to a conſiderable height from the ground; he is ſurrounded by ſcenery, he is ſeparated from the audience by the orcheſtra, and he ſpeaks in verſe; all this is not natural: but the ſpectator is to accede to this neceſſary illuſion, in order to promote his own pleaſure, which would not be ſo great as it is were all theſe matters otherwiſe diſpoſed. Declamation, therefore, ſhould ſomewhat exceed, but never loſe ſight of, nature.

8. The tone of the actor's voice ſhould be natural, but regulated by the extent of the theatre; ſufficiently loud to be heard by all the audience, but not ſo violent as to rend their ears. A pure and graceful pronunciation, without any provincial accent, is likewiſe a great merit in an actor; and he ſhould alſo habituate himſelf to ſpeak in a manner perfectly diſtinct. It is a capital point in the pronouncing of verſe, not to ſeparate the two hemiſtics, by reſting too long on the *cæſura* in the middle, or dwelling on the end of each hemiſtic: for, by ſo doing, the actor falls into a monotony, an inſufferable uniformity of cadence, in a piece that conſiſts of ſome thouſand verſes. The gradations of the voice demand alſo a very judicious obſervance. The ſpeaker, who begins in a high tone, will find it very difficult to ſuſtain it through the whole piece; and he, who clamours inceſſantly, will find his lungs fail him in thoſe parts where the vehemence of paſſion requires the ſtrongeſt efforts. If we may be allowed the expreſſion, the ſtrongeſt touches, the boldeſt figures, will not there ſtand out from the picture in a ſtriking manner.

9. The deportment of an actor ſhould be conſtantly graceful, decent, and proper to the character he repreſents. An old man has a different poſition of body from a young petit maitre; an aged queen from a young princeſs; a noble gallant from a valet de chambre. A rational obſervance of nature, and an imitation of the beſt actors, are here the ſureſt guides. The ſame may be ſaid of the action of the hands, the theatric ſtep, &c. An inanimated figure, a body in the poſition of a ſtatue, and hands immoveable, are as diſpleaſing in the ſcene as a player whoſe inceſſant geſticulation reſembles the action of a puppet.

10. Every actor who aſpires to make his art ſomething more than merely mechanical, will begin by enabling himſelf readily to repeat his part, that the defect of his memory may not embarraſs his action. When he is ſo far a maſter of it, he will make it the ſubject of ſerious reflection in his cloſet; endeavour to ſeize the true ſenſe of the author; and to find out that expreſſion of each ſentiment and paſſion, which is the moſt natural, the moſt ſtriking, and beſt adapted to the ſtage; and which he will cultivate by repeated eſſays; till he is able to render it in its full force.

DECLARATORY ACTION. See LAW, N° clxxxii. 21.

DECLENSION, in grammar, an inflection of nouns according to their divers caſes; as nominative, genitive, dative, &c. See GRAMMAR.

DECLINATION, in aſtronomy, the diſtance of any celeſtial object from the equinoctial, either northward or ſouthward. It is either true or apparent, according as the real or apparent place of the object is conſidered. See ASTRONOMY, n° 409, 410.

DECLINATION of the Sea-Compaſs or Needle, is its variation from the true meridian of any place.

DECLINATION of a Wall or plane for Dials, is an arch of the horizon, contained either between the plane and the prime vertical circle, if you reckon it from the eaſt or weſt; or elſe between the meridian and the plane, if you account from the north or ſouth. See DIAL.

DECLINATORIES, are inſtruments for taking the declinations, inclinations, and reclinations of planes; and they are of ſeveral kinds.

The beſt ſort for taking the declination conſiſts of a ſquare piece of braſs or wood, with a limb accurately divided into degrees; and every fifth minute, if poſſible, having a horizontal dial moving on the centre made for the latitude of the place it is to ſerve in; and which has a ſmall bit of fine braſs fixed on its meridian line, like a fiducial edge, to cut the degrees of the limb: for at any time when the ſun ſhines, by having the hour of the day, you may find the declination of any wall or plane by this inſtrument.

DECLINATURE *of* JUDGES. See Law, N° clvi. 12.

DECLIVITY denotes the reverſe of ACCLIVITY.

DECOCTION, uſually ſignifies either the action of boiling a ſubſtance in water, or the water itſelf in which the ſubſtance has been boiled. It is only applicable

cable to matters containing ſome principles ſoluble in water; ſuch particularly are animal and vegetable matters. Decoction ought not to be uſed with ſuch ſubſtances as contain any volatile principles, as they would be diſſipated in the air during the proceſs. But it may be ſafely uſed, nay even becomes neceſſary, when the matters to be treated are ſolid, and of a cloſe and compact texture; becauſe then the water could not extract its principles without a boiling heat. Moſt ſoft animal matters, as fleſh, ſkin, tendons, may be conveniently boiled in water; becauſe they contain no principle volatile with a boiling heat. Water extracts from them nothing but a gelatinous ſubſtance, and ſome oily parts which float on the ſurface of the water. All vegetable matters which are inodorous, and particularly thoſe which are hard, as roots, barks, &c. are generally boiled, when an extraction of their principles by water is required.—To this rule, however, there are ſome exceptions. Peruvian bark, for inſtance, gives its ſtrength to cold water better than to ſuch as is boiling hot. Many other vegetables alſo have the ſame property of yielding leſs to boiling than to cold water. And therefore a general rule may be eſtabliſhed, that decoction ought not to be employed but when abſolutely neceſſary; that is, when the ſame principles, or the ſame quantities of thoſe principles, cannot be obtained by an infuſion, and that without heat, if it can be ſo done, conſidering that the proximate principles of vegetables are generally ſo delicate, and ſo ſuſceptible of change and decompoſition, that frequently the moſt gentle heat changes much their nature and properties.

DECOLLATION, BEHEADING, a term ſeldom uſed but in the phraſe *decollation* of St John Baptiſt; which denotes a painting, wherein is repreſented the Baptiſt's head ſtruck off from his trunk; or the feaſt held in honour of that martyr.

DECOMPOSITION, in chemiſtry, uſually ſignifies the diſunion or ſeparation of the conſtituent parts of bodies.—It differs from mere mechanical diviſion, in that when a body is chemically decompoſed, the parts into which it is reſolved are eſſentially different from the body itſelf; but though a mechanical force is applied to it ever ſo long, or with ever ſo much violence, the minuteſt particles into which the body may be reduced, ſtill retain their original nature.—Thus, for example, though we ſuppoſe nitre, or any other ſalt, to be reduced to ever ſo fine powder, each particle retains the nature of nitre, as much as the largeſt unpounded maſs; but if oil of vitriol is applied, a decompoſition takes place, and one of the component parts of the nitre riſes in the form of a ſmoking acid ſpirit, which never could have been ſuſpected to lie hid in the mild neutral ſalt.

DECORATION, in architecture, any thing that adorns and enriches a building, church, triumphal arch, or the like, either without ſide or within.

The orders of architecture contribute greatly to the decoration; but then the ſeveral parts of thoſe orders muſt have their juſt proportions, characters, and ornaments; otherwiſe the fineſt order will bring confuſion rather than richneſs. See ARCHITECTURE.

Decorations in churches, are paintings, vaſes, feſtoons, &c. occaſionally applied to the walls; and with ſo much conduct and diſcretion, as not to take off any thing from the form of the architecture: as is much practiſed in Italy at the ſolemn feaſts.

DECORATION is more particularly applied to the ſcenes of theatres.

In operas, and other theatrical performances, the decorations muſt be frequently changed conformably to the ſubject.

The ancients had two kinds of decorations for their theatres: the firſt, called *verſatiles*, having three ſides, or faces, which were turned ſucceſſively to the ſpectators: the other called *ductiles*, ſhowing a new decoration by drawing or ſliding another before it.—This latter ſort is ſtill uſed, and apparently with much greater ſucceſs than among the ancients, who were obliged to draw a curtain whenever they made a change in the decoration; whereas on our ſtage the change is made in a moment, and almoſt without being perceived.

DECORUM, in architecture, is the ſuitableneſs of a building, and the ſeveral parts and ornaments thereof, to the ſtation and occaſion.

DECOUPLE, in heraldry, the ſame as uncoupled: thus a chevron decouple, is a chevron wanting ſo much of it towards the point, that the two ends ſtand at a diſtance from one another, being parted and uncoupled.

DECOY, in naval affairs, a ſtratagem employed by a ſhip of war to betray a veſſel of inferior force into an uncautious purſuit, till ſhe has drawn her within the range of her cannon, or what is called within *gun-ſhot*. It is uſually performed by painting the ſtern and ſides in ſuch a manner as to diſguiſe the ſhip, and repreſent her either much ſmaller and of inferior force, or as a friend to the hoſtile veſſel, which he endeavours to enſnare, by aſſuming the emblems and ornaments of the nation to which the ſtranger is ſuppoſed to belong. When ſhe has thus provoked the adverſary to chaſe, in hopes of acquiring a prize, ſhe continues the decoy, by ſpreading a great ſail, as endeavouring to eſcape; at the ſame time that her courſe is conſiderably retarded by an artful alteration of her trim till the enemy approaches. Decoying is alſo performed to elude the chaſe of a ſhip of a ſuperior force in a dark night, by throwing out a lighted caſk of pitch into the ſea, which will burn for a conſiderable time and miſguide the enemy. Immediately after the caſk is thrown out, the ſhip changes her courſe, and may eaſily eſcape if at any tolerable diſtance from the foe.

DECOY, among fowlers, a place made for catching wild-fowl. A decoy is generally made where there is a large pond ſurrounded with wood, and beyond that a marſhy and uncultivated country: if the piece of water is not thus ſurrounded, it will be attended with the noiſe and other accidents which may be expected to frighten the wild-fowl from a quiet haunt, where they mean to ſleep, during the day-time, in ſecurity. If theſe noiſes or diſturbances are wilful, it hath been held that an action will lie againſt the diſturber.—As ſoon as the evening ſets in, the decoy *riſes* (as they term it), and the wild-fowl feed during the night. If the evening is ſtill, the noiſe of their wings, during their flight, is heard at a very great diſtance, and is a pleaſing though rather melancholy ſound. This *riſing* of the decoy in the evening, is in Sommerſetſhire called *radding*.

The decoy-ducks are fed with hempſeed, which is thrown over the ſkreens in ſmall quantities, to bring them forwards into the pipes or canals, and to allure the wild-fowl to follow, as this ſeed is ſo light as to float.

There are ſeveral *pipes*, as they are called, which lead up a narrow ditch that cloſes at laſt with a funnel-net. Over theſe pipes (which grow narrower from their firſt entrance) is a continued arch of netting ſuſpended on hoops. It is neceſſary to have a pipe or ditch for almoſt every wind that can blow, as upon this circumſtance it depends which pipe the fowl will take to; and the decoy-man always keeps on the lee-ward ſide of the ducks, to prevent his effluvia reaching their ſagacious noſtrils. All along each pipe, at certain intervals, are placed ſkreens made of reeds, which are ſo ſituated, that it is impoſſible the wild-fowl ſhould ſee the decoy man, before they have paſſed on towards the end of the pipe, where the purſe-net is placed. The inducement to the wild-fowl to go up one of theſe pipes is, becauſe the decoy-ducks trained to this lead the way, either after hearing the whiſtle of the decoy-man, or enticed by the hempſeed; the latter will dive under water, whilſt the wild-fowl fly on, and are taken in the purſe.

It often happens, however, that the wild-fowl are in ſuch a ſtate of ſleepineſs and dozing, that they will not follow the decoy-ducks. Uſe is then generally made of a dog, who is taught his leſſon: he paſſes backwards and forwards between the reed-ſkreens (in which are little holes, both for the decoy-man to ſee, and the little dog to paſs through); this attracts the eye of the wild-fowl, who, not chooſing to be interrupted, advance towards the ſmall and contemptible animal, that they may drive him away. The dog all the time, by the direction of the decoy-man, plays among the ſkreens of reeds, nearer and nearer the purſe-net: till at laſt, perhaps, the decoy-man appears behind a ſkreen, and the wild-fowl not daring to paſs by him in return, nor being able to eſcape upwards on account of the net-covering, ruſh on into the purſe-net. Sometimes the dog will not attract their attention, if a red handkerchief, or ſomething very ſingular, in not put about him.

The general ſeaſon for catching fowl in decoys, is from the latter end of October till February: the taking of them earlier is prohibited in Britain by an act 10. *Geo. II. c.* 32. which forbids it from June 1ſt till October 1ſt, under the penalty of five ſhillings for each bird deſtroyed within that ſpace.

The Lincolnſhire decoys are commonly ſet at a certain annual-rent, from 5 to 20 pounds a-year: and there is one in Summerſetſhire that pays 30 l. The former contribute principally to ſupply the markets in London. Amazing numbers of ducks, wigeons, and teal, are taken: by an account ſent us * of the number caught a few winters paſt, in one ſeaſon, and in only ten decoys, in the neighbourhood of Wain-fleet, it appeared to amount to 31,200, in which are included ſeveral other ſpecies of ducks: it is alſo to be obſerved, that, in the above particular, wigeon and teal are reckoned but as one, and conſequently ſell but at half price of the ducks. This quantity makes them ſo cheap on the ſpot, that we have been aſſured, ſeveral decoy-men would be content to contract for years to deliver their ducks at Boſton, for 10 d. per couple. The account of the numbers here mentioned, relates only to thoſe that were ſent to the capital.

It was cuſtomary formerly to have in the fens an annual *driving* of the young ducks before they took wing. Numbers of people aſſembled, who beat a vaſt tract, and forced the birds into a net placed at the ſpot where the ſport was to terminate. A hundred and fifty dozens have been taken at once: but this practice being ſuppoſed to be detrimental, has been aboliſhed by act of parliament.

DECREE, an order made by a ſuperior power for the regulation of an inferior.

Decree, in the civil law, is a determination which the emperor pronounces upon hearing a particular cauſe between the plaintiff and defendant.

Decrees of Councils, are the laws made by them, to regulate the doctrine and policy of the church.

Decrees in Chancery, are the determinations of the lord-chancellor, upon a full hearing of the merits of a cauſe.

DECREET, in the law of Scotland, a final decree or judgment of the lords of ſeſſion, from which an appeal only lies to parliament.

Decreet-Arbitral, in Scots law, the ſentence or judgment of one to whom parties voluntarily ſubmit the determination of any queſtion betwixt them*.

DECREMENT, in heraldry, ſignifies the wane of the moon from the full to the new. The moon in this ſtate is called *moon decreſcent*, or in *decours*; and when borne in coat armour, faces to the left ſide of the eſcutcheon, as ſhe does to the right ſide when in the increment.

DECREPITATION, in chemiſtry, ſignifies the quick ſeparation of the parts of a body, occaſioned by a ſtrong heat, and accompanied with noiſe and crackling. This effect is moſt frequently produced by water contained betwixt the parts of the decrepitating body, when theſe parts have a certain degree of adheſion together. This water being quickly reduced into vapour by the heat ſuddenly applied to it, rarifies, and burſts with noiſe the parts which compreſs it. The bodies moſt ſubject to decrepitation are certain ſalts, ſuch as common ſalt, vitriolated tartar, nitre of lead, &c. the decrepitation of all which proceeds from the water of their cryſtallization. Clays which are not perfectly dry, and flints, are alſo ſubject to decrepitation.

DECREPITUDE, in medicine, the conſequence of the infirmities of old age; which by degrees leads to death. See Death.

DECRETAL, in the canon law, a letter of a Pope determining ſome point or queſtion in the eccleſiaſtical law. The decretals compoſe the ſecond part of the canon law. The firſt genuine one, acknowledged by all the learned as ſuch, is a letter of Pope Siricius, written in the year 385, to Himerus biſhop of Tarragona, in Spain, concerning ſome diſorders which had crept into the churches of Spain. Gratian publiſhed a collection of decretals, containing all the ordinances made by the popes till the year 1150. Gregory IX. in 1227, following the example of Theodoſius and Juſtinian, formed a conſtitution of his own, collecting into one body all the deciſions and all the cauſes which ſerved to advance the papal power; which collection of decretals was called the *pentateuch*, becauſe it contains five books.

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* *Pennant's Brit. Zool.* ii. 595.

* See *Law*, nº clxxx. 15.

DECUMARIA, in botany: A genus of the monogynia order, belonging to the dodecandria claſs of plants; and in the natural method ranking under thoſe of which the order is doubtful. The calyx is decaphyllous, ſuperior; the petals ten; the fruit unknown.

DECUMATES AGRI, tithed fields, or granted on a tithe, as appears from Tacitus, to that rabble of Gauls who ſucceeded the Mercomanni, that had till then proved a check to the Roman conqueſts up the Rhine; and hence probably their name, people living on the marches or limits of the empire. In Cicero we have Ager Decumans, which is of the ſame import with the Ager Decumas of Tacitus.

DECUPLE PROPORTION, that of ten to one.

DECURIO, a ſubaltern officer in the Roman armies. He commanded a decuria, which conſiſted of ten men, and was the third part of a turma, or the 30th part of a legio of horſe which was compoſed of 380 men. There were certain magiſtrates in the provinces called *decuriones municipales*, who formed a body to repreſent the Roman ſenate in free and corporate towns. They conſiſted of ten; whence the name and their duty extended to watch over the intereſts of their fellow citizens, and to increaſe the revenues of the commonwealth. Their court was called *curia decurionum* and *minor ſenatus*; and their decrees, called *decreta decurionum*, were marked with two D. D. at the top. They generally ſtyled themſelves *civitatum patres curiales* and *honorati municipiorum ſenatores*. They were elected with the ſame ceremonies as the Roman ſenators; they were to be at leaſt 25 years of age, and to be poſſeſſed of a certain ſum of money. The election happened in the kalends of March.

DECURRENT LEAF. See BOTANY, p. 440.

DECURY, ten perſons ranked under one chief or leader, called the *decurio*.

The Roman cavalry was divided into decuries, which were ſubdiviſions of a century, each century containing ten decuries.

DECUSSATION, a term in geometry, optics, and anatomy, ſignifying the croſſing of two lines, rays, or nerves, when they meet in a point, and then go on ſeparately from one another.

DECUSSORIUM, a ſurgeon's inſtrument, which, by preſſing gently on the dura mater, cauſes an evacuation of the pus collected between the cranium and the before mentioned membrane, through the perforation made by the trepan.

DEDHAM, a town of Eſſex in England, conſiſting of about 400 lofty houſes. The ſtreets are not paved, but very clean, occaſioned by their lying pretty high. It has one large old church, remarkable for a fine Gothic ſteeple, with a great deal of carved work about it, but much injured by time. E. Long. 1. 10. N. Lat. 52. 5.

DEDICATION, the act of conſecrating a temple, altar, ſtatue, palace, &c. to the honour of ſome deity.

The uſe of dedications is very ancient both among the worſhippers of the true God and among the heathens: the Hebrews call it חנכה *hhanuchah*, "imitation;" which the Greek tranſlators render Εγκαινια, and Εγκαινισμος, "renewing."

In the ſcripture we meet with dedications of the tabernacle, of altars, of the firſt and ſecond temple, and even of the houſes of private perſons. There are alſo dedications of veſſels, and garments of the prieſts and Levites, and even of the men themſelves.

The heathens had alſo dedications of temples, altars, and images of their gods, &c. Nebuchadnezzar held a ſolemn dedication of his ſtatue, *Dan.* iii. 2. Pilate dedicated gilt bucklers at Jeruſalem to Tiberius, *Philo de legat.* Petronius would have dedicated a ſtatue to the emperor in the ſame city, *ibid.* p. 791. Tacitus, *Hiſt.* lib. iv. c. 53. mentions the dedication of the capitol, upon rebuilding it by Veſpaſian, &c.

The Jews celebrated the anniverſary of the dedication of their temple every year for eight days. This was firſt enjoined by Judas Maccabeus, and the whole ſynagogue, in the year of the Syro-Macedonian era 148, *i. e.* 164 years before Chriſt. The heathens had the like anniverſaries, as that of the dedication of the temple of Parthenope, mentioned by Lycophron. Under Chriſtianity, dedication is only applied to a church; and is properly the conſecration thereof performed by a biſhop, with a number of ceremonies preſcribed by the church.

The Chriſtians finding themſelves at liberty under Conſtantine, in lieu of their ruinous churches, built new ones in every place; and dedicated them with a deal of ſolemnity. The dedication was uſually performed in a ſynod; at leaſt they aſſembled a number of biſhops to aſſiſt at the ſervice. We have the deſcription of thoſe of the churches at Jeruſalem and Tyre in Euſebius, and many others in later writers.

DEDICATION, in literature, is an addreſs prefixed to a book, ſoliciting patronage, or teſtifying reſpect for the perſon to whom it is made. The dedication of the fourth part of Mr Edwards's Hiſtory of Birds, is curious: *To GOD! the* ONE *eternal! the incomprehenſible! the omnipreſent! omniſcient and almighty Creator of all things that exiſt! from orbs immeaſurably great to the minuteſt points of matter, this Atom is dedicated and devoted, with all poſſible gratitude, humiliation, and worſhip, and the higheſt adoration both of body and mind, by his moſt reſigned, low, and humble creature,* G. E.

DEE (John), a famous mathematician and aſtrologer, was born (July 1527) in London, where his father was a wealthy vintner. In 1542, he was ſent to St John's college, Cambridge. After five years cloſe application to mathematical ſtudies, particularly aſtronomy, he went to Holland, in order to viſit ſeveral eminent mathematicians on the continent. Having continued abroad near a year, he returned to Cambridge; and was there elected one of the fellows of Trinity college, then firſt erected by king Henry VIII. In 1548, he took the degree of maſter of arts; and, in the ſame year, left England a ſecond time; his ſtay at home being rendered uneaſy to him, by the ſuſpicions that were entertained of his being a conjuror; ariſing partly from his application to aſtronomy, but eſpecially on account of a piece of machinery in the Ειρηνη of Ariſtophanes, which he exhibited to the univerſity, and in which he repreſented the Scarabeus flying up to Jupiter, with a man and a baſket of victuals on its back. Theſe ſuſpicions he could never after ſhake off: nor did his ſubſequent conduct, as we ſhall ſee, tend to clear him of the imputation; for if he was not actually a conjuror, it was not for want of endeavours.

Upon leaving England, he went to the univerſity of Louvain; where he was much eſteemed, and viſited by ſeveral perſons of high rank. Here he reſided about two years, and then ſet out for France; where, in the college of Rheims, he read lectures of Euclid's elements with vaſt applauſe. In 1551, he returned to England, and was introduced by the ſecretary Cecil to king Edward, who aſſigned him a penſion of 100 crowns, which he afterwards relinquiſhed for the rectory of Upton, upon Severn: but ſoon after the acceſſion of queen Mary, having ſome correſpondence with the lady Elizabeth's ſervants, he was accuſed of practiſing againſt the queen's life by enchantment. On this account he ſuffered a tedious confinement, and was ſeveral times examined; till, in the year 1555, he obtained his liberty by an order of council.

When queen Elizabeth aſcended the throne, our aſtrological Dee was conſulted by lord Dudley, concerning a propitious day for her majeſty's coronation. He was on this occaſion introduced to the queen, who made him great promiſes, which were never performed, though ſhe condeſcended to receive his inſtructions relative to the myſtical interpretation of ſome of his unintelligible writings, which he publiſhed about this time. In 1564, he made another voyage to the continent; in order to preſent a book which he had dedicated to the emperor Maximilian. He returned to England in the ſame year; but in 1571, we find him in Lorrain; where, being dangerouſly ill, the queen ſent over two phyſicians to his relief. Having once more returned to his native country, he ſettled at Mortlake in Surrey, where he continued his ſtudies with unremitting ardor, and collected a conſiderable library of curious books and manuſcripts, with a variety of inſtruments; moſt of which were afterwards deſtroyed by the mob, as belonging to one who dealt with the devil. In 1578, the queen being much indiſpoſed, Mr. Dee was ſent abroad to conſult with German phyſicians and philoſophers (aſtrologers no doubt) on the occaſion. We now behold him again in England, where he was ſoon after employed in a more rational ſervice. Her majeſty, deſirous to be informed concerning her title to thoſe countries which had been diſcovered by her ſubjects, commanded Mr. Dee to conſult the ancient records, and furniſh her with proper geographical deſcriptions. Accordingly, in a ſhort time he preſented to the queen, in the gardens at Richmond, two large rolls, in which the diſcovered countries were geographically deſcribed and hiſtorically illuſtrated. Theſe rolls are preſerved in the Cotton library, *Auguſtus* I. His next employment was the reformation of the kalendar, on which ſubject he wrote a rational and learned treatiſe, preſerved in the Aſhmolean library at Oxford.

Hitherto the extravagancies of our eccentrical philoſopher ſeem to have been counterpoiſed by a tolerable proportion of reaſon and ſcience; but henceforward we conſider him as a mere necromancer and credulous alchymiſt. In the year 1581, he became acquainted with one Edward Kelley, by whoſe aſſiſtance he performed diverſe incantations, and maintained a frequent imaginary intercourſe with ſpirits. He was particularly intimate, it ſeems, with the angels Raphael and Gabriel. One of them made him a preſent of a black ſpeculum, in which his angels and demons appeared as often as he had occaſion for them; they anſwered his queſtions, and Kelley's buſineſs was to record their dictates:

> Kelley did all his feats upon
> The devil's looking-glaſs, a ſtone.
> Hudib. *part* ii. *canto* iii. *v.* 631.

In 1583, they were both introduced to a certain Poliſh nobleman, then in England, named *Albert Laſki*, palatine of Siradia, a perſon equally addicted to the ſame ridiculous purſuits. He was ſo charmed with Dee and his companion, that he perſuaded them to accompany him to his native country. They embarked for Holland in Sept. 1583; and travelling over land, arrived at the town of Laſki in February following. Their patron, however, finding himſelf abuſed by their idle pretenſions, perſuaded them to pay a viſit to Rodolph king of Bohemia; who, though a credulous man, was ſoon diſguſted with their nonſenſe. They were afterwards introduced to the king of Poland, but with no better ſucceſs. Soon after this, they were invited by a rich Bohemian nobleman to his caſtle of Trebona, where they continued for ſome time in great affluence; owing, as they aſſerted, to their art of tranſmutation by means of a certain powder in the poſſeſſion of Kelley.

Dee, now quarrelling with his companion in iniquity, quitted Bohemia, and returned to England, where he was once more graciouſly received by the queen; who, in 1595, made him warden of Mancheſter college, in which town he reſided ſeveral years. In 1604, he returned to his houſe at Mortlake, where he died in the year 1608, aged 81; leaving a large family, and many works, behind him.—The black ſtone into which Dee uſed to call his ſpirits, was in the collection of the earls of Peterborough, whence it came to lady Elizabeth Germaine. It was next the property of the late duke of Argyle, and is now Mr. Walpole's. It appears upon examination to be nothing but a poliſhed piece of cannel-coal.—That Dee was a man of conſiderable acquirements, is beyond a doubt; his mathematical knowledge is generally allowed: but unleſs we ſuppoſe him a wicked impoſtor, which is by no means improbable, we muſt tranſmit him to poſterity as one of the moſt fooliſh, ſuperſtitious, necromancers of his time. Nevertheleſs, the celebrated Dr. Hook, many years after Dee's death, took it into his head to prove that his journal, publiſhed by Caſauban, was entirely cryptographical, concealing his political tranſactions, and that he was employed by queen Elizabeth as a ſpy.

DEE, the name of ſeveral rivers in Scotland and England; as thoſe whereon the cities of Cheſter in England, and New Aberdeen in Scotland, are ſituated. The river Dee in Aberdeenſhire abounds with ſalmon, ſo as to form one of the greateſt ſalmon-fiſhings in Scotland.—Over this river there is a bridge of ſeven arches, built by a biſhop of Aberdeen, who left for its ſupport a revenue, which is now ſo large, that in order to exhauſt the fund, a perſon has a ſalary to ſweep the bridge once a-day.

DEED, an inſtrument written on paper or parchment, comprehending ſome contract, bargain, or agreement between the parties thereto, in relation to the matter therein contained.

DEEMSTERS, or Demsters; (from the Saxon *dema*,

dema, judge or umpire). All controverſies in the Iſle of Man are decided without proceſs, writings, or any charges, by certain judges, choſen yearly from among themſelves, called *deemſters*; there being two of them for each diviſion of the iſland: they ſit judges in all courts, either for life or property; and with the advice of 24 keys, declare what is law in uncommon emergencies.

DEEPING, a town of Lincolnſhire in England, ſeated on the river Weland, in a fenny ground. W. Long. 0. 20. N. Lat. 52. 35.

DEER, in zoology. See Cervus.—The method of hunting the deer in the iſland of Ceylon is very particular. The huntſmen go out in the night, and only two uſually go together: the one of theſe carries upon his head an earthen veſſel, in which there is ſome fire burning and flaming; the ingredients are generally ſmall ſticks cut into pieces, and common roſin. Of this the other man carries a ſupply about him to repleniſh the pot when it grows low. The perſon who has the fire upon his head, carries in one hand a ſtaff, on which there are fixed eight bells; and the larger theſe are the better. This man goes firſt into the woods, and the other follows cloſe behind with a ſpear in his hand. As ſoon as the deer hears the noiſe of the bells, he turns towards the place where the ſound comes; and ſeeing the fire, he eagerly runs up to it, and ſtands gazing at a ſmall diſtance: the ſecond man has then nothing to do but to kill him with the ſpear; for he ſees neither of them.—Not only deer, but even elks and hares, are thus taken; for they gaze at the fire, and never ſee the men. The profits of this ſort of hunting are very large, and the danger nothing; for though there are numbers of tygers, elephants, and wild boars, in theſe woods, the huntſmen are in no danger from them while the fire burns, for they all run away from it.

De facto, ſomething actually in fact, or exiſting; in contradiſtinction to *de jure*, where a thing is only ſo in juſtice, but not in fact: as a king *de facto*, is a perſon who is actually in poſſeſſion of a crown, but has no legal right to the ſame; and a king *de jure*, is the perſon who has a juſt right to the crown, though he is out of poſſeſſion thereof.

DEFAMATION, the ſpeaking ſlanderous words of another; for which the ſlanderer is puniſhable, according to the nature of his offence, either by action upon the caſe at common law, or by ſtatute in the eccleſiaſtical court.

DEFAULT, in law, is generally taken for non-appearance in court, at a day aſſigned; but imports any omiſſion of that which we ought to do, for which judgment may be given againſt the defaulter.

DEFEASANCE, or Defeisance, in law, a condition relating to ſome certain deed, which being performed, the deed is defeated and rendered void, as if it had never been made. The difference between a common condition and a defeaſance is, that the condition is annexed to, or inſerted in, the deed; and a defeaſance is a deed by itſelf, concluded and agreed on between the parties, and having relation to another deed.

DEFECATE, in chemiſtry, a term applied to a body freed and purged from fæces and impurities.

DEFECTION, the act of abandoning or relinquiſhing a party or intereſt a perſon had been engaged in.—The word is formed of the Latin *deficio*, to fall off.

DEFECTIVE, in general, an appellation given to things which want ſome of the properties that naturally they ought to have. Thus,

Defective or *Deficient Nouns*, in grammar, are ſuch as want either a whole number, a particular caſe, or are totally indeclinable. See Noun.

The term *defective* is alſo applied to a verb that has not all its moods and tenſes. See Verb, Mood, &c.

DEFENCE, in fortification, all ſorts of works that cover and defend the oppoſite poſts, as flanks, caſements, parapets, and fauſſebrays. See Fortification.

Line of Defence, a ſuppoſed line drawn from the angle of the curtin, or from any other part in the curtin, to the flanked angle of the oppoſite baſtion.

DEFEND, in general, ſignifies much the ſame with protecting, or keeping off injuries offered to any perſon either by enemies or otherwiſe.

Defend, in our ancient laws and ſtatutes, ſignifies to prohibit or forbid: as, *Uſuarios* defendit *quoque rex Edwardus ne remanerent in regno*. L. L. Edw. Conf. *c.* 37. & 5 Rich. 2. *c.* 7. In which ſenſe Chaucer alſo uſes it in the following paſſage:

> " Where can you in any manner age,
> " That ever God *defended* marriage."

In 7 Edw. I. there is a ſtatute intitled, " *Statutum de* defenſione *portandi arma*," &c. And, " it is defended by law to diſtrain on the highway;" *Coke on Littleton*, fol. 161.

DEFENDANT, in law, the perſon ſued in an action perſonal; as *tenant* is he who is ſued in an action real. See Action.

DEFENDER *of the* Faith *(Fidei Defenſor)*, a peculiar title belonging to the king of England; as *Catholicus* to the king of Spain, and *Chriſtianiſſimus* to the king of France, &c. Theſe titles were given by the popes of Rome. That of *Fidei Defenſor* was firſt conferred by Leo X. on king Henry VIII. for writing againſt Martin Luther; and the bull for it bears date *quinto idus Octob.* 1521. It was afterwards confirmed by Clement VII. But the pope, on Henry's ſuppreſſing the houſes of religion at the time of the Reformation, not only deprived him of his title, but depoſed him from his crown alſo: though in the 35th year of his reign, his title, &c. was confirmed by parliament; and hath continued to be uſed by all ſucceeding kings to this day.—Chamberlayne ſays, the title belonged to the kings of England before that time; and for proof hereof appeals to ſeveral charters granted to the univerſity of Oxford. So that pope Leo's bull was only a renovation of an ancient right.

DEFENDERS, were anciently notable dignitaries both in church and ſtate, whoſe buſineſs was to look to the preſervation of the public weal, to protect the poor and helpleſs, and to maintain the intereſts and cauſes of churches and religious houſes. See Protector.—The council of Chalcedon, can. 2. calls the defender of a church Εκδικος. Codin, *de officiis aulæ Conſt.* makes mention of defenders of the palace. There were alſo a defender of the kingdom, *defenſor regni*;

regni; defenders of cities, *defenſores civitatis*; defenders of the people, *defenſores plebis*; of the poor, fatherleſs, widows, &c.

About the year 420, each patriarchal church began to have its defender; which cuſtom was afterwards introduced into other churches, and continued to later days under other names; as thoſe of *Advocate* and *Advowee*.

In the year 407, we find the council of Carthage aſking the emperor for defenders, of the number of *Scholaſtici*, i. e. advocates who were in office; and that it might be allowed them to enter and ſearch the cabinets and papers of the judges and other civil magiſtrates, whenever it ſhould be found neceſſary for the intereſt of the church.

DEFILE, in fortification, a ſtraight narrow paſſage, through which a company of horſe or foot can paſs only in a file, by making a ſmall front.

DEFINITE, in grammar, is applied to an article that has a preciſe determinate ſignification; ſuch as the article *the* in Engliſh, *le* and *la* in French, &c. which fix and aſcertain the noun they belong to, to ſome particular; as *the king, le roi*: whereas, in the quality *of king, de roi*, the articles *of* and *de* mark nothing preciſe, and are therefore indefinite.

DEFINITION, in general, a ſhort deſcription of a thing by its properties; or, in logic, the explication of the eſſence of a thing by its kind and difference.

DEFINITIVE, a term applied to whatever terminates a proceſs, queſtion, &c.; in oppoſition to proviſional and interlocutory.

DEFLAGRATION, in chemiſtry, the kindling or ſetting fire to a ſalt or mineral, &c. either alone or mixed for that purpoſe with a ſulphureous one, in order to purify it.

This ſhort proceſs has been often recommended to the world as of great uſe in trying the ſtrength of brandies and other vinous ſpirits, and has been greatly improved in this reſpect by Mr. Geoffroy.

The common way of trying ſpirits by deflagration, is to meaſure out any quantity of it, then to heat it, and ſet it on fire. If, after it will no longer burn, the remainder is half as much as the quantity meaſured out for the trial was, then the ſpirit tried is found to conſiſt of half water, and half totally inflammable ſpirit; that is, it is ſomewhat below what we underſtand by the term *perfect proof*.—This method is much more certain than that by the crown of bubbles which ariſes upon ſhaking the ſpirit in a vial. Monſ. Geoffroy's method is this: Take a cylindric veſſel two inches high, and as much in diameter, conſiſting of thin plate ſilver, that metal being much leſs liable to ruſt than copper; this veſſel muſt be fitted with a little rectangular gage exactly graduated into lines, half lines, &c. then the veſſel being ſet level upon a copper caſe made to contain it, a parcel of the brandy to be examined is poured in, to the height of 16 lines. This height is to be exactly hit by pouring in more than enough at firſt, and then ſucking out the overplus with a very ſmall tube. Then the veſſel being heated a little, ſo as juſt to make the liquor fume, it is to be ſet on fire, and left to go out of itſelf; at the inſtant when the flame expires, the gage is plunged perpendicularly into the veſſel, and the line and quarters exactly noted which the liquor wants of its former height: this difference gives the preciſe quantity of alcohol or pure ſpirit contained in the liquor. Thus, if eight lines of phlegm are found remaining, this being the half of the 16 lines of the original filling, it is plain, that the liquor contained one half ſpirit, or was ſomething below proof. If only four lines remained, it was nearly double proof, or of a middle nature betwixt alcohol and common proof-ſpirit.

DEFLECTION *of the* RAYS *of* LIGHT, a property which Dr. Hook obſerved in 1675, and read an account of before the Royal Society, March 18, the ſame year. He ſays he found it different both from reflection and refraction, and that it was made towards the ſurface of the opaque body, perpendicularly. This is the ſame property which Sir Iſaac Newton calls INFLECTION.

DEFLORATION, or DEFLOWERING, the act of violating or taking away a woman's virginity. See VIRGINITY.—Death, or marriage, are decreed by the civil law in caſe of defloration.

The ancients had ſo much reſpect for virgins, that they would not put them to death till they had firſt procured them to be deflowered. It is ſaid, the natives of the coaſt of Malabar pay ſtrangers to come and deflower their brides.

In Scotland, and the northern parts of England, it was a privilege of the lords of the manor, granted them by king Ewen, that they ſhould have the firſt night's lodging with their tenant's wives. King Malcolm III. allowed the tenants to redeem this ſervice at a certain rate, called *marcheta*, conſiſting of a certain number of cows. Buchanan ſays it was redeemed with half a mark of ſilver. The ſame cuſtom had place in Wales, Flanders, Frieſeland, and ſome parts of Germany.

DEFLUXION, in medicine, the falling of the humours from a ſuperior to an inferior part of the body.

DE FOE (Daniel), a writer famous for politics and poetry, was bred a hoſier; which profeſſion however he ſoon forſook, and became one of the moſt enterpriſing authors that any age produced. When diſcontents ran high at the Revolution, and king William was obliged to diſmiſs his Dutch guards, De Foe, who had true notions of civil liberty, ridiculed the enemies of government in his well-known poem, called *The True-born Engliſhman*, which had a prodigious ſale. The next ſatire he wrote was intitled, *Reformation of Manners*; aimed at ſome perſons of high rank, who rendered themſelves a diſgrace to their country. When the eccleſiaſtics in power breathed too much of a ſpirit of perſecution, De Foe wrote a tract called *The Shorteſt Way with the Diſſenters*; for which he was called to account, and explained himſelf with great firmneſs. He was afterwards ſentenced to the pillory for attacking ſome public meaſures; which ſo little intimidated him, that, in defiance of their uſage, he wrote *A Hymn to the Pillory*. It would be endleſs to enumerate all his publications; but the following are the principal: *The Hiſtory of the Plague in* 1665; a novel intitled *The Hiſtory of Colonel Jack*; *A new Voyage round the World by a Company of Merchants*, printed for Betteſworth, 1725; *The Hiſtory of Roxana*; *Memoirs of a Cavalier*; *The Hiſtory of Moll Flanders*; a book intitled *Religious Courtſhip*, which has undergone upwards of 20 editions; and the *Life and Adventures of Robinſon Cruſoe*, an admirable performance, of which there have been editions without number, but concerning which there is an anecdote that does the author of it no credit as to the better part of a writer's character, honeſty. When captain Woods Rogers touched at the iſland of Juan Fernandez, in the South Sea, he brought away Alexander Selkirk, a Scots ſailor, who had been left aſhore there, and had lived on that deſolate place above four years. When Selkirk came back to England, he wrote a narrative of his adventures, and put the papers into the hands of De Foe, to digeſt for publication; who ungenerouſly converted the materials into the Hiſtory of Robinſon Cruſoe, and returned Selkirk his papers again! A fraud for which, in a humane view, the diſtinguiſhed merit of that romance can never atone. Daniel De Foe died at Iſlington, in 1731. All his productions of the romantic ſpecies, but eſpecially the two laſt mentioned, are much in vogue amongſt country readers; and, on account of their moral and religious tendency, may very probably in ſome meaſure counteract the pernicious effects produced by the too general circulation of modern novels, thoſe occaſional vehicles of impiety and infidelity.

DEFOLIATION, (from *de* and *folium* a leaf); the fall of the leaves. A term oppoſed to *frondeſcentia*, the annual renovation of the leaves, produced by the unfolding of the buds in ſpring. See FRONDESCENTIA.

Moſt plants in cold and temperate climates ſhed their leaves every year: this happens in autumn, and is generally announced by the flowering of the common meadow ſaffron. The term is only applied to trees and ſhrubs; for herbs periſh down to the root every year, loſing ſtem, leaves, and all.

All plants do not drop their leaves at the ſame time. Among large trees, the aſh and walnut, although lateſt in unfolding, are ſooneſt diveſted of them: the latter ſeldom carries its leaves above five months.

On the oak and horn-beam, the leaves die and wither as ſoon as the colds commence; but remain attached to the branches till they are puſhed off by the new ones, which unfold themſelves the following ſpring. Theſe trees are doubtleſs a kind of ever-greens: the leaves are probably deſtroyed only by cold; and perhaps would continue longer on the plant, but for the force of the ſpring-ſap, joined to the moiſture.

In mild and dry ſeaſons, the lilac, privet, yellow jeſſamine of the woods, and maple of Crete, preſerve their leaves green until ſpring, and do not drop them till the new leaves are beginning to appear. The fig-tree, and many other trees that grow between the tropics, are of this particular claſs of ever-greens. The trees in Egypt, ſays Doctor Haſſelquiſt, caſt their leaves in the latter end of December and beginning of January, having young leaves ready before all the old ones are fallen off; and to forward this operation of nature, few of the trees have buds: the ſycamore and willow, indeed, have ſome, but with few and quite looſe *ſtipulæ* or ſcales. Nature did not imagine buds ſo neceſſary in the ſouthern as in the northern countries; this occaſions a great difference between them.

Laſtly, ſome trees and ſhrubs preſerve their leaves conſtantly through the whole year: and are not in the leaſt influenced by the clemency or inclemency of ſeaſons. Such are the firs, juniper, yew, cedar, cypreſs, and many other trees, hence denominated *ever-greens*. Theſe preſerve their old leaves a long time after the formation of the new, and do not drop them at any determinate time. In general, the leaves of ever-greens are harder, and leſs ſucculent, than thoſe which are renewed annually. The trees are generally natives of warm climates; as the alaternuſes of France and Italy, the ever-green oak of Portugal and Suabia.

Some herbaceous perennials, as the houſe-leeks and navel-worts, enjoy the ſame privilege with the ever-green trees, and reſiſt the ſeverities of winter: ſome even can diſpenſe with the earth for ſome time; being replete with juices, which the leaves imbibe from the humidity of the atmoſphere, and which, in ſuch plants, are, of themſelves, ſufficient for effecting the purpoſes of vegetation. It is for this reaſon, that, unleſs in exceſſive hot weather, gardeners are ſeldom wont to water fat ſucculent plants, as the aloes, which rot when they are moiſtened, if the ſun does not quickly dry them up.

The leaves of all the ever-green ſhrubs and trees, have a thin compact ſkin or cover over their ſurface; as is eaſily diſcovered by macerating them in water, in order to ſeparate the parenchyma, or pulp, from the veſſels of the leaves; which cannot be effected in any of theſe ever-greens till a thin parchment-like cover is taken off. Theſe trees and ſhrubs are found by experiment to perſpire but little, when compared with others which ſhed their leaves; and it is, perhaps, principally owing to this cloſe covering, as alſo to the ſmall proportion of moiſture contained in their veſſels, that they retain their verdure, and continue through the winter on the trees. The nutritive juices of theſe plants always abound, more or leſs, with an oily quality, which ſecures them from being injured by ſevere froſts; ſo that many of theſe ever-green trees are adapted to grow in the coldeſt parts of the habitable world.

With reſpect to deciduous trees, the falling off of the leaves ſeems principally to depend on the temperature of the atmoſphere, which likewiſe ſerves to haſten or retard the appearance in queſtion. An ardent ſun contributes to haſten the dropping of the leaves.—Hence in hot and dry ſummers, the leaves of the lime-tree and horſe-cheſnut turn yellow about the firſt of September; whilſt in other years, the yellowneſs does not appear till the beginning of October. Nothing, however, contributes more to haſten the fall of the leaves, than immoderate cold or moiſt weather in autumn; moderate droughts, on the other hand, ſerve to retard it. As a proof of this poſition, Mr. Adanſon relates, that in the year 1759, the leaves of the elm-tree, which generally fall off about the 25th of November, continued in verdure and vigour at Paris, where the autumn was remarkably dry, till the 10th of the following month.

The following table, reſpecting the mean times in which different trees ſhed their leaves, is founded upon obſervations.

Defoliation ‖ Deformity.

Gooſeberry-tree and bladder-ſena,	Generally quit their leaves about	October 1ſt.
Walnut and aſh,		——— 15th.
Almond-tree, horſe-cheſnut, and lime-tree,		———20th.
Maple, hazle-nut, black-poplar, and aſpen-tree,		———25th.
Birch, plane-tree, mountain-oſier, falſe-acacia, pear, and apple-tree,		November 1ſt.
Vine, mulberry, fig, ſumac, and angelica-tree,		———10th.
Elm-tree and willow,		———15th.
Apricot and elder trees,		———20th.

Milne's Bot. Dict.

It deſerves to be remarked, that an ever-green tree grafted upon a deciduous, determines the latter to retain its leaves. This obſervation is confirmed by repeated experiments; particularly by grafting the laurel, or cherry-bay, an evergreen, on the common cherry; and the ilex or ever-green oak, on the oak.

DEFORCEMENT, in law, the caſting any one out of his land, or with-holding of lands and tenements by force from the right owner.

Deforcement, in Scots law, the oppoſing or reſiſting of the officers of the law in the execution of their office. See Law, Nº clxxxvi. 15.

DEFORMITY, the want of that uniformity neceſſary to conſtitute the beauty of an object. See Beauty.

Deformity is either natural or moral. Theſe are both referred by Mr Hutcheſon to an internal ſenſe; and our perceptions of them, as he ſuppoſes, ariſes from an original arbitrary ſtructure of our own minds, by which certain objects, when obſerved, are rendered the occaſions of certain ſenſations and affections.

That many objects give no pleaſure to our ſenſe is obvious. Many are certainly void of beauty; but then, ſays this author, there is no form which ſeems neceſſarily diſagreeable of itſelf, when we dread no other evil from it, and compare it with nothing better of the kind. Many objects are naturally diſpleaſing and diſtaſteful to our external ſenſes, as well as others pleaſing and agreeable; as ſmells, taſtes, and ſome ſeparate ſounds: but with regard to our ſenſe of beauty, no compoſition of objects which give not unpleaſant ſimple ideas, ſeems poſitively unpleaſant or painful of itſelf, had we never obſerved any thing better of the ſame kind.

Had there been a ſpecies of the form which we now denominate *ugly* or *deformed*, and had we never ſeen or expected greater beauty, we ſhould have received no diſguſt from it; though the pleaſure would not have been ſo great in this form as in thoſe we now admire. Our ſenſe of beauty ſeems deſigned to give us poſitive pleaſure; but not poſitive pain or diſguſt, any farther than what ariſes from diſappointment.

There are indeed many faces which at firſt view are apt to raiſe diſlike. But this is generally not from any poſitive deformity; but either from want of expected beauty, or from the carrying ſome natural indications of morally bad diſpoſitions, which we all acquire a faculty of diſcerning in countenances, airs, and geſtures. That this is not occaſioned by any form poſitively diſguſting, appears hence, that if, upon long acquaintance, we are ſure of finding ſweetneſs of temper, humanity, and cheerfulneſs, though the bodily form continues, it ſhall give us no diſguſt. There are horrors raiſed by ſome objects, which are only the effect of fear for ourſelves, or compaſſion towards others, when either reaſon, or ſome fooliſh aſſociation of ideas, makes us apprehend danger; and not the effect of any thing in the form itſelf. For we find, that moſt of thoſe objects which excite horror at firſt, when experience or reaſon has removed the fear, may become the occaſion of pleaſure.

Deformity.

The caſual conjunction of ideas gives us diſguſt, where there is nothing diſagreeable in the form itſelf. And this, in effect, is the cauſe of moſt of our fantaſtic averſions to the figures of divers animals, &c. Thus ſerpents of all kinds, and many inſects, really beautiful enough, are beheld with averſion by many people, who have got ſome accidental ideas of miſchief aſſociated to them. A ſimilar reaſoning is applied to our perception of moral beauty and deformity. *Inquiry into the Original of our Ideas of Beauty and Virtue*, paſſim.

But it is more juſt to diſtinguiſh between the ſentiments of delight or diſguſt, excited in us by beautiful or deformed objects, which are effects of ſome cauſes, and the natural and real qualities of the perceived objects by which they are produced. There are objects, ſays an excellent writer, which have a natural aptitude to pleaſe or offend, or between which and the contemplating mind there is a neceſſary congruity or incongruity; and though the actual perception of the underſtanding, and conſequent feeling of the heart, in contemplating the actions and affections of moral agents, may exiſt in very different degrees, on account of the incidental obſtructions ariſing from bodily indiſpoſition, mental prejudices and biaſſes, and the aſſociation of ideas; yet, to every rational mind properly diſpoſed, morally good actions muſt for ever be acceptable, and can never of themſelves offend; and morally evil actions muſt for ever be diſagreeable, and can never of themſelves pleaſe. What is right in actions and characters is beautiful and amiable, and gives pleaſure; what is wrong is deformed and odious, and excites diſguſt: right and pleaſure, wrong and pain, are as diſtinct as cauſe and effect. It is no leſs abſurd to maintain, that the perception of virtue is nothing diſtinct from the reception of the pleaſure reſulting from it, than to infer, with ſome metaphyſicians, that ſolidity, extenſion, and figure, are only particular modes of ſenſation, becauſe attended, whenever they are perceived, with ſome ſenſations of ſight or touch. Thus does this author ſhow, that moral beauty and deformity are real qualities of certain actions; in which conſiſts their aptitude to pleaſe or diſguſt. With reſpect to natural beauty, he obſerves, that uniformity amidſt variety pleaſes, becauſe of the natures of variety and uniformity, which are ſuch, that whenever united, they are adapted to pleaſe every free unbiaſſed mind that diſcerns them. He accounts for the pleaſure they afford, without referring them to an arbitrary internal ſenſe, by the following circumſtances that attend them. They are more eaſily comprehended by the mind: order and ſymmetry give things their ſtability and ſtrength, and ſubſerviency to any valuable purpoſe; regularity and order evidence art and deſign. Diſorder and confuſion, whence deformity ariſes, denote only the negation of regularity and order; or any arrangement and diſpoſition of things, which are not according to a law, rule, or plan, and prove not deſign. Theſe are not poſitively diſpleaſing; except where we previouſly expected order, or where impotence or want of ſkill appear, and the contriver has either failed of his deſign or executed it ill.

In the Fugitive Pieces, is preſerved an excellent eſſay on Bodily Deformity by the late William Hay, Eſq; who was himſelf what he deſcribes, and who, while he rallies his own figure with great pleaſantry, diſcuſſes the general ſubject in a manner equally inſtructive and agreeable. He conſiders, 1. The natural conſequences of bodily deformity; 2. How it affects the outward circumſtances; and, 3. What turn it gives to the mind.

1. It is certain, that the human frame, being warped and diſproportioned, is leſſened in ſtrength and activity, and rendered leſs fit for its functions. Scarron had invented an engine to take off his hat; "and I wiſh (ſays our author) I could invent one to buckle my ſhoe, or to take up a thing from the ground, which I can ſcarce do without kneeling, for I can bend my body no farther than it is bent by nature. For this reaſon, when ladies drop a fan or glove, I am not the firſt to take it up; and often reſtrain my inclination to perform thoſe little ſervices, rather than expoſe my ſpider-like ſhape. And I hope it will not be conſtrued as pride, if I do not always riſe from my ſeat when I ought: for if it is low, I find ſome trouble in it; and my centre of gravity is ſo ill placed, that I am often like to fall back. Things hanging within the reach of others are out of mine; and what they can execute with eaſe, I want ſtrength to perform. I am in danger of being trampled upon or ſtifled in a crowd, where my back is a convenient lodgment for the elbow of any tall perſon that is near. I can ſee nothing, and my whole employment is to guard my perſon. I have forborne to attend his Majeſty in the houſe of peers ſince I was like to be ſqueezed to death there againſt the wall. I would willingly come thither when his majeſty commands, but he is too gracious to expect impoſſibilities. Beſides, when I get in, I can never have the pleaſure of ſeeing on the throne one of the beſt princes who ever ſat on it. Theſe, and many others, are the inconveniences continually attending a figure like mine. They may appear grevious to perſons not uſed to them, but they grow eaſier by habit; and though they may a little diſturb, they are not ſufficient to deſtroy the happineſs of life; of which, at an average, I have enjoyed as great a ſhare as moſt men. And perhaps one proof of it may be my writing this Eſſay; not intended as a complaint againſt Providence for my lot, but as an innocent amuſement to myſelf and others."

As to what effect deformity may have on the health, it appears natural to imagine, that as the inward parts of the body muſt in ſome meaſure comply with the outward mould, ſo the form of the latter being irregular, the firſt cannot be ſo well placed and diſpoſed to perform their functions; and that generally deformed perſons would not be healthy or long-lived. But this is a queſtion beſt determined by facts; and in this caſe the inſtances are too few or unobſerved, to draw a general concluſion from them: and health is more than is commonly thought in a man's own power, and the reward of temperance more than the effect of conſtitution; which makes it ſtill more difficult to paſs a judgement. Æſop could not be young when he died; and might have lived longer, if he had not been murdered at Delphi. The Prince of Orange ſcarce paſſed the meridian of life, and the Duke of Luxemburg died about the age of 67. The Lord Treaſurer Burleigh lived to 78; but his ſon the Earl of Saliſbury, who died about 15 years after him, could not reach near that age. It is ſaid that Mr Pope's father was deformed, and he lived to 75; whereas the ſon died in middle age, if he may be ſaid to die whoſe works are immortal. "My (father adds our author) was not deformed, but active, and my mother a celebrated beauty; and I, that am ſo unlike them have lived to a greater age, and daily ſee my acquaintance, of a ſtronger frame, quitting the ſtage before me."

But whether deformity, abſtractedly conſidered, be really prejudicial to health, in its conſequences it appears to be moſt commonly an advantage. Deformed perſons have a leſs ſhare of ſtrength than others, and therefore ſhould naturally be more careful to preſerve it; and as temperance is the great preſervative of health, it may incline them to be more temperate. Another great preſervative of health is moderate exerciſe, which few deformed perſons can want ſtrength to perform. As a deformed perſon is not formed for violent exerciſe, he is leſs liable to ſuch diſorders as are the natural conſequence of it. He will alſo eſcape many accidents, to which men of athletic make, and who glory in their ſtrength, are always expoſing themſelves to make trial and proof of it. If he cannot carry an ox, like Milo, he will not, like Milo, be handcuffed in the oak by attempting to rend it. He will not be the man that ſhall ride from London to York in a day, or to Windſor in an hour, for a wager: or that ſhall be perpetually performing ſurpriſing long journeys in a ſurpriſing ſhort time, for no earthly buſineſs but the pleaſure of relating them. Conſcious of his own weakneſs, he will be cautious of running into places or occaſions of danger. Nature, too, warns deformed perſons to be careful not to offer ſuch affronts as may call them forth into the field of falſe honour, where they cannot acquit themſelves well for want of ſtrength and agility; and they are ſecurer from ſuch affronts themſelves, ſince others will conſider the little credit they will gain, by compelling them to appear on that ſcene. On the whole, therefore, it may be concluded, that deformity is a protection to a man's health and perſon; which (ſtrange as it may appear) are better defended by feebleneſs than ſtrength.

2. The influence of bodily deformity on a man's fortune may next be conſidered. Among the lower claſs, he is cut off from many profeſſions and employments. He cannot be a ſoldier, he is under ſtandard; he cannot be a ſailor, he wants activity to climb the rigging; he cannot be a chairman or porter, he wants ſtrength to bear the burden. In higher life, he is all qualified for a lawyer, he can ſcarce be ſeen over the bar; for a divine, he may drop from his haſſock out of ſight in his pulpit. The improvement of his mind is his proper province, and his buſineſs only ſuch as depends on ingenuity. If he cannot be a dancing-maſter to adjuſt the heels, he may be a ſchoolmaſter to

inſtruct the head : he cannot be a graceful actor on the ſtage ; but he may produce a good play : he would appear ill as a herald in a proceſſion ; but may paſs as a merchant on the exchange : he cannot undergo the fatigue of the campaign ; but he may adviſe the operations of it ; he is deſigned by nature rather to ſleep on Parnaſſus, than to deſcend on the plains of Eolis : he cannot be crowned at the Olympic games ; but may be the Pindar to celebrate them : he can acquire no glory by the ſword : but he may by the pen, and may grow famous by only relating thoſe exploits which are beyond his power to imitate.

Lord Bacon (that extenſive and penetrating genius, who pointed out every part of nature for examination), in his Eſſay on Deformity, ſays, " that in their ſuperiors it quencheth jealouſy towards them, as perſons that they think they may at pleaſure deſpiſe ; and it layeth their competitors and emulators aſleep, as never believing they ſhould be in a poſſibility of advancement till they ſee them in poſſeſſion." But it is much to be doubted whether this is not more than counterbalanced by the contempt of the world, which it requires no mean parts to conquer ; for if (as has been ſaid) a good perſon is a letter of recommendation, deformity muſt be an obſtruction in the way to favour. In this reſpect, therefore, deformed perſons ſet out in the world to a diſadvantage ; and they muſt firſt ſurmount the prejudices of mankind before they can be upon a par with others, and muſt obtain by a courſe of behaviour that regard which is paid to beauty at firſt ſight. When this point is once gained, the tables are turned, and then the game goes in their favour : for others, ſenſible of their injuſtice to them, no ſooner find them better than they expected, than they believe them better than they are ; whereas in the beautiful perſon they ſometimes find themſelves impoſed upon, and are angry that they have worſhipped only a painted idol. For (again take lord Bacon's words) " neither is it almoſt ſeen, that very beautiful perſons are otherwiſe of great virtue ; they prove accompliſhed, but not of great ſpirit ; and ſtudy rather behaviour than virtue. Whereas deformed perſons, if they be of ſpirit, will free themſelves from ſcorn, which muſt be either by virtue or malice ; and therefore let it not be marvelled if they ſometimes prove excellent perſons, as was Ageſilaus, Zanger the ſon of Soloman, Æſop, Gaſca preſident of Peru ; and Socrates may likewiſe go amongſt them, with others." Nay, he ſays, " in a great wit deformity is an advantage to riſing." And in another part of his works, " that they who by accident have ſome inevitable and indelible mark on their perſons or fortunes, as deformed people, baſtards, &c. if they want not virtue, generally prove fortunate."

Oſborn, in his Hiſtorical Memoirs of Queen Elizabeth, informs us, that " ſhe choſe the goodlieſt perſons for her houſehold ſervants : but in her counſellors did not put by ſufficiency, though accompanied with a crooked perſon ; as it chanced in a father and a ſon of the Cecils, both incomparable for prudence." It is well known the Queen would make the father (Burleigh) ſit in her preſence ; telling him, that ſhe did not uſe him for his legs, but his head. But the ſon (afterwards lord treaſurer and Earl of Saliſbury) was not ſo civilly treated by the populace ; and is an inſtance, not only that envy purſues a great man, but that the higheſt poſt cannot redeem a deformed one from contempt : it attends him like his ſhadow, and like that too is ever reminding him of his ill figure, which is often objected for want of real crimes. For the ſame writer ſays of the ſame great man, "that the misfortunes accompanying him from his birth did not a little add to that cloud of detraction that fell upon all that he ſaid or did ; a mulct in nature, like an optic ſpectacle, multiplying much in the ſight of the people the apparitions of ill." Nor was this contempt buried with him : it trampled on his aſhes, and inſulted his grave ; as appears by an epitaph, which Oſborn cites, as void of wit as it is full of ſcurrility ; in one line of which there is an epithet, not ſo elegant, as deſcriptive of his perſon, *viz*, " Little Boſſive Robin, that was ſo great."

Such contempt in general, joined with the ridicule of the vulgar, is another certain conſequence of bodily deformity ; for men naturally deſpiſe what appears leſs beautiful or uſeful, and their pride is gratified when they ſee ſuch foils to their own perſons. It is this ſenſe of ſuperiority which is teſtified by laughter in the lower ſort ; while their betters, who know how little any man whatſoever hath to boaſt of, are reſtrained by good ſenſe and good breeding from ſuch an inſult. But it is not eaſy to ſay why one ſpecies of deformity ſhould be more ridiculous than another, or why the mob ſhould be more merry with a crooked man, than with one that is deaf, lame, ſquinting, or purblind. It is a back in alto relievo that bears all the ridicule ; tho' one would think a prominent belly a more reaſonable object of it, ſince the laſt is generally the effect of intemperance and of a man's own creation. Socrates was ugly, but not contemned ; and Philopœmen (A) of very mean appearance, and though contemned on that account, not ridiculed : for Montaigne ſays, " Ill features are but a ſuperficial uglineſs, and of little certainty in the opinion of men ; but a deformity of limbs is more ſubſtantial, and ſtrikes deeper in." As it is more uncommon, it is more remarkable ; and that perhaps is the true reaſon why it is more ridiculed by the vulgar.

3. The laſt conſideration on this ſubject relates to thoſe paſſions and affections which moſt naturally reſult from deformity. Lord Bacon obſerves, that ' deformed perſons are commonly even with nature ; for as nature hath done ill by them, ſo do they by nature, being for the moſt part (as the ſcripture ſaith) *void of natural affection*.' But (ſays Mr Hay) " I can neither find out this paſſage in ſcripture, nor the reaſon of it ; nor can I give my aſſent or negative to a propoſition, till I am well acquainted with the terms of it. If by natural affection is here meant univerſal benevolence, and deformity neceſſarily implies a want of it, a deformed perſon muſt then be a complete monſter. But however

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(A) Coming to an inn, where he was expected, before his attendants, the miſtreſs of the houſe ſeeing a plain perſon of very mean aſpect, ordered him to aſſiſt in getting things ready for Philopœmen. His attendants finding him ſo employed, he told them that he was then paying the tribute of his uglineſs. *Plutarch*.

however common the caſe may be, my own ſenſations inform me that it is not univerſally true. If by natural affection is meant a partial regard for individuals, I believe the remark is judicious, and founded in human nature. Deformed perſons are deſpiſed, ridiculed, and ill-treated by others; are ſeldom favourites, and commonly moſt neglected by parents, guardians, and relations; and therefore, as they are not indebted for much fondneſs, it is no wonder if they repay but little. It is the command of ſcripture, *Not to ſet our affections on things below;* and it is the voice of reaſon, not to overvalue what we muſt ſoon part with: therefore, to be ſo fond of others as not to be able to bear their abſence, or to ſurvive them, is neither a religious nor moral duty, but a childiſh and womaniſh weakneſs; and I muſt congratulate deformed perſons, who, by example, are early taught another leſſon. And I will now lay open my own heart to the reader, that he may judge if Lord Bacon's poſition is verified in me.

“ I hope it proceeds not from a malignity of heart; but I never am much affected with the common accidents of life, whether they befall myſelf or others. I am little moved when I hear of death, loſs, or miſfortune; I think the caſe is common.

(*Tritus, & e medio fortunæ ductus acervo:*)
Juv. Sat. xiii.

And as it is always likely to happen, I am not ſurpriſed when it does. If I ſee a perſon cry or beat his breaſt on any ſuch occaſion, I cannot bear him company; but am not a Democritus to laugh at his folly. I read of battles and fields covered with ſlain; of cities deſtroyed by ſword, famine, peſtilence, and earthquake; I do not ſhed a tear: I ſuppoſe it is, becauſe they are the uſual ſtorms, to which the human ſpecies are expoſed, proceeding from the juſt judgments of God, or the miſtaken and falſe principles of rulers. I read of perſecutions, tortures, murders, maſſacres: my compaſſion for the ſufferers is great, but my tears are ſtopped by reſentment and indignation againſt the contrivers and perpetrators of ſuch horrid actions. But there are many things that bring tears into my eyes whether I will or no; and when I reflect, I am often at a loſs in ſearching out the ſecret ſource from whence they flow. What makes me weep (for weep I do) when I read of virtue or innocence in diſtreſs; of a good man helpleſs and forſaken, unmoved by the greateſt inſults and cruelties, or couragiouſly ſupporting himſelf againſt oppreſſion in the article of death? I ſuppoſe it is, to ſee vice triumphant, and virtue ſo ill rewarded in this life. May I judge by myſelf, I ſhould imagine that few ſincere Chriſtians could read the ſufferings of their Saviour, or Engliſhmen thoſe of a Cranmer, Ridley, or Latimer, without tears; the firſt dying to eſtabliſh his religion, the laſt to reſcue it from corruption. When I read of Regulus returning to torment, and John of France to impriſonment, againſt the perſuaſion of friends, to keep faith with their enemies, I weep to think there is ſcarce another inſtance of ſuch exalted virtue. Thoſe who often hear me read, know that my voice changes, and my eyes are full, when I meet with a generous and heroic ſaying, action, or character, eſpecially of perſons whoſe example or command may influence mankind. I weep when I hear a Titus ſay, that he had loſt the day in which he did no good; when Adrian tells his enemy, that he had eſcaped by his being emperor; or Louis XII. that he is not to revenge the affront of the duke of Orleans. Theſe are the firſt inſtances that happen to occur to me: I might recollect many, too many to inſert in his eſſay; yet all are but a few, compared to inſtances of cruelty and revenge: perhaps I am concerned that they are ſo rare; perhaps too I inwardly grieve that I am not in a ſituation to do the like. I am entertained, but not moved, when I read Voltaire's Hiſtory of Charles XII.: but I melt into tears on reading Hanway's character of his antagoniſt Peter the Great. The firſt is a ſtory of a madman; the other of a father, friend, and benefactor of his people; whoſe character (as the author obſerves in the concluſion of it) will command the admiration of all ſucceeding generations; and I ſuppoſe I lament, that God is pleaſed to advance to royalty ſo few ſuch inſtruments of good to mankind.

Again: “ I am uneaſy when I ſee a dog, a horſe, or any other animal ill treated: for I conſider them as endued with quick ſenſe, and no contemptible ſhare of reaſon; and that God gave man dominion over them, not to play the tyrant, but to be a good prince, and promote the happineſs of his ſubjects. But I am much more uneaſy at any cruelty to my own ſpecies; and heartily wiſh Procruſtes diſciplined in his own bed, and Phalaris in his bull. A man bruiſed all over in a boxing match, or cut to pieces in fighting a prize, is a ſhocking ſpectacle; and I think I could with leſs horror ſee a thouſand fall in battle, than human nature thus depreciated and diſgraced. Voilence, when exerted in wantonneſs or paſſion, is brutality: and can be termed bravery only when it is ſanctioned by juſtice and neceſſity.

“ I have been in a ſituation to ſee not a little of the pomp and vanity, as well as of the neceſſity and miſery, of mankind: but the laſt only affect me; and if, as a magiſtrate, I am ever guilty of partiality, it is in favour of the poor. When I am at church among my poor but honeſt neighbours in the country; and ſee them ſerious in performing the ceremonies preſcribed; tears ſometimes ſteal down my cheek, on reflecting, that they are doing and hearing many things they do not underſtand, while thoſe who underſtand them better neglect them: that they, who labour and live hard, are more thankful to heaven than thoſe who fare luxuriouſly on the fruits of their labour; and are keeping and repeating the fourth commandment at the very inſtant the others are breaking it.

“ Theſe are ſome of the ſenſations I feel; which I have freely and fairly diſcloſed, that the reader may judge, how far I am an inſtance of a deformed perſon wanting natural affection. And I am a good ſubject of ſpeculation; becauſe all in me is nature; for to own the truth, I have taken but little pains (though I ought to have taken a great deal), to correct my natural defects.

“ Lord Bacon's next poſition is, ‘ That deformed perſons are extremely bold: firſt in their own defence, as being expoſed to ſcorn; but in proceſs of time by a general habit.’ This, probably, is ſo among the inferior ſort, who are in the way of continual inſults; for a return of abuſe is a natural weapon of ſelf-defence, and in ſome meaſure juſtified by the law of retaliation: To upbraid a man with a perſonal defect, which he cannot help, is alſo an immoral act; and he who does it, has reaſon to expect no better quarter than to hear of faults, which it was in his own power not to commit. But I find this obſervation far from being verified in myſelf: an unbecoming baſhfulneſs has been the conſequence of my ill figure, and of the worſe management of me in my childhood. I am always uneaſy, when any one looks ſtedfaſtly on ſo bad a picture; and cannot look with a proper confidence in the face of another. I have ever reproached myſelf with this weakneſs, but am not able to correct it. And it may be a diſadvantage to a man in the opinion of thoſe he converſes with; for though true modeſty is amiable, the falſe is liable to miſconſtruction: and when a man is out of countenance for no reaſon, it may be imagined, that he has ſome bad reaſon for being ſo. In point of aſſurance, I am indeed a perfect riddle to myſelf; for I, who feel a reluctance in croſſing a drawing room, or in opening my mouth in private company before perſons with whom I am not well acquainted, find little in delivering my ſentiments in public, and expoſing my diſcourſe, often as trifling as my perſon, to the ears of a thouſand. From what cauſe this proceeds, I know not: it may be partly from hopes of wiping off any ill impreſſions from my perſon by my diſcourſe, partly from a ſenſe of doing my duty, and partly from a ſecurity in public aſſemblies from any groſs perſonal reflections.

"Lord Bacon compares the caſe of deformed perſons to that of eunuchs; 'in whom kings were wont to put great truſt as good ſpies and whiſperers; for they that are envious towards all, are more obnoxious and officious towards one.' But with ſubmiſſion to ſo good a judge of human nature, I own I can diſcover no uncommon qualification in them for ſpies; and very few motives to envy peculiar to themſelves. Spies ſubmit to that baſe and ungenerous office, either for the ſake of intereſt or power: if for intereſt, it is to gratify their covetouſneſs: if for power, their ambition or revenge, which paſſions are not confined to the eunuch or deformed, but indiſcriminately ſeize all claſſes of men. Envy too may prompt a man to mean actions, in order to bring down the perſon envied to his own level; but if it is on account of ſuperiority of fortune, it will operate alike on men of all ſhapes. Eunuchs have but one peculiar motive to envy: but that (as Lord Bacon expreſſes it) makes them envious towards all; becauſe it is for a pleaſure which all but themſelves may enjoy. Deformed perſons are deprived only of beauty and ſtrength, and therefore thoſe alone are to be deemed the extraordinary motives to their envy; for they can no more be beautiful or ſtrong than eunuchs be ſucceſsful lovers. As to myſelf, whatever ſparks of envy might be in my conſtitution, they are now entirely extinguiſhed; for, by frequent and ſerious reflection, I have long been convinced of the ſmall value of moſt things which men value the moſt.

"There is another paſſion to which deformed perſons ſeem to be more expoſed than to envy; which is jealouſy: for being conſcious that they are leſs amiable than others, they may naturally ſuſpect that they are leſs beloved. I have the happineſs to ſpeak this from conjecture, and not from experience; for it was my lot, many years ago, to marry a young lady, very piouſly educated, and of a very diſtinguiſhed family, and whoſe virtues are an honour to her family and her ſex: ſo that I had never any trial of my temper, and can only gueſs at it by emotions I have felt in my younger days; when ladies have been more liberal of their ſmiles to thoſe whom I thought in every reſpect, but perſon, my inferiors."

The moſt uſeful inference from all this to a deformed perſon is, to be upon his guard againſt thoſe frailties to which he is more particularly expoſed; and to be careful, that the outward frame do not diſtort the ſoul. *Orandum eſt* (ſays Juvenal), *ut ſit mens ſana in corpore ſano;* "Let us pray for a ſound mind in a healthy body;" and every deformed perſon ſhould add this petition, *ut ſit mens recta in corpore curvo*, for "an upright mind in a crooked one." And let him frequently apply to himſelf this article of ſelf-examination, *Lenior et melior ſis, accedente ſenecta?* As age approaches, do your temper and morals improve?" It is a duty peculiarly incumbent: for if beauty adds grace to virtue itſelf, vice muſt be doubly hideous in deformity.

Ridicule and contempt are a certain conſequence of deformity; and therefore what a perſon cannot avoid, he ſhould learn not to regard. He ſhould bear it like a man; forgive it as a Chriſtian; and conſider it as a philoſopher. And his triumph will be complete, if he can exceed others in pleaſantry on himſelf. Wit will give over when it ſees itſelf outdone; and ſo will malice when it finds it has no effect: And if a man's behaviour afford no cauſe of contempt, it will fall upon thoſe who condemn him without cauſe.

Inſtead of repining, therefore, a deformed perſon ought to be thankful to Providence for giving him ſuch a guard to his virtue and repoſe. Thouſands are daily ruined by a handſome perſon; for beauty is a flower that every one wants to gather in its bloom, and ſpares no pains or ſtratagem to reach it. All the poetical ſtories concerning it have their moral. A Helen occaſions war and confuſion: the Hyacinths and Ganymedes are ſeized on for Catamites; the Endymions and Adoniſes for gallants; Narciſſus can admire nobody but himſelf, and grows old before he is cured of that paſſion. Who is a ſtranger to the ſtory of Lucretia killing herſelf for her violated chaſtity, or of Virginia killed by her father to preſerve it? In thoſe circumſtances, ſays Juvenal, ſhe might wiſh to change perſons with Rutila; the only lady we know among the ancients celebrated for a hump-back. The handſomeſt men are choſen for eunuchs and gallants; and when they are catched in exerciſing the laſt function, both (A) Horace and Juvenal inform you of the penalties

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(A) Hic ſe præcipitem tecto dedit; ille flagellis
Ad mortem cæſus: fugiens hic decidit acrem
Prædonum in turbam: dedit hic pro corpore nummos:
Hunc perminxerunt calones: quinetiam illud
Accidit, ut cuidam teſtes caudamque ſalacem
Demeteret ferrum——————*Hor*. Sat. ii. l. 1.
——Quoſdam mœchos et mugilis intrat. *Juv*. ib.

penalties and indignities they undergo. Silius (B) was converted by the inſatiable Meſſalina into a huſband; and Sporus, by the monſter Nero, into a wife. The laſt mentioned poet ſhows, that praying for beauty is praying for a curſe; and (C) Perſius refuſes to join in ſuch a prayer: And has not the deformed perſon reaſon to thank his ſtars, which have placed him more out of danger than even virtue could? for that could not guard a Joſeph, an (D) Hippolytus, a Bellerophon, and others, againſt the revenge of ſlighted love.

Another great advantage of deformity is, that it tends to the improvement of the mind. A man that cannot ſhine in his perſon, will have recourſe to his underſtanding; and attempt to adorn that part of him, which alone is capable of ornament. When his ambition prompts him to begin, with Cowley, to aſk himſelf this queſtion,

> What ſhall I do to be for ever known,
> And make the age to come my own?

on looking about him, he will find many avenues to the temple of fame barred againſt him; but ſome are ſtill open through that of virtue; and thoſe, if he has a right ambition, he will moſt probably attempt to paſs. The more a man is inactive in his perſon, the more his mind will be at work; and the time which others ſpend in action, he will paſs in ſtudy and contemplation: by theſe he may acquire wiſdom; and by wiſdom, fame. The name of Socrates is as much ſounded as thoſe of Alexander and Cæſar; and is recorded in much fairer characters. He gained renown by wiſdom and goodneſs; they by tyranny and oppreſſion: he by inſtructing, they by deſtroying, mankind: and happy it is, that their evil deeds were confined to their lives; while he continues to inſtruct us to this day. A deformed perſon will naturally conſider where his ſtrength and his foible lie: and as he is well acquainted with the laſt, he will eaſily find out the firſt; and muſt know, that (if it is any where) it is not, like Samſon's, in the hair; but muſt be in the lining of the head. He will ſay to himſelf, "I am weak in perſon: unable to ſerve my country in the field, I can acquire no military glory; but I may, like Socrates, acquire reputation by wiſdom and probity; let me therefore be wiſe and honeſt. My figure is very bad; and I ſhould appear but ill as an orator either in the pulpit or at the bar: let me therefore paſs my time in my ſtudy, either in reading what may improve myſelf, or in writing what may entertain or inſtruct others. I have not the ſtrength of Hercules, nor can I rid the world of ſo many monſters; but perhaps I may get rid of ſome that infeſt myſelf. If I cannot draw out Cacus from his den, I may pluck the villain from my own breaſt. I cannot cleanſe the ſtable of Augeas: but I may cleanſe my own heart from filth and impurity; I may demoliſh the hydra of vices within me: and ſhould be careful too, that while I lop off one, I do not ſuffer more to grow up in its ſtead. Let me be ſerviceable in any way that I can: and if I am ſo, it may, in ſome meaſure, be owing to my deformity; which at leaſt ſhould be a reſtraint on my conduct, leſt my conduct make me more deformed."

Few perſons have a houſe entirely to their mind; or the apartments in it diſpoſed as they could wiſh. And there is no deformed perſon, who does not wiſh that his ſoul had a better habitation; which is ſometimes not lodged according to its quality. Lord Clarendon ſays of Sir Charles Cavendiſh (brother to the marquis of Newcaſtle), that he was a man of the nobleſt and largeſt mind, though of the leaſt and moſt inconvenient body that lived. And every body knows, that the late prince of Orange had many amiable qualities. Therefore, in juſtice to ſuch perſons, we muſt ſuppoſe that they did not repine that their tenements were not in a more regular ſtyle of architecture. And let every deformed perſon comfort himſelf with reflecting, that though his ſoul hath not the moſt convenient and beautiful apartment, yet that it is habitable; that the accommodation will ſerve as an inn upon the road; that he is but tenant for life, or (more properly) at will; and that, while he remains in it, he is in a ſtate to be envied by the deaf, the dumb, the lame, and the blind.

DEFOSSION, (DEFOSSIO), the puniſhment of burying alive, inflicted among the Romans on veſtal virgins guilty of incontinency. It is alſo a cuſtom among the Hungarians to inflict this puniſhment on women convicted of adultery. Heretics were alſo puniſhed in this manner. See *Burying-Alive*.

DEGENERATION, or DEGENERATING, in general, denotes the growing worſe, or loſing ſome valuable qualities whereof a thing was formerly poſſeſſed. Some naturaliſts have been of opinion, that things are capable of degenerating into quite a diſtinct ſpecies; but this is a mere chimera. All that happens in the degeneration of a plant, for inſtance, is the loſing its uſual beauty, colour, ſmell, &c. a circumſtance entirely owing to its being planted in an improper ſoil, climate; &c.

DEGLUTITION, the action of ſwallowing. See ANATOMY, nº 104.

DEGRADATION, in Engliſh law-books called *diſgradation* and *depoſition*, the act of depriving or ſtripping a perſon for ever of a dignity or degree of honour, and taking away the title, badge, and privileges thereof.

The degradations of a peer, a prieſt, a knight, a gentleman, an officer, &c. are performed with divers ceremonies. That which anciently obtained in degrading a perſon from his nobility is very curious. It was practiſed in the time of Francis I. upon Captain Fangel,

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(B) ——Optimus hic et formoſiſſimus idem
Gentis Patriciæ rapitur miſar extinguendus
Meſſalinæ oculis.————*Juv.* Sat. x.

(C) Hunc optent generum Rex et Regina: puellæ
Hunc rapiant: quicquid calcaverit hic, roſa fiat:
Aſt ego nutrici non mando vota; negato
Jupiter hæc illi———— *Perſ.* Sat. ii.

(D) ————Quid profuit olim
Hippolyto grave propoſitum? Quid Bellerophonti
Erubuit nempe hæc, ſeu faſtidita repulſâ:
Nec Sthenobœa minus quam Creſſa excanduit, et ſe
Concuſſere ambæ————*Juv.* Sat. x.

Fangel, who had in a cowardly manner given up Fontarabia, whereof he was governor. On this occaſion, 20 or 30 cavaliers, without blemiſh or reproach, were aſſembled; before whom the gentleman was accuſed of treaſon and breach of faith by a king at arms. Two ſcaffolds were erected; the one for the judges, heralds, and purſuivants; and the other for the guilty cavalier, who was armed at all points, and his ſhield placed on a ſtake before him, reverſed with the point upwards. On one ſide aſſiſted 12 prieſts in ſurplices, who ſung the vigils of the dead. At the cloſe of each pſalm they made a pauſe, during which the officers of arms ſtripped the condemned of ſome piece of his armour, beginning with the helmet, and proceeding thus till he was quite diſarmed; which done, they broke his ſhield in three pieces with a hammer. Then the king at arms emptied a baſon of hot water on the criminal's head; and the judges, putting on mourning habits, went to the church. This done, the degraded was drawn from off the ſcaffold with a rope tied under his arm-pits, laid on a bier, and covered with mortuary clothes; the prieſt ſinging ſome of the prayers for the dead; and then he was delivered to the civil judge and the executioner of juſtice.

For a more domeſtic inſtance: Sir Andrew Harcla, earl of Carliſle, being attainted and convicted of treaſon, 18 Edw. II. *coram rege;* after judgment was pronounced on him, his ſword was broken over his head, and his ſpurs hewn off his heels; Sir Anthony Lucy the judge ſaying to him, "Andrew, now thou art no knight, but a knave." By ſtat. 13 Car. II. William Lord Monſon, Sir Henry Mildmay, and others, were degraded from all titles of honour, dignities, and preeminences, and prohibited to bear or uſe the title of lord, knight, eſquire, or gentleman, or any coat of arms, for ever afterwards. It has been maintained that the king may degrade a peer; but it appears from later authorities, that he cannot be degraded but by act of parliament.

As to eccleſiaſtics, we have an inſtance of degradation before condemnation to death, in the eight century, at Conſtantinople. It is in the perſon of the patriarch Conſtantine, whom Conſtantine Copronymus cauſed to be executed. He was made to aſcend the ambo; and the patriarch Nicetas ſent ſome of his biſhops to ſtrip him of the pallium, and anathematized him: then they made him go out of the church backwards.

But we have a much later inſtance in Engliſh hiſtory: When Cranmer, archbiſhop of Canterbury, was degraded by order of queen Mary, they dreſſed him in epiſcopal robes, made only of canvas, put the mitre on his head, and the paſtoral ſtaff in his hand; and in this attire ſhowed him to the people. Which done, they ſtripped him again piece by piece. At preſent they do not ſtand ſo much on the ceremony of degradation in order to the putting a prieſt to death: by reaſon of the delays and difficulties that it would occaſion. Pope Boniface pronounced that ſix biſhops were required to degrade a prieſt; but the difficulty of aſſembling ſo many biſhops rendered the puniſhment frequently impracticable. In England, a prieſt, after having been delivered to his ordinary, if he cannot purge himſelf of the crime laid at his door, his gown and other robes are ſtripped over his ears by the common hangman; by which he is declared diveſted of his orders.

It is decided, however, that degradation does not efface the prieſtly character. Degradation only ſeems to differ from depoſition in a few ignominious ceremonies which cuſtom has added thereto. Accordingly, in the buſineſs of Arnoul archbiſhop of Rheims, ſentenced in the council of Orleans in 991, it was deliberated what form they ſhould follow in the depoſition; whether that of the canons, that is, ſimple depoſition; or that of cuſtom, viz. degradation. And it was declared, that he ſhould ſurrender the ring, paſtoral ſtaff, and pallium; but that his robes ſhould not be torn off. In effect, the canons preſcribe no more than a mere reading of the ſentence. It is the reſt, therefore, added thereto by cuſtom, viz. the ſtripping off the ornaments and the tearing the pontifical veſtments, that properly conſtitutes degradation.

Degradation, in painting, expreſſes the leſſening the appearance of diſtant objects in a landſcape, in the ſame manner as they would appear to an eye placed at that diſtance from them.

DEGREE, in geometry, a diviſion of a circle, including a three hundred and ſixtieth part of its circumference.

Degree of Latitude. See Latitude.

Degree of Longitude. See Longitude.

A degree of the meridian on the ſurface of the globe is variouſly determined by various obſervers. Mr Picart meaſured a degree in the latitude of 49° 21′, and found it equal to 57060 French toiſes. But the French mathematicians, who have lately examined Mr Picart's operations, aſſure us, that the degree in that latitude is 57183 toiſes. In England, Mr Norwood, meaſured the diſtance between London and York, and found it 905751 Engliſh feet; and finding the difference of latitudes 2° 28′, determined the quantity of one degree to be 367196 Engliſh feet, or 69 Engliſh miles and 288 yards. Mr Maupertuis meaſured a degree in Lapland, in the latitude of 66° 20′, and found it 57438 toiſes. A degree was likewiſe meaſured at the equator by other French mathematicians, and found to contain 56767-8 toiſes. Whence it appears, that the earth is not a ſphere, but an oblate ſpheroid.

Degree, in civil and canon law, denotes an interval in kinſhip, by which proximity and remoteneſs of blood are computed. See Consanguinity and Descent.

Degrees, in muſic, are the little intervals whereof the concords or harmonical intervals are compoſed.

Degree, in univerſities, denotes a quality conferred on the ſtudents or membere thereof, as a teſtimony of their proficiency in the arts or ſciences, and intitling them to certain privileges.

DEJANIRA, in fabulous hiſtory, daughter of Oeneus king of Ætolia, and wife to Hercules. The centaur Neſſus endeavouring to raviſh her, was ſlain by Hercules with a poiſoned arrow. Neſſus, when dying, gave his bloody ſhirt to Dejanira; aſſuring her, that it was a ſovereign remedy to cure her huſband if ever he proved unfaithful. Some time after, Dejanira thinking ſhe had reaſon to ſuſpect his fidelity, ſent him the ſhirt; which he had no ſooner put on, than he was ſeized with the moſt excruciating torments. Being unable to ſupport his pains, he retired to mount Oeta,

Oeta, and erecting a pile of wood ſet fire to it, and threw himſelf into the flames; upon which Dejanira killed herſelf in deſpair.

DEJECTION, in medicine, the act of voiding the excrements by the anus. See ANATOMY, nº 93.

DEIFICATION, in antiquity. See APOTHEOSIS.

DEIPHON, in fabulous hiſtory, a brother of Triptolemus ſon of Celeus and Metanira. When Ceres travelled over the world, ſhe ſtopped at his father's court and undertook to nurſe him and bring him up. To reward the hoſpitality of Celeus, the goddeſs began to make his ſon immortal, and every evening ſhe placed him on burning coals to purify him from whatever mortal particles he ſtill poſſeſſed. The uncommon growth of Deiphon aſtoniſhed Metanira, who wiſhed to ſee what Ceres did to make him ſo vigorous. She was frightened to ſee her ſon on burning coals; and the ſhrieks that ſhe uttered diſturbed the myſterious operations of the goddeſs, and Deiphon periſhed in the flames.

DEISCAL, in the ancient Britiſh cuſtoms, the name of a ceremony originally uſed in the druidical worſhip, and retained in many places down to a very late period as a civil ceremony towards perſons of particular diſtinction. The temples of the ancient Britons were all circular; and the druids, in performing the public offices of their religion, never neglected to make three turns round the altar, accompanied by all the worſhippers. This practice was ſo habitual to the ancient Britons, that it continued in ſome places many ages after the druids and their religion were both deſtroyed. In the Scottiſh iſles, the vulgar never come to the ancient ſacrificing and fire-hallowing cairns, but they walk three times round them from eaſt to weſt, according to the courſe of the ſun. This ſanctified tour, or round by the ſouth, is called *deiſcal*, from *deas* or *deſs*, "the right hand," and *ſoil* or *ſul*, "the ſun;" the right-hand being ever next the heap or cairn. In the ſame iſles it is the cuſtom and faſhion of the people to teſtify their reſpect for their chieftains, the proprietors of their ſeveral iſles, and other perſons of diſtinction, by performing the deiſcal round them in the ſame manner. A gentleman giving an account of his reception in one of the weſtern iſlands, of which he was proprietor, deſcribes the ceremony of the deiſcal in this manner: "One of the natives would needs expreſs his high eſteem for my perſon, by making a turn round about me ſun-ways, and at the ſame time bleſſing me, and wiſhing me all happineſs. But I bid him let alone that piece of homage, telling him I was ſenſible of his good meaning towards me. But this poor man was very much diſappointed, as were alſo his neighbours; for they doubted not but this ancient ceremony would have been very acceptable to me; and one of them told me that this was a thing due to my character from them, as to their chief and patron; and that they could not, and would not, fail to perform it."

DEISM, the doctrine or belief of the deiſts. Deiſm, from Θεος, *God*, may properly be uſed to denote natural religion, as comprehending thoſe truths which have a real foundation in reaſon and nature; and in this ſenſe it is ſo far from being oppoſite to Chriſtianity, that it is one great deſign of the goſpel to illuſtrate and enforce it. Thus ſome of the deiſtical writers have affected to uſe it. But deiſm more preciſely ſignifies that ſyſtem of religion, relating both to doctrine and practice, which every man is to diſcover for himſelf by the mere force of natural reaſon, independent of all revelation, and excluſive of it; and this religion Dr Tindal and others pretend is ſo perfect, as to be incapable of receiving any addition or improvement even from divine revelation.

DEISTS, a claſs of people, known alſo under the denomination of *Free-thinkers*, whoſe diſtinguiſhing character it is, not to profeſs any particular form or ſyſtem of religion; but only to acknowledge the exiſtence of a God, and to follow the light and law of nature, rejecting revelation, and oppoſing Chriſtianity.

This name ſeems to have been firſt aſſumed as the denomination of a party about the middle of the 16th century, by ſome gentlemen in France and Italy, who were deſirous of thus diſguiſing their oppoſition to Chriſtianity by a more honourable appellation than that of atheiſts. Viret, an eminent reformer, mentions certain perſons in his epiſtle dedicatory prefixed to the ſecond tome of his *Inſtruction Chretienne*, publiſhed in 1563, who called themſelves by a new name, that of *Deiſts*. Theſe, he tells us, profeſſed to believe in God, but ſhowed no regard to Jeſus Chriſt, and conſidered the doctrine of the apoſtles and evangeliſts as fables and dreams. He adds, that they laughed at all religion, though they outwardly conformed to the religion of thoſe with whom they lived, or whom they wiſhed to pleaſe, or feared to offend. Some, he obſerves, profeſſed to believe the immortality of the ſoul; others denied both this doctrine and that of providence. Many of them were conſidered as perſons of acute and ſubtil genius, and took pains in diſſeminating their notions.

The deiſts hold, that, conſidering the multiplicity of religions, the numerous pretences to revelation, and the precarious arguments generally advanced in proof thereof, the beſt and ſureſt way is to return to the ſimplicity of nature and the belief of one God; which is the only truth agreed to by all nations. They complain, that the freedom of thinking and reaſoning is oppreſſed under the yoke of religion; and that the minds of men are ridden and tyrannized by the neceſſity impoſed on them of believing inconceivable myſteries; and contend that nothing ſhould be required to be aſſented to or believed but what their reaſon clearly conceives.

The diſtinguiſhing character of modern deiſts is, that they reject all revealed religion, and diſcard all pretences to it as the effects of impoſture or enthuſiaſm. They profeſs a regard for natural religion, though they are far from being agreed in their notions concerning it. They are claſſed by ſome of their own writers into mortal and immortal deiſts: the latter acknowledging a future ſtate; and the former denying it, or repreſenting it as very uncertain.

Dr Clarke diſtinguiſhes four ſorts of deiſts. 1. Thoſe who pretend to believe the exiſtence of an eternal, infinite, independent, intelligent Being, who made the world, without concerning himſelf in the government of it. 2. Thoſe who believe the being and natural providence of God, but deny the difference of actions as morally good or evil, reſolving it into the arbitrary conſtitution of human laws; and therefore they ſuppoſe that God takes no notice of them. With reſpect to both theſe claſſes, he obſerves that their opinions can conſiſtently terminate in nothing but downright atheiſm. 3. Thoſe who having right apprehenſions concerning the nature, attributes, and all-governing providence of God, ſeem alſo to have ſome notion of his moral perfections; though they conſider them as tranſcendent, and ſuch in nature and degree, that we can form no true judgment, nor argue with any certainty concerning them: but they deny the immortality of human ſouls; alleging that men periſh at death, and that the preſent life is the whole of human exiſtence. 4. Thoſe who believe the exiſtence, perfections, and providence of God, the obligations of natural religion, and a ſtate of future retribution, on the evidence of the light of nature, without a divine revelation: ſuch as theſe, he ſays, are the only true deiſts; but their principles, he apprehends, ſhould lead them to embrace Chriſtianity; and therefore he concludes that there is now no conſiſtent ſcheme of deiſm in the world.

The firſt deiſtical writer of any note that appeared in England was Herbert baron of Cherbury. He lived and wrote in the laſt century. His book *De Veritate* was firſt publiſhed at Paris in 1624. This, together with his book *De Cauſis Errorum*, and his treatiſe *De Religione Laici*, were afterwards publiſhed in London. His celebrated work *De Religione Gentilium* was publiſhed at Amſterdam in 1663 in 4to, and in 1700 in 8vo, and an Engliſh tranſlation of it was publiſhed at London in 1705. As he was one of the firſt that formed deiſm into a ſyſtem, and aſſerted the ſufficiency, univerſality, and abſolute perfection, of natural religion, with a view to diſcard all extraordinary revelation as uſeleſs and needleſs, we ſhall ſubjoin the five fundamental articles of this univerſal religion. They are theſe: 1. That there is one ſupreme God. 2. That he is chiefly to be worſhipped. 3. That piety and virtue are the principal part of his worſhip. 4. That we muſt repent of our ſins; and if we do ſo, God will pardon them. 5. That there are rewards for good men, and puniſhments for bad men, both here and hereafter. Our own age has produced a number of advocates in the ſame cauſe; and however they may have differed among themſelves, they have been agreed in their attempts of invalidating the evidence and authority of divine revelation. We might mention Hobbes, Blount, Toland, Collins, Woolſton, Tindal, Morgan, Chubb, Lord Bolingbroke, Hume, &c. Some have alſo added Lord Shafteſbury to the number.

But the friends of Chriſtianity have no reaſon to regret the free and unreſerved diſcuſſion which their religion has undergone. Objections have been ſtated and urged in their full force, and as fully anſwered; argument and riallery have been repelled; and the controverſy between Chriſtians and deiſts has called forth a great number of excellent writers, who have illuſtrated both the doctrines and evidence of Chriſtianity in a manner that will ever reflect honour on their names, and be of laſting ſervice to the cauſe of genuine religion and the beſt intereſts of mankind.

DEITY, *Godhead;* a common appellation given to God; and alſo by the poets to the heathen gods and goddeſſes.

1 Boundaries and extent.

DELAWARE, one of the United States of America, is ſituated between 38° 29′ 30″, and 39° 54′ of north latitude. It extends from nearly the ſame longitude with the city of Philadelphia, to about 40′ weſt. It is about one hundred miles in length, and the ſouthern part of the ſtate is about forty miles wide. The northern part is greatly narrowed by the courſe of the bay and river, and therefore the mean width may be eſtimated at about twenty-four miles.

The ſtate of Delaware is bounded on the eaſt by the bay and river of the ſame name, and by the Atlantic ocean; on the ſouth by a line from Fenewick's Iſland, in latitude 38° 29′ 30″, drawn weſt till it interſects what is commonly called the tangent line, dividing it from the ſtate of Maryland; on the weſt, by the ſaid tangent line, paſſing northwards up the peninſula, till it touch the weſtern part of the territorial circle; and thence on the north, by the ſaid circle, deſcribed with a radius of twelve miles about the town of New-Caſtle. The contents of the ſtate will amount to about 1,200,000 acres.

2 Diſcovery and ſettlement.

About the year 1497, John Cabot and his ſon Sebaſtian, who were Venetians, in the ſervice of Henry the ſeventh, made a general diſcovery of the American coaſt, which lies along the north-eaſt of the continent*. This was before the diſcoveries of Columbus had extended further than to a few of the Weſt India iſlands. No ſettlement appears to have been effected here, until many years after the voyage of the Cabots. About the year 1608, this country was viſited by Henry Hudſon, who directed his endeavours to a more particular and accurate diſcovery of New-York, New-Jerſey, Delaware-bay, and the adjacent country. Soon after this diſcovery, the Dutch are ſaid to have purchaſed from Hudſon any right which he might have acquired to the country by the diſcovery, and immediately ſent a colony to form a ſettlement. At what time their firſt eſtabliſhments began in America is not known with certainty. However, 'tis pretty well aſcertained that in 1623, they had poſſeſſion on the eaſt ſide of the bay, and erected a fortification, which they called Naſſau, at the place now known by the name of Glouceſter.

In the year 1627, this country was viſited by a colony of Swedes and Finns, under the command of William Uſeling, a reſpectable Swediſh merchant. They landed, and at firſt ſettled at Cape-Henlopen, which they called Paradiſe-point†. About the year 1631, they built a fort near Wilmington, to which they gave the name of Chriſtain, or Chriſtiana. There alſo they laid out a ſmall town, which was afterwards demoliſhed by the Dutch. The ſtate of oppoſition between the two colonies, for ſome time, required the erection of fortifications all through the country. The Swedes built one at Cheſter, one upon Tenecum-Iſland, which they called New-Gottenburgh, and others at different places. The Dutch erected one at New-Caſtle, called Fort Caſimir, and one at Lewis, called Whorekill‡. Soon after the arrival of the Swedes they were governed by Peter Minnit, under a commiſſion from the queen of Sweden.—Sometime after this, the Swediſh colony was committed to the government of John Printz; and on his being obliged to return home in 1654, his ſon-in-

* *Smith's hiſtory of New-Jerſey.*

† *Ibid.*

‡ *Ibid.*

in-law, John Papgoia, was deputed to the adminiſtration.

In the year 1655, the Dutch in this ſettlement were conſiderably recruited by the arrival of ſeven veſſels from New-Amſterdam, now New-York, having on board 6 or 700 men. They immediately diſpoſſeſſed the Swedes of their forts on the river, then under the command of Suen-Scutz; and having obliged them all to ſurrender, on articles of capitulation, they carried the officers and principal inhabitants priſoners to New-York, and from thence to Holland. Thoſe of that nation who remained, being without protection or aſſiſtance, were glad to unite with the Dutch and ſubmit to their government. From this time the weſt ſide of the Delaware river was occupied by the two colonies, now grown into one under the Dutch government, until the firſt of October 1664, when it was ſurrendered on articles of capitulation to Sir Robert Carr, for his royal highneſs the duke of York, who was afterwards king James the ſecond. Four years after this Col. Nichols, governor of New-York, appointed a council of ſix perſons to aſſiſt captain Carr in the adminiſtration of the government *.

In the year 1672, the town of New-Caſtle was incorporated by the government of New-York, and was to be ſubject to the direction of a bailiff and ſix aſſiſtants †. After the firſt year the four eldeſt were to be removed from office, and four others were to be elected. The bailiff was preſident of the corporation, and entitled to a double vote. They had power to try cauſes, not exceeding the value of ten pounds, without an appeal from their juriſdiction. The office of ſcout, who had been chief of the council of ſix, was here converted into ſheriff, who had juriſdiction within the corporation and along the river, and was annually elected. From this new conſtitution, the inhabitants were entitled to a free trade, without being obliged to make entry at New-York as had formerly been the practice.

During the earlier periods of the ſettlement of Delaware *wampum* was the principal currency of the country. Governor Lovelace of New-York, by proclamation, ordered that four white grains and three black ones ſhould circulate for the value of a ſtiver or penny. This proclamation was publiſhed at New-York, Albany, Long-Iſland, Delaware, and the adjacent countries under the government of the Dutch. Large parcels of land had been purchaſed from the Indian proprietors by the Dutch, previouſly to the conqueſt by captain Carr. And after the eſtabliſhment of the Engliſh government under the duke of York, the governors, deputy-governors, and the different county-courts, granted conſiderable quantities of land, on the weſt ſide of the bay and river, as far northerly as Upland, now called Cheſter, reſerving a quit-rent of a buſhel of wheat for every hundred acres. In this ſituation the government continued until the commencement of a war between the Engliſh and the ſtates general; in which the whole country being retaken, became again ſubjected to the Dutch. But their poſſeſſion was of ſhort duration: for at the termination of the war in 1667, by the treaty of Breda, it was agreed, that the New-Netherlands, then ſuppoſed to include the Delaware colony, ſhould be reſtored to the Engliſh in exchange for Surinam, a province of Guiana in South America. This article of the treaty was conſidered at the time as a very diſadvantageous one to the Britiſh government. The value of Surinam was eſtimated much higher than all that tract of country, which now includes the ſtates of New-York, New-Jeſey, and Delaware. This was then viewed as a principal part of the diſgrace attending the peace of Breda, which cloſed a war in which the national character of bravery had ſhone out with luſtre, but where the miſconduct of the government was no leſs apparent ‡.

3 Annexed to New-York.

From the reſtoration of this country to the Engliſh in 1667, until the beginning of Mr Dennis's adminiſtration in 1682, the counties of New-Caſtle, Kent, and Suſſex were held as forming an appendage to the government of New-York; of courſe, the public affairs of the colony were conducted nearly as they had been previouſly to the capture of the country by the Dutch. Sir Edmund Andros now governed the duke of York's territory, and exerciſed juriſdiction over all the ſettlements on both ſides the Delaware. His arbitrary impoſitions began to make his government and his character odious.—The inhabitants remonſtrated againſt his conduct, but there efforts proved ineffectual.

The title of the duke of York to the New-Netherlands depended on a grant from the crown, dated the 12th of March, 1663-4. In the duke's ſettlement of the country, and forming a government under his grant, the Delaware colony was included, as it was ſuppoſed to be a part of the New-Netherlands. This idea ſeems to have originated, and to have been continued, in a voluntary deception, or rather from views of direct encroachment and uſurpation. The very words of the grant are in direct oppoſition to ſuch an extenſion of claim or juriſdiction. When Mr Penn in 1680, petitioned the crown for the grant of Pennſylvania, in conſideration of large public debts due to his father's eſtate, this queſtion naturally preſented itſelf, and was fully diſcuſſed. The petition was referred to the lords of the committee of foreign plantations. From the importance of the ſubject, on the 8th of November 1680, they choſe to ſubmit it to the conſideration of the attorney general of England. His report to them, on an examination of the ſubject, was, "that the patents granted to his royal highneſs of New-York, was bounded weſtward by the eaſt ſide of Delaware Bay." In the year 1685, this queſtion received a ſtill more formal adjudication. On lord Baltimore's oppoſition to Mr Penn's ſettlement under his grant, it was brought before a committee of the privy-council a ſecond time. And after full argument and examination, their lordſhips reported, among other things, "that they did then adjudge the land called Delaware to belong to his majeſty."

4 Baltimore's claim.

In the ſettlement of the Delaware colony, under two deeds of feoffment from the duke of York in 1682, William Penn became involved in a territorial conteſt with lord Baltimore, which eventually became tedious, troubleſome, and expenſive to their repreſentatives. The diſpute was terminated in 1685, by an order "that for the avoiding of further differences, the tract of land lying between the river and bay of Delaware and the eaſtern ſea, on the one ſide, and Cheſapeak bay on the other, be divided in two equal parts, by a line from the latitude of Cape Henlopen, to the fortieth degree of northern latitude; and that one-half

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* *European ſettlements in America* vol. ii. p. 185.

† *Smith's New-Jerſey.*

‡ *Hume's Hiſt. of Eng.* vol. vii. p. 342.

Delaware.

half thereof, lying toward the bay of Delaware and the eaſtern ſea, be adjudged to belong to his majeſty, and that the other half remain to the lord Baltimore, as compriſed within his charter." This deciſion was founded on the principle that the king was deceived in his grant; that Delaware colony came within the exception by which the patent was reſtricted, as that part of the country was proved to have been previouſly poſſeſſed and ſettled by the Swedes and Dutch.

5
Delaware joined with Pennſylvania.

Immediately after the contract between William Penn and the duke of York, expreſſed in the two deeds of feoffment, the former aſſumed the government of the Delaware colony, and in affairs of legiſlation, connected it with Pennſylvania. After this union of the province and the three lower counties, the repreſentatives held their firſt ſeſſion of aſſembly at Cheſter, on the fourth day of the tenth month, 1682. They enacted a law confirming the union, and delineating the particulars of the plan which was adopted. By this act, all the benefits and advantages before granted to the province were now extended to the colony of Delaware. They were from that time to be conſidered as the ſame people, and ſubject to the ſame laws‡. The freemen both of the province and of Delaware were ſummoned to attend this aſſembly *in perſon:* but they choſe to elect twelve members in each county, amounting in all to ſeventy-two, the preciſe number which by the frame of government was to compoſe one houſe only. The repreſentatives were accompanied with petitions to the governor importing, "that the fewneſs of the people, their inability in eſtate, and unſkilfulneſs in government, would not permit them to ſerve in ſo large a council and aſſembly; and therefore it was their deſire that the twelve now returned from each county, might ſerve both for provincial council and general aſſembly, with the ſame powers and privileges, which by the charter were granted to the whole.§"

The members were accordingly diſtributed into two houſes; three out of each county made a council, conſiſting of eighteen, and the remaining part formed an aſſembly of fifty-four.

In the ſettlement of this country under the government of Mr Penn, the lands were purchaſed, and not forcibly taken from the natives; with whom it was obſervable that every new purchaſe conſiderably enhanced their eſtimation of the land. But the practice of contracting with the natives of America, for the lands on which ſettlements were made, is by no means peculiar to Mr Penn. Previouſly to his coming into Delaware the Dutch had adopted a ſimilar practice; and large purchaſes had been made from the Indians, in different parts of America, and particularly in Maſſachuſetts¶.

During the time of William Penn's reſidence in his own province, the adminiſtration of the government was conducted ſafely and happily. There were no important altercations between the council and the aſſembly, or between either of them and the proprietary. But as the diſpute between him and lord Baltimore recalled him to England, in leſs than three years after his arrival in the province, it ſoon loſt the benefit of his perſonal aſſiſtance, and the repoſe of government was of ſhort duration||.

6
Mr Penn returns to England.

7
Diſorders the province.

On Mr Penn's leaving the province, we find diſorders ariſing in every department of government. A certain Mr Moore, a chief in the proprietary's adminiſtration, was impeached by the aſſembly before the provincial council. He was repreſented, in an addreſs to Mr Penn, as "an aſpiring and corrupt miniſter of ſtate." Mr John White, a repreſentative from Delaware, who had ſigned the addreſs as ſpeaker, was ſoon arreſted and committed to priſon, and by a variety of artifices, the granting a *habeas corpus* was evaded*. There being no ſteady hand to hold the balance between the council and the aſſembly, they ſoon fell into controverſy, in the conſtruction of their reſpective powers and privileges;—and there had like to have been a very ſerious conteſt between the aſſembly and their abſent proprietary, on his requiring from them a diſſolution of their frame of government.——At the time of Mr Penn's departure, he had committed the adminiſtration of the government to five commiſſioners of ſtate, taken out of the provincial council, who were to preſide in his place. Soon diſguſted with their diſputes, and with the mode of conducting buſineſs in his abſence, the proprietor removed the five commiſſioners from authority, and appointed for his deputy John Blackwell, an officer trained under Cromwell, and completely verſed in the arts of intrigue. He commenced his adminiſtration in December 1688, by a diſplay of unauthoriſed powers, and by endeavouring to ſow diſcord among the people†.

8
Government aſſumed by the crown.

Misfortunes now ſeemed to croud on Mr Penn, in his own government and in England. In about ſix months after his arrival, the death of Charles brought James II. to the throne; a prince to whom he had been particularly known and particularly attached by obligations if not by principles. A variety of circumſtances induced pointed ſuſpicions againſt the proprietor. His taking lodgings in the neighbourhood of the court, at Kenſington; his aiding the king's outrageous attack on Magdalen college; at this critical period, his writing a book on liberty of conſcience, and vindicating the duke of Buckingham—all theſe circumſtances conſpired in forming the general prejudice againſt him as a *court inſtrument*‡. After the abdication of James, both the province and its proprietor fell under the royal diſpleaſure. Their laws had not been preſented for approbation, and the new king and queen had not been proclaimed in the province for a long time after their acceſſion; but the adminiſtration of the government was continued in the name of the exiled monarch. At what time the alteration took place is not aſcertained; but in the year 1692, the government was aſſumed by the crown; and col. Fletcher, governor of New-York, adminiſtered both provinces§. In conſequence of theſe ſuſpicions, Mr Penn not only loſt his government for a time, but was ſeveral times publicly accuſed and proſecuted; and at length, to avoid the effects of the general unfavourable impreſſions, he was obliged to conceal himſelf for ſeveral years¶. In the latter end of the year 1693, on a hearing before the king and council, he was acquitted, and his government reſtored. After the proprietor's reſtoration, William Markham was appointed lieutenant-governor; and in the time of his adminiſtration, in 1696, another frame of government was propoſed and adopted. This continued to be the conſtitution of Pennſylvania and Delaware, during the

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‡ *Hiſtorical Review*, &c. 16.

§ *Life of Penn.*

¶ *Ibid.*

|| *Hiſtorical Review*, 18

* *Hiſtorical Review*, 19.

† *Life of Penn.*

‡ *Votes of Pennſylv. aſſembly.* vol. i.

§ *Hiſtorical Review*, &c. 26.

¶ *Votes Pennſylv.* vol. i.

Delaware. whole time of their union in legiſlation. For when the next charter was accepted by the province, in October 1701, it was totally rejected by the members of the three lower counties; and immediately a breach enſued, which eventually terminated in an entire ſeparation *.

* Hiſtorical Review &c.

9 Delaware ſeparated from Pennſylvania. This diſunion does not appear to have been the effect of unreaſonable caprice. By the new charter which was offered to their conſideration, the principles of the firſt conſtitution were eſſentially mutilated. The people had no longer the election of the council; they were to be nominated by the governor, and were to ſerve on his terms. Inſtead of having but three voices in ſeventy-two, he was left ſingle in the executive, and at liberty to reſtrain the legiſlative by refuſing his aſſent to their bills whenever he thought fit. There were other articles, in the changing of which the people were advantaged. But whatever might have been the cauſe of this ſeparation, it is certain by this act the Delaware colony avoided a great degree of altercation and political diſorder.

For a great number of years after the ſeparation, the political repoſe of the lower counties remained nearly undiſturbed. At laſt, the conteſts between the two proprietaries revived. After this conteſt had continued for half a century, and when the claimants were exhauſted with expence, anxiety and trouble; on the tenth of May 1732, for the purpoſe of adjuſting all differences, they entered into articles of agreement, aſcertaining the mode of ſettlement, and appointing commiſſioners to complete the contract. Thoſe articles made a particular proviſion for adjuſting the controverſy, by drawing part of a circle about the town of New-Caſtle, and a line to aſcertain the boundaries between Maryland and the Delaware colony.

From ſeveral other circumſtances, as well as delays on the part of the Maryland proprietor, the execution of thoſe articles and the decree thereon, were poſtponed until they were ſuperſeded by another agreement between Frederic lord Baltimore, ſon and heir of Charles lord Baltimore, and the proprietaries of Pennſylvania, which was made on the 4th of July, 1760, and was likewiſe confirmed by decree on the 6th of March, 1762. Thoſe articles and decrees were immediately put in execution. The commiſſioners appointed and authorized by the reſpective proprietors, ſurveyed the ſeveral lines, as mentioned and deſcribed in the agreement, deſignated thoſe lines by viſible ſtones, pillars, and other landmarks, and made a return thereof under their hands and ſeals, with an exact plan or map of their work annexed. But from ſeveral cauſes, there never was a complete change of juriſdiction until the publication of Mr Penn's proclamation for that purpoſe, on the 8th of April 1775. This was finally carried into operation, the laws extended, and the boundaries of the counties and hundreds eſtabliſhed, by an act of the Delaware legiſlature, paſſed the 2d of September 1775.

The ſeparation from Pennſylvania, which has already been remarked, appears to have had a happy effect on the tranquillity of Delaware. It was involved in few political diſturbances of importance, except the wars which it was obliged to participate from its connection with Great Britain. In the war which commenced in 1755, the exertions of the colonies were excited in proportion to their reſpective degrees of patriotiſm and wealth. In this proportion, the Delaware colony was inferior to none of them in furniſhing the neceſſary ſupplies of every kind. Major Wells was placed at the head of the military of this colony, and marched to the ſeat of war, in the weſtern country, a large number of able-bodied, brave, and well diſciplined troops.

In the year 1762, the expenditures and ſupplies of Delaware had far exceeded its regular proportion with the other provinces, and at that time the agent for the colony in England, received from the lords of the treaſury, in conſequence of a parliamentary grant, nearly four thouſand pounds ſterling, as a partial reimburſement of thoſe expences. This was a a ſum much larger, according to the abovementioned proportion, than was granted to any of the other provinces.

Long before the ſettlement of the territorial conteſt between the two proprietors, ſo intereſting to the Delaware counties, the diſpute between Britain and America had commenced, and was haſtening to a ſtate when it was to attract the attention of the world. This ſmall diſtrict from the firſt moment of oppoſing Britiſh uſurpation, had felt and diſcovered a patriotic ardor equally with moſt of the colonies. So early as October 1765, repreſentatives were deputed from Delaware to attend the firſt congreſs, which was held at New-York, for the purpoſe of obtaining a repeal of ſome of the moſt obnoxious Britiſh ſtatutes. Cæſar Rodney and Thomas M‘Kean, eſquires, were the delegates who attended on the part of the Delaware counties. In the year 1773, the meaſures of Britain excited more than common attention. The legiſlature conſidered the criſis a very intereſting one. They therefore "reſolved that a ſtanding committee of correſpondence and enquiry be appointed, to conſiſt of five members, whoſe buſineſs it ſhall be to obtain the moſt early and authentic intelligence of all ſuch acts and reſolutions of the Britiſh parliament, or proceedings of adminiſtration, as may relate to, or affect the Britiſh colonies in America; and to keep up a correſpondence and communication with our ſiſter colonies, reſpecting theſe important conſiderations."—Nor were thoſe acts of patriotiſm and public ſpirit confined to legiſlative reſolves: When the town of Boſton, by the operation of the port-bill, was reduced to great diſtreſs, ſupplies from different parts of the colony, were voluntarily collected and forwarded for their relief.

During the ſubſequent periods of the war, there was no relaxation in the ſpirit and exertions of this ſtate. Their ſupplies of every kind requiſite to the public ſervice, atteſted their attachment to the common cauſe; and the Delaware regiment was notoriouſly one of the fineſt and moſt efficient in the continental army. In the ſpring of 1776, it marched to join the American troops near New-York; being then commanded by col. John Haſlet, an officer much diſtinguiſhed for all the talents that can diſplay a great civil and military character. He continued in the command of his regiment, and ſerving with unuſual applauſe, until the enſuing winter, when at the battle of Princeton, his lamented death added one more victim to the great cauſe which he ſo cordially advocated. From this place his remains were conveyed to Philadelphia, and honorably interred; and ſome time afterwards, the general aſſembly of the Delaware ſtate, "remembering his virtues as a man, his merits as a citizen, and his ſervices as a ſoldier," cauſed a monumental ſtone to be placed near his grave.

Through the remaining campaigns, the Delaware Troops preſerved their uniform tenor of brave magnanimous conduct. In the ſouthern ſtates their character for military prowefs was much diſtinguiſhed. The commendation of them and the intrepid *Kirkwood*, by general Green, was ſingularly honourable. During the continuance of the war the diſtreſſes of Delaware, from various ſources, were very deſtructive to both individual and general proſperity. The upper diſtrict of the ſtate ſuſtained for a long time the ravages and deſolations of the Britiſh army. And after both armies advanced into Pennſylvania, the bay and river being in poſſeſſion of the enemy, the armed veſſels belonging to the Britiſh and the refugees, carried on a deſtructive predatory war on the coaſt, intercepting veſſels, annoying the trade, burning houſes, and kidnapping the citizens of Delaware. Thoſe cauſes effectually arreſted the progreſs of improvement in every different direction. The academies of *New-Ark* and *Wilmington* had become celebrated through the neighbouring ſtates, and had intereſted and ſecured very extenſive patronage. But the ſciences were compelled to give place to the ravages of war. The approaches of the two armies diſperſed their ſtudents, and the depreciation of the continental currency demoliſhed their funds. Since the peace, learning appears to revive and flouriſh, as if confident of the aid and ſupport of a permanent efficient government.

Juſt before the commencement of the war, a work of conſiderable importance was begun at Lewes, in the ſouthern diviſion of the ſtate, viz. the erection of a bridge and cauſeway, from the town, over the creek and marſh to the oppoſite cape. This was an expenſive and difficult undertaking. It was juſt finiſhed when the Britiſh ſhips firſt came into the road off Lewes; when, in order to prevent too eaſy a communication, they were obliged partially to remove it, and afterwards ſo to neglect it, as that it was, before the concluſion of the war, nearly demoliſhed. Within a year or two paſt they have began to erect another bridge, nearly on the ſame plan, but entirely on a new foundation. It was began, carried on, and is now finiſhed, ſolely at the expence of individuals. It extends about a quarter of a mile from the town to the beach over a wide creek and marſh. The inhabitants are well compenſated for their trouble and expence, by the facility of communication between the town and cape. The advantages attending it are too obvious and numerous to mention. While we are at this place it may be proper to obſerve, that the ſituation of the town and creek of Lewes muſt, at ſome future time, make them conſiderably important. Placed at the entrance of a bay, which is crowded with veſſels from all the commercial world, and which is frequently cloſed with ice nearly through the winter ſeaſon, neceſſity ſeems to require, and nature ſeems to ſuggeſt, the forming this port into a harbour for ſhipping. Nothing has prevented this heretofore but the deficiency of water in the in the creek. This want could be cheaply and eaſily ſupplied by a ſmall canal, ſo as to afford a paſſage for the waters of Rehoboth into Lewes-creek, which would enſure an adequate ſupply.

Since the war, the light-houſe, near the town of Lewes, which had been burnt in the year 1777, has been completely and handſomely repaired. This is a fine ſtone ſtructure, about eight ſtories high; the annual expence of which is eſtimated at about 650 pounds.

10 Civil diviſions. The ſtate of Delaware is divided into three counties, called New-Caſtle, Kent, and Suſſex; and thoſe again are ſubdivided into hundreds. The chief towns are New-Caſtle in the county of New-Caſtle, Dover in the county of Kent, and Lewes in the county of Suſſex.

11 Conſtitution. Previouſly to the late revolution, this diſtrict of country was denominated the *the three lower counties on Delaware*. Its former connection with Pennſylvania has been ſufficiently remarked. In September 1776, the preſent conſtitution was eſtabliſhed by a convention of repreſentatives, choſen for that expreſs purpoſe; and at that time it aſſumed the name of the *Delaware State*. The legiſlature is formed of two diſtinct branches, which together are called the *general aſſembly of Delaware*. One of the branches of the legiſlature is called the *houſe of aſſembly*; and conſiſts of ſeven repreſentatives, choſen for each county annually, who are to be freeholders of the county for which they are choſen. The other branch is called *the council*; and conſiſts of nine members, three for each county, who are to be freeholders of the county for which they are choſen, and muſt be upwards of twenty-five years of age. A rotation of counſellors is eſtabliſhed, by diſplacing one member for each county in every year, whereby they remain in truſt for three years. All money-bills muſt originate in the houſe of aſſembly; but they may be altered, amended, or rejected by the legiſlative council.

A preſident is choſen by the joint ballot of both houſes, and continues in office three years, and until the ſitting of the next general aſſembly. After this he is ineligible for the three next ſucceeding years. In caſe of the death, abſence, or inability of the preſident, the ſpeaker of the legiſlative council is vice-preſident for the time; and in his abſence, the powers of the preſident devolve upon the ſpeaker of the aſſembly. A privy council, conſiſting of four members, two elected by each houſe of the general aſſembly, is conſtituted to aſſiſt the preſident in the adminiſtration of the government.

The three juſtices of the ſupreme court, a judge of admiralty, and four juſtices of the common pleas and orphans courts, are appointed by the joint ballot of the preſident and general aſſembly, and commiſſioned by the preſident, and are to hold their offices during good behaviour. The preſident and privy council appoint the ſecretary, the attorney-general, regiſters for the probate of wills, regiſters in chancery, prothonotaries of the common pleas, clerks of the orphans courts, and clerks of the peace, who hold their offices for five years, unleſs ſooner removed for mal-conduct. The houſe of aſſembly names twenty-four perſons in each county for juſtices of the peace, from which number the preſident and his council commiſſion twelve, who ſerve for ſeven

Delaware. ſeven years, unleſs ſooner diſmiſſed for mal-adminiſtration. The members of the legiſlative and privy councils, are juſtices of the peace for the whole ſtate.

The juſtices of the common pleas have the power of holding inferior courts of chancery.

The clerks of the ſupreme court are appointed by the chief juſtice, and the recorders of deeds, by the juſtices of common pleas—to hold their reſpective appointments for five years, if they behave themſelves well. The general aſſembly appoints the generals and field-officers, and all other officers in the army or navy of this ſtate.

The court of *appeals* conſiſts of ſeven perſons, the preſident, who is a member, and preſides by virtue of his office, and ſix others; three to be choſen by the legiſlative council, and three by the houſe of aſſembly. This court receives appeals from the ſupreme court in all matters of law and equity. The judges continue in office during good behaviour.

The juſtices of the ſeveral courts, the members of the privy council, the ſecretary, the truſtees of the loan-office, prothonotaries of the common pleas, and all perſons concerned in army or navy contracts, are ineligible to either branch of the legiſlature. Every member before taking his ſeat, and all officers before they enter on the execution of their offices, muſt take the oath of allegiance, and ſubſcribe a religious teſt, declaring their belief in God the Father, in Jeſus Chriſt, and the Holy Ghoſt, and in the inſpiration of the ſcriptures.

The houſe of aſſembly have the power of impeaching delinquent officers of government; ſuch impeachment to be proſecuted by the attorney-general, or ſuch perſon as the houſe of aſſembly ſhall appoint before the legiſlative council. The puniſhment may extend to temporary or perpetual diſability to hold offices under government, or to ſuch other penalties as the law ſhall direct.

The common law of England, as well as ſo much of ſtatute law, as was adopted in practice in this ſtate previous to the revolution, ſtill remain in force, unleſs altered by particular acts of the legiſlature.—No religion is eſtabliſhed in this ſtate in preference to another; and no clergyman or preacher of the goſpel of any denomination is capable of holding any civil office in this ſtate, or of being a member of either branch of the legiſlature, while they continue in the exerciſe of the paſtoral function.

This is a comprehenſive abſtract of the preſent conſtitution of Delaware. It has for ſeveral years been conſidered by the citizens of that ſtate as eſſentially defective. In the adminiſtration of it they have ſuſtained many inconveniencies, which have greatly diminiſhed the happineſs of the people and the reputation of the government. From this cauſe, there has ariſen a very general wiſh to alter or amend the conſtitution. An election of deputies in convention for this purpoſe has already taken place.

12
Face of the country, climate, ſoil, &c.

The ſtate of Delaware, excepting the upper parts of the county of New-Caſtle, is, in general, extremely level and low. Large quantities of ſtagnant water, at particular ſeaſons of the year, overſpreading a great proportion of the land, render it equally unfit for the purpoſes of agriculture, and injurious to the health of the inhabitants.

The eaſtern ſide of the ſtate is indented with a large number of creeks or ſmall rivers, which generally have a ſhort courſe, ſlimy and oozy banks, numerous ſhoals, are ſkirted with very extenſive marſhes, and empty into the river and bay of Delaware. The ſouthern and weſtern ſides give origin to the head waters of Pocomoke, Wicomico, Nanticoke, Choptank, Cheſter, Saſſafras, and Bohemia rivers, all of which fall into the bay of Cheſapeak.

The ſpine, or higheſt ridge of the peninſula runs through the ſtate of Delaware, inclined to the eaſtern or Delaware ſide. It is deſignated in Suſſex, Kent, and part of New-Caſtle county, by a remarkable chain of ſwamps, from which the waters deſcend on each ſide, paſſing on the eaſt to the Delaware, and on the weſt to the Cheſapeak. Many of the ſhrubs and plants, growing in theſe ſwamps, are ſimilar to thoſe found on the higheſt mountains.

The ſoil along the Delaware, and for about eight or ten miles into the interior country, is commonly a rich and fertile clay, producing large timber, and well adapted to the various purpoſes of agriculture; thence to the abovementioned ſwamps it is chiefly light, ſandy, and of inferior quality.

A queſtion, concerning the origin of the flat and low lands of this and the neighbouring ſtates, has been the ſubject of much curious ſpeculation. The whole Peninſula, lying between the bays of Delaware and Cheſapeak, as well as a large tract of the adjacent country, has many appearances of *made ground*. To enumerate theſe, or to adduce the reaſonings in ſupport of ſuch opinion, would far exceed our neceſſary limits. But admitting the fact, it ſtill remains difficult to account for the preciſe manner in which this vaſt tract of land has been acquired from the ocean. It has been conjectured, with ſome degree of probability, that it may have been formed by earth, waſhed down from the high grounds and mountains lying weſtward, aided, in a ſmall degree, by the accumulation of ſoil from the decay of vegetable ſubſtances. This conjecture receives much confirmation from the aſpect of a large extent the of country eaſtward of the great range of Alleghany mountains. The features of violence and confuſion are deeply impreſſed on the ſurface of this tract. The irregularity of the ſtrata of ſtones, earths and minerals; the poſition of the layers of lime-ſtone, almoſt univerſally vertical, inſtead of horizontal; all theſe are the veſtiges of the operation of a power which muſt have convulſed the earth to its centre. On the contrary, when we take our view from the weſtern ridge of thoſe mountains we ſeem to ſurvey a vaſt extended plain; all the various ſtrata of ſtone appear to have lain undiſturbed in the ſituation in which they were originally formed. The layers of ſand, clay, and coal are nearly horizontal.

It is well known that ſeveral of the largeſt rivers, in the middle ſtates, viz, the Hudſon, the Delaware and the Patowmac, with ſome others of inferior ſize, in their courſe to the ocean, make their way through the ridges of high mountains. The clefts, through which theſe majeſtic currents roll, diſcover every appearance of violence and diſrupture. The broken ragged faces of the mountains, on each ſide of the reſpective rivers; the tremendous rocks, which overhang the paſſage, and conſtantly ſeem ready to fall for want of ſupport; the obſtruction of the beds of the rivers, for ſeveral miles below, by rocks and looſe ſtones; all theſe things, taken together, ſeem to be ſo many traces of a war of the elements, and the ravages of a power which nothing could oppoſe.

It has been ſuppoſed, that, in the extended plain behind theſe mountains, there was formerly collected a vaſt lake of water; that continuing from time to time to riſe higher, it at length broke over, and tore the mountain down from its ſummit to its baſe.

The torrent, thus breaking forth, muſt have produced a convulſion more awful than we can imagine, and fully adequate to all the effects we behold. The quantity of rocks, ſtones, ſand, clay and mud, thus ſet in motion by ſuch an immenſe power, was probably ſufficient *to give a new face to the lower country.* Nothing but the reſtoration of equilibrium, between theſe oceans of freſh and ſalt water, could have abated the fury of the torrent, or diminiſhed the overwhelming drift of earth and ſand upon the low lands.

The nature of the ſoil, from the feet of the mountains to the ſea-ſhores, exactly correſponds with this opinion of its formation. The lower country ſeems to be made up of a variety of light ſubſtances, waſhed from higher grounds by torrents and floods, and afterwards depoſited when thoſe waters became ſtagnant. Gradations of ſoil are eaſily obſervable from the mountains to the ſea. Near the mountains we find rocks of large dimenſions; theſe are ſucceeded by others of ſmaller ſize; then the ſoil becomes ſtony, afterwards gravelly, and, laſt of all, we meet a light clay, ſand and mud. Throughout the whole extent of country we can readily remark, that the depoſition ſeems regularly to have taken place in the order of the reſpective ſpecific gravities of theſe earthy bodies.

From the foregoing deſcription of the low and level ſoil of a great part of the ſtate of Delaware, it follows that it muſt be a ſickly country. The diſeaſes ariſing from the nature of the ſoil, chiefly prevail during the ſummer and autumn, and conſiſt of intermittent and remittent fevers, and diſorders of the ſtomach and bowels. They generally commence at the beginning of July, ſooner or later, according to the degree and duration of the heats, and courſe of the winds; and commonly continue till the froſts and plentiful rains of the month of October.

Theſe diſeaſes fall, with peculiar violence, on ſtrangers and infants. Happily for the human ſyſtem it poſſeſſes a wonderful faculty of accommodation, and ſpeedily acquires the power of reſiſting the moſt noxious cauſes. This *ſeaſoning*, according to circumſtances, is more or leſs ſevere, and occupies a longer or ſhorter time.

It has been commonly ſuppoſed, that this widely ſpreading epidemic originates from the combination of heat and moiſture in producing an extenſive putrefaction of thoſe animal and vegetable ſubſtances which overſpread ſo large a proportion of the ſurface of a fenny country. The want of briſk ventilation, and a deficiency of the ſources of pure air, inſeparable evils of a level and low country, may alſo be enumerated among the cauſes of theſe diſeaſes. It muſt, however, be confeſſed, that this ſource of diſeaſe, though extremely intereſting to the ſcience and practice of medicine, has never been inveſtigated with the diligence it deſerves; and that many important *deſiderata* might ſtill be enumerated.

The character of inſalubrity belongs not to the whole ſtate of Delaware. The high grounds, in the upper parts of New-Caſtle county, are as much diſtinguiſhed by the purity of their air as by the charms of their extenſive and delightful proſpects. Wilmington, and its beautiful environs, has long been celebrated for health, and much reſorted to by invalids from the lower and more ſickly parts of the ſtate. Many of the other diſtricts of the county of New-Caſtle, and indeed a large proportion of the whole county, muſt be conſidered rather as healthful than otherwiſe.

Kent and Suſſex are much more unhealthy. Theſe two counties form one extended plain, abound in low and ſwampy grounds, and, with reſpect to their interior parts, are deprived of almoſt all the beſt ſources of pure air. But aſylums of health are by no means wanting in theſe counties; and we may, with great propriety, apply to them an obſervation which has been made with reſpect even to ſome of the moſt unwholeſome countries in the world, viz. that healthy ſpots are interſperſed over a great portion of them, and probably might be ſelected in larger number, and greater perfection, if proper attention were beſtowed on the ſubject.

The weſtern parts of the ſtate bordering on Maryland, where extenſive foreſts and uncleared ſwamps occupy a conſiderable extent of the country, excluding the ſun's acceſs to the ſtagnant waters, and abſorbing noxious exhalations, enjoy a ſituation comparatively healthy.

On the other hand, places ſituated on the river and bay, enjoying a free expoſure to the briſk and ſalutary breezes from the ocean, poſſeſs advantages of health, and purity of air, which are univerſally obſerved and acknowledged. In conſequence of this, during the ſickly ſeaſon, the ſhores of the bay and river are much frequented by invalids for the recovery of health, and by the healthy for the prevention of diſeaſe. Here is a convenient pleaſant retreat from noxious air, to which almoſt every individual, if ſituated in the moſt ſickly parts of the ſtate, can eaſily have acceſs. Perhaps a more perfect refuge from diſeaſe might be obtained by ſailing out on the bay, but for common purpoſes the ſhores are ſufficient. No inſtances can be produced of places permanently unwholeſome which have a free opening to the river or bay.

The intermediate ſpace, therefore, between the foreſts on the one ſide, and the ſhores of the bay or river, to a ſmall diſtance into the country, on the other, conſtitutes that tract in which the ſummer and autumnal diſeaſes are chiefly prevalent and fatal.

Theſe diſorders have been obſerved, in many diſtricts, for ſeveral years paſt, manifeſtly to increaſe with the diſforeſting of the country; and to be as remarkably diminiſhed in others, by more extended openings, by draining ſtagnant waters, and by an improved ſtate of agriculture. And we may ſafely venture to predict, that, when the high ſtate of cultivation of this country ſhall have taken place, to which the fertility and other advantages of the ſoil ſtrongly ſolicit the huſbandman; when the ſources of morbid exhalations ſhall have been better aſcertained, and the means of correcting them more accurately underſtood and generally diffuſed; the ſtate of Delaware will be as much diſtinguiſhed for its purity of air and progreſſive populouſneſs, as for its wealth and advantages of ſituation.

Delaware is chiefly an agricultural ſtate. It includes a very fertile tract of country; and ſcarcely any part of the union can be ſelected more adapted to the different purpoſes of agriculture, or in which a greater variety of the moſt uſeful productions can be ſo conveniently and plentifully reared.

The general aſpect of the country is extremely favourable to the proceſſes of tillage. Excepting ſome of the upper parts of the county of New-Caſtle, the ſurface of the ſtate is very little broken or irregular. The heights of Chriſtiana are lofty and commanding; ſome of the hills of Brandywine are rough and ſtony; but deſcending from theſe, and a few others, the lower country is ſo little diverſified as almoſt to form one extended plain.

In the county of New-Caſtle, the ſoil conſiſts of a ſtrong clay; in Kent, there is a conſiderable admixture of ſand; and in Suſſex, the quantity of ſand altogether predominates.

Wheat is the ſtaple of this ſtate. It grows here, and in the greateſt part of the peninſula between the two bays, in ſuch perfection as not only to be particularly ſought by the manufacturers of flour throughout the union, but alſo to be diſtinguiſhed and preferred, for its ſuperior qualities, in foreign markets. This wheat poſſeſſes an uncommon ſoftneſs and whiteneſs, very favourable to the manufacture of ſuperfine flour, and in this reſpect, far exceeds the hard and flinty grain raiſed in general on the high lands.

Beſides wheat, this ſtate generally produces plentiful crops of indian corn, barley, rye, oats, flax, buckwheat, and potatoes. It abounds in natural and artificial meadows, containing a large variety of graſſes. Hemp, cotton, and ſilk, if properly attended to, doubtleſs would flouriſh very well.

The agricultural conveniences of the ſtate are much enhanced by its vicinity to excellent markets for all its productions, and the facility of obtaining water-carriage within a ſhort diſtance from every farm.

There is no part of America, perhaps no part of the known world, where the manufacture of flour is carried to a higher degree of perfection. Beſides numerous mills of excellent conſtruction all over the ſtate, the celebrated collection of mills at Brandywine deſerves particular notice. Here are to be ſeen, in one view, thirteen mills, with double that number of pairs of ſtones, all of ſuperior dimenſions and conſtruction, capable of grinding between two and three thouſand buſhels of wheat per diem.

The county of Suſſex, beſides producing a conſiderable quantity of grain, particularly of indian corn, poſſeſſes excellent grazing lands. This county alſo exports very large quantities of lumber, obtained chiefly from an extenſive ſwamp, called the *Indian River*, or Cypreſs Swamp, lying partly within this ſtate, and partly in the ſtate of Maryland. This moraſs extends ſix miles from eaſt to weſt, and nearly twelve from north to ſouth, including an area of nearly fifty thouſand acres of land. The whole of this ſwamp is a high and level baſon, very wet, though undoubtedly the higheſt land betwixt the ſea and the bay, whence the Pocomoke deſcends on one ſide, and Indian River and St. Martin's on the other.

Among the plants, ſhrubs, trees, quadrupeds, birds, and reptiles of this vaſt ſwamp, might probably be obſerved a thouſand curioſities, very intereſting to the philoſophic enquirer. Its receſſes have never yet been explored with the accurate views of botany and natural hiſtory. The vegetables to be found in it, almoſt univerſally poſſeſs ſtrong ſenſible qualities; they are chiefly reſinous, aromatic, or bitter. It is extremely probable, that many valuable medicinal ſubſtances, deſerving inveſtigation and experiment, lie concealed amidſt theſe wilds. Wild animals, in conſiderable number and variety, find ſhelter in this ſwamp; among theſe may be reckoned bears, wolves, foxes, wild cats, and many other kinds. The birds of prey are obſerved to be here very numerous, and of prodigious ſize.

In the county of Suſſex, among the branches of Nanticoke River, large quantities of bog-ore of iron are to be found. This ore was worked to conſiderable extent, prior to the late revolution; it was thought to be of good quality, and peculiarly adapted to the purpoſes of caſtings. The works have chiefly fallen into decay.

According to the cenſus lately taken, by order of the United States, the inhabitants of the ſtate of Delaware were found to amount to near ſixty thouſand.

In this ſtate we find a variety of religious denominations. Of the Preſbyterian communion, there are 24 churches—of the Epiſcopal, 14—of the ſociety called Quakers, 6—of the Baptiſts, 4—of the Methodiſts, a conſiderable number, eſpecially in the two lower counties of Kent and Suſſex, the number of churches not exactly aſcertained.

DELAWARE, a bay and river of the United States, which flows chiefly between Delaware and Pennſylvania on the weſt, and New-Jerſey, with ſome part of New-York, on the eaſt. It riſes in lake *Uſtayantho*, not far from Albany, in the ſtate of New-York. From its ſource it takes a ſouth-weſt direction, until it paſſes into the ſtate of Pennſylvania, in latitude 42°. Thence it proceeds ſouthwardly, dividing New-York from Pennſylvania, until it ſtrikes the northweſt corner of New-Jerſey in latitude 41° 24′. Thence it continues its courſe through New-Jerſey, Pennſylvania, and Delaware, until it paſſes into the ocean between Cape-Henlopen and Cape-May.

The width of the bay, between the two Capes, is ſomething more than twenty miles; at the entrance of the river, about four or five miles; and from Philadelphia to the oppoſite ſhore of the Jerſey, is about one mile.—Reedy-Iſland, near the mouth of the river, is the rendezvous of outward bound ſhips in autumn and ſpring, while waiting for a favourable wind. The courſe from this to the ſea is about ſouth-ſouth-eaſt; ſo that a north-weſt wind, which generally prevails at theſe ſeaſons, is fair for veſſels to put to ſea. The navigation of this bay, in common ſeaſons, is eaſy and ſafe, if conducted by perſons of ſkill and attention. There are ſeveral extenſive ſhoals, pretty near the mouth of the bay, which abſolutely require this precaution. Of thoſe, the *Over-Falls*, the *Brown*, and the *Brandiwine* are the moſt dangerous.

The diſtance from the city of Philadelphia to Cape-Henlopen, by the ſhip-channel of the Delaware, is about one hundred and twenty miles. So far there is a ſufficient depth of water for a ſeventy-four gun ſhip. From Philadelphia to Trenton-Falls is thirty five miles; and this terminates the ſloop navigation. The river is navigable for boats of eight or nine tons burthen forty miles further; and for Indian canoes, rafts of timber, plank, &c. two hundred miles above the city, by the courſe of the river. At *Eaſton* it receives the *Lehigh* from the weſt, which is navigable about thirty miles. The tide ſets up as high as Trenton-Falls, and at Philadelphia generally riſes about ſix feet. It flows about the rate of four miles an hour. In ſevere winters the Delaware is frequently cloſed with ice. Sometimes it extends very far down the bay; and it is ſaid, that in the winter of 1739-40, the ice in the bay oppoſite the town of Lewes, extended as far as the eye could diſcover. If the river be frozen over, during the ſeaſon, it is ſeldom completely navigable until the laſt of February or the beginning of March.

The name of *Delaware*, appears to be derived from the celebrated Lord *Delawar* * who completed the ſettlement of Virginia. 'Tis ſuppoſed his lordſhip put into this bay at his firſt arrival on the American-coaſt. The name has been communicated to the neighbouring ſtate on the eaſt.

DELEGATE, in a general ſenſe, a deputy or commiſſioner.

DELEGATES, in Britain, commiſſioners appointed by the king, under the great ſeal, to hear and determine appeals from the eccleſiaſtical court.

Court of DELEGATES, the great court of appeal in all eccleſiaſtical cauſes. Theſe delegates are appointed by the king's commiſſion under his great ſeal, and iſſuing out of chancery, to repreſent his royal perſon, and hear all appeals to him made by virtue of the ſtatute 25 Henry VIII. *c.* 19. This commiſſion is uſually filled with lords ſpiritual and temporal, judges of the courts at Weſtminſter, and doctors of the civil law. Appeals to Rome were always looked upon by the Engliſh nation, even in the times of Popery, with an evil eye, as being contrary to the liberty of the ſubject, the honour of the crown, and the independence of the whole realm; and were firſt introduced in very turbulent times, in the 16th year of king Stephen (A. D. 1151), at the ſame period (Sir Henry Spelman obſerves) that the civil and cannon laws were firſt imported into England. But in a few years after, to obviate this growing practice, the conſtitutions made at Clarendon, 11 Hen. II. on account of the diſturbances raiſed by archbiſhop Becket and other zealots of the holy ſee, expreſsly declare, that appeals in cauſes eccleſiaſtical ought to lie from the archdeacon to the dioceſan; from the dioceſan to the archbiſhop of the province; and from the archbiſhop to the king; and are not to proceed any farther without ſpecial licenſe from the crown. But the unhappy advantage that was given in the reign of king John, and his ſon Hen. III. to the encroaching power of the Pope, who was ever vigilant to improve all opportunities of extending his juriſdiction to Britain, at length rivetted the cuſtom of appealling to Rome in cauſes eccleſiaſtical ſo ſtrongly, that it never could be thoroughly broken off, till the grand rupture happened in the reign of Hen. VIII. when all the juriſdiction uſurped by the Pope in matters eccleſiaſtical was reſtored to the crown, to which it originally belonged: ſo that the ſtatute 25 Hen. VIII. was but declaratory of the ancient law of the realm. But in caſe the king himſelf be party in any of theſe ſuits, the appeal does not then lie to him in chancery, which would be abſurd; but, by the 24 Henry VIII. *c.* 12. to all the biſhops of the realm, aſſembled in the upper houſe of convocation.

DELEGATION, a commiſſion extraordinary given by a judge to take cogniſance of and determine ſome cauſe which ordinarily does not come before him.

DELEGATION, in Scots law. See Law, n° clxxvii. 8.

DELEN (Dirk Van), an eminent painter of architecture and perſpective, was born at Heuſden, but in what year is not known. He was a diſciple of Francis Hals, in whoſe ſchool he practiſed to paint thoſe particular ſubjects which were moſt eſteemed by that maſter, ſuch as portraits and converſations; and by that means he acquired the ſkill to deſign figures with a great deal of ſpirit, and correctneſs.

DELETERIOUS, an appellation given to things of a deſtructive or poiſonous nature. See POISON.

DELFT, a town of the united provinces, and capital of Delftland in Holland. It is a pretty large place, very clean and well built, with canals in the ſtreets, planted on each ſide with trees. The public buildings, eſpecially the town-houſe, are very magnificent. Here are two churches: in one is the tomb of the prince of Orange, who was aſſaſſinated; and in the other, that of admiral Tromp. It has a fine arſenal, well furniſhed; is about two miles in circumference, and is defended againſt inundations by three dams or dikes. Here is made a prodigious quantity of fine earthenware called *delft-ware;* but the town has no other trade. It is pleaſantly ſituated among the meadows on the river Shie, in E. Long. 4. 13. N. Lat. 32. 6.

DELFT-Ware, a kind of pottery of baked earth, covered with an enamel, or white glazing, which gives it the appearance and neatneſs of porcelain.—Some kinds of this enamelled pottery differ much from others, either in their ſuſtaining ſudden heat without breaking, or in the beauty and regularity of their forms, of their enamel, and of the painting with which they are ornamented. In general, the fine and beautiful enamelled potteries, which approach the neareſt to porcelain in external appearance, are at the ſame time thoſe which leaſt reſiſt a briſk fire. Again, thoſe which ſuſtain a ſudden heat, are coarſe, and reſemble common pottery.

The baſis of this pottery is clay, which is to be mixed, when too fat, with ſuch a quantity of ſand, that the earth ſhall preſerve enough of its ductility to be worked, moulded, and turned eaſily; and yet that its fatneſs ſhall be ſufficiently taken from it, that it may not crack or ſhrink too much in drying or in baking. Veſſels formed of this earth muſt be dried very gently to avoid cracking. They are then to be placed in a furnace to receive a ſlight baking, which is only meant to give them a certain conſiſtence or hardneſs. And, laſtly, they are to be covered with an enamel or glazing; which is done, by putting upon the veſſels thus prepared, the enamel, which has been ground very fine, and diluted with water.

As veſſels on which the enamel is applied are but ſlightly baked, they readily imbibe the water in which the enamel is ſuſpended, and a layer of this enamel adheres to their ſurface: theſe veſſels may then be painted with colours compoſed of metallic calces, mixed and ground with a fuſible glaſs. When they are become perfectly dry, they are to be placed in the furnace, included in caſes of baked earth called *ſeggars*, and expoſed to a heat capable of fuſing uniformly the enamel which covers them.—This heat given to fuſe the enamel being much ſtronger than that which was applied at firſt to give ſome conſiſtence to the ware, is alſo the heat neceſſary to complete the baking of it. The furnace and the colours uſed for painting this ware, are the ſame as thoſe employed for PORCELAIN. The glazing, which is nothing but white enamel, ought to be ſo opaque as not to ſhow the ware under it. There are many receipts for making theſe enamels; but all of them are compoſed of ſand or flints, vitrifying ſalts, calx of lead, and calx of tin; and the ſand muſt be perfectly vitrified, ſo as to form a glaſs conſiderably fuſible. Somewhat leſs than an equal part of alkaline ſalt, or twice its weight of calx of lead, is requiſite to effect ſuch vitrifications of ſand. The calx of tin is not intended to be vitrified, but to give a white opaque colour to the maſs; and one part of it is to be added to three or four parts of all the other ingredients taken together. From theſe general principles, various enamels may be made to ſuit the different kinds of earths. To make the enamel, lead and tin are calcined together with a ſtrong fire; and the ſand is alſo to be made into a fritt with the ſalts or aſhes. The whole is then to be well mixed and ground together. This matter is then to be placed under the furnace, where it is melted and vitrified during the baking of the ware. It is next to be ground in a mill, and applied as above directed.

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* Vide *Jefferſon's Notes append.* 223.

Chim. Dict.

The preparation of the white enamel is a very eſſential article in making delft-ware, and one in which many artiſts fail. M. Boſc. d'Antic, in a Memoir concerning this kind of ware, publiſhed in the *Mem. des Scavans Etrang. tom.* 6. recommends the following proportions. An hundred pounds of calx of lead are to be mixed with about a ſeventh part of that quantity of calx of tin for common delft-ware, or a fourth part of calx of tin for the fineſt kind; an hundred, or an hundred and ten, pounds of fine ſand; and about twenty or thirty pounds of ſea ſalt.—Concerning the earth of which the ware is made, he obſerves, that pure clay is not a proper material when uſed alone. Different kinds of earths mixed together are found to ſucceed better. Pieces of ware made of clay alone, are found to require too much time to dry; and they crack, and loſe their form, unleſs they are made exceedingly thick. An addition of marle diminiſhes the contraction of the clay; renders it leſs compact; and allows the water to eſcape, without altering the form of the ware in drying. It affords alſo a better ground for the enamel; which appears more gloſſy and white than when laid on clay alone.—The kinds of clay which are chiefly uſed in the compoſition of delft-ware, are the blue and green. A mixture of blue clay and marle would not be ſufficiently ſolid, and would be apt to ſcale, unleſs it were expoſed to a fire more intenſe than what is commonly uſed for the burning of delft-ware. To give a greater ſolidity, ſome red clay is added: which, on account of its ferruginous matter, poſſeſſes the requiſite binding quality. The proportions of theſe ingredients vary in different works, according to the different qualities of the earths employed. Three parts of blue clay, two parts of red clay, and five parts of marle, form the compoſition uſed in ſeveral manufactories. M. d'Antic thinks, that the beſt delft-ware might be made of equal parts of pure clay and pure calcareous earth; but this compoſition would require that the fire ſhould be continued twice as long as it generally is.

DELIA, in antiquity, a feſtival celebrated every fifth year in the iſland of Delos, in honour of Apollo. It was firſt inſtituted by Theſeus, who at his return from Crete placed a ſtatue there, which he had received from Ariadne. At the celebration they crowned the ſtatue of the goddeſs with garlands, appointed a choir of muſic, and exhibited horſe-races. They afterwards led a dance, in which they imitated by their motions the various windings of the Cretan labyrinth, from which Theſeus had extricated himſelf by Ariadne's aſſiſtance.—There was another feſtival of the ſame name yearly celebrated by the Athenians in Delos. It alſo was inſtituted by Theſeus, who, when he was going to Crete, made a vow, that if he returned victorious he would yearly viſit in a ſolemn manner the temple of Delos. The perſons employed in this annual proceſſion were called *Deliaſtæ* and *Theori*. The ſhip, the ſame which carried Theſeus, and had been carefully preſerved by the Athenians, was called *Theoria* and *Delias*. When the ſhip was ready for the voyage, the prieſt of Apollo ſolemnly adorned the ſtern with garlands, and an univerſal luſtration was made all over the city. The Theori were crowned with laurels, and before them proceeded men armed with axes, in commemoration of Theſeus, who had cleared the way from Trœzen to Athens, and delivered the country from robbers. When the ſhip arrived at Delos, they offered ſolemn ſacrifices to the god of the Iſland, and celebrated a feſtival to his honour. After this they retired to their ſhip and ſailed back to Athens, where all the people of the city ran in crowds to meet them. Every appearance of feſtivity prevailed at their approach, and the citizens opened their doors and proſtrated themſelves before the Deliaſtæ as they walked in proceſſion. During this feſtival it was unlawful to put to death any malefactor, and on that account the life of Socrates was prolonged for thirty days.

DELIA, a ſurname of Diana, becauſe ſhe was born in Delos.

DELIAC, DELIACUS, among the ancients, denoted a poulterer, or a perſon who ſold fowls, fatted capons, &c. The traders in this way were called *Deliaci*; the people of the iſle of Delos firſt practiſed this occupation. They alſo ſold eggs, as appears from Cicero, in his Academic Queſtions, lib. iv. Pliny, lib. x. cap. 30. and Columella, lib. viii. cap. 8. likewiſe mention the *Deliaci*.

DELIBAMENTA, in antiquity, a libation to the infernal gods always offered by pouring downwards. See *Libation*.

JUS DELIBERANDI. See LAW, Nº clxxx. 23.

DELIBERATIVE, an appellation given to a kind or branch of rhetoric, employed in proving a thing, or convincing an aſſembly thereof, in order to perſuade them to put it in execution.

To have a DELIBRATIVE voice in the aſſembly, is when a perſon has a right to give his advice and his vote therein. In councils, the biſhops have deliberative voices; thoſe beneath them have only conſultative voices.

DELICT, in Scots law, ſignifies ſuch ſmall offences or breaches of the peace as are puniſhable only by fine or ſhort impriſonment.

DELIMA, in botany: A genus of the monogynia order, belonging to the polyandria claſs of plants; and in the natural method ranking with thoſe of which the order is doubtful. There is no corolla; the calyx is five-leaved, with a two-ſeeded berry.

DELINQUENT, a gailty perſon, or one who has committed ſome fault or offence for which he is puniſhable. See BRITAIN, nº 97.

DELIQUESCENCE, in chemiſtry, ſignifies the property which certain bodies have of attracting moiſture from the air, and becoming liquid thereby. This property is never found but in ſaline ſubſtances, or matters containing them. It is cauſed by the great affinity which theſe ſubſtances have with water. The more ſimple they are, according to Mr. Macquer, the more they incline to deliqueſcence. Hence, acids, and certain alkalies, which are the moſt ſimple, are alſo the moſt deliqueſcent ſalts. Mineral acids are ſo deliqueſcent, that they ſtrongly imbibe moiſture from the air, even though they are already mixed with a ſufficient quantity of water to be fluid. For this purpoſe, it is ſufficient that they be concentrated only to a certain degree.—Many neutral ſalts are deliqueſcent, chiefly thoſe whoſe baſes are not ſaline ſubſtances. Salts formed by the vitriolic acid, with fixed or volatile alkalies, earths, or moſt metallic ſubſtances, are not deliqueſcent; although this acid is the ſtrongeſt of all, and, when diſengaged, attracts the moiſture of the air moſt powerfully.

Though the immediate cauſe of deliqueſcence is the attraction of the moiſture of the air, as we have already obſerved; yet it remains to be ſhown why ſome ſalts attract this moiſture powerfully, and others, though ſeemingly equally ſimple, do not attract it at all. The vegetable alkali, for inſtance, attracts moiſture powerfully; the mineral alkali, though to appearance equally ſimple, does not attract it at all. The acid of tartar by itſelf does not attract the moiſture of the air; but if mixed with borax, which has a little attraction for moiſture, the mixture is exceedingly deliqueſcent.—Some theories have been ſuggeſted, in order to account for theſe and other ſimilar facts; but we are as yet too little acquainted with the nature of the atmoſphere, and the relation its conſtituent parts have to thoſe of terreſtrial ſubſtances, to determine any thing with certainty on this head,

DELIQUIUM, or *DELIQUIUM Animi* (from *delinquo*, "I ſwoon"), a ſwooning or fainting away; called alſo *ſyncope*, *lipothymia*, *lipopſychia*, *eclyſis*, and *aſphyxia*.

DELIQUIUM (from *deliqueſco*, "to be diſſolved"), in chemiſtry, is the diſſolution or melting of a ſalt or calx by ſuſpending it in a moiſt cellar.

Salt of tartar, or any fixed alkali, ſet in a cellar or other cool moiſt place, and in an open veſſel, reſolves or runs into a kind of liquor called by the chemiſts oil of tartar *per deliquium*.

DELIRIUM (from *deliro*, "to rave or talk idly"). When the ideas excited in the mind do not correſpond to the external objects, but are produced by the change induced on the common ſenſory, the patient is ſaid to be delirious. See MEDICINE-*index*.

DELIVERY, or CHILD-BIRTH. See MIDWIFERY.

DELLI, or DELHI, a kingdom and city of the Mogul's empire, in Aſia. The city is one of the capitals of the empire. The road between it and *Agra*, the other capital, is that famous alley or walk planted with trees by Jehin Ghir, and 150 leagues in length. Each half league is marked with a kind of turret; and at every ſtage there are little ſarays or caravanſeras for the benefit of travellers. The road, though pretty good, has many inconveniences. It is not only frequented by wild beaſts, but by robbers. The latter are ſo dextrous at caſting a nooſe about a man's neck, that they never fail, if within reach, to ſeize and ſtrangle him. They gain their means likewiſe by means of handſome women; who, feigning great diſtreſs, and being taken up behind the unwary traveller, choak him with the ſame ſnare.—The capital conſiſts of three cities, built near one another. The firſt, now quite deſtroyed, is ſaid to have had 52 gates: and to have been the reſidence of king Porus, conquered by Alexander the Great. The ſecond, which is alſo in ruins, was demoliſhed by Shah Jehan, to build *Jehan-abad* with the materials. This makes the third city, and joins the ruins of the ſecond. The city ſtands in an open plain country, on the river *Jamna*, which riſes in this province. It is encompaſſed with walls, except towards the river. Theſe are of brick, flanked with round towers; but without a ditch, and terraced behind, four or five feet thick. The circumference of the walls may be about nine miles. The fortreſs, which is a mile and an half in circuit, has good walls and round towers, and ditches full of water, faced with ſtone. It is ſurrounded with fine gardens, and in it is the Mogul's palace. See INDOSTAN. E. Long. 79. 25. N. Lat. 28. 20.

DELMENHORST, a ſtrong town of Germany, in the circle of Weſtphalia, and county of Oldenburgh, belonging to Denmark; ſeated on the river Delm near the Weſer. E. Long. 8. 37. N. Lat. 53. 10.

DELOS, an iſland of the Archipelago, very famous in ancient hiſtory. Originally it is ſaid to have been a floating iſland, but afterwards it became fixed and immoveable. It was held ſacred on account of its being the birth-place of Apollo and Diana.—Anciently this iſland was governed by its own kings. Virgil mentions one Anius reigning here in the time of the Trojan war. He was, according to that poet, both king and high-prieſt of Apollo, and entertained Æneas with great kindneſs. The Perſians allowed the Delians to enjoy their ancient liberties after they had reduced the reſt of the Grecian iſlands. In after ages, the Athenians made themſelves maſters of it: and held it till they were driven out by Mithridates the Great, who plundered the rich temple of Apollo, and obliged the Delians to ſide with him. Mithridates was in his turn driven out by the Romans, who granted the inhabitants many privileges, and exempted them from all ſorts of taxes. At preſent it is quite abandoned; the lands being covered with ruins and rubbiſh, in ſuch a manner as to be quite incapable of cultivation. The inhabitants of Mycone hold it now, and pay but ten crowns land-tax to the Grand Signior for an iſland which was once one of the richeſt in the world.—Strabo and Callimachus tell us that the iſland of Delos was watered by the river Inapus; but Pliny calls it only a ſpring; and adds, that its waters ſwelled and abated at the ſame time with thoſe of the Nile. At preſent there is no river in the iſland, but one of the nobleſt ſprings in the world; being twelve paces in diameter, and incloſed partly by rocks and partly by a wall. Mount Cynthus, whence Apollo had the ſurname of *Cynthius*, is by Strabo placed near the city, and ſaid to be ſo high, that the whole iſland was covered by its ſhadow; but our modern travellers ſpeak of it as an hill of a very moderate height. It is but one block of granite of the ordinary ſort, cut on that ſide which faced the city into regular ſteps, and incloſed on both ſides by a wall. On the top of the mountain are ſtill to be ſeen the remains of a ſtately building, with a moſaic pavement, many broken pillars, and other valuable monuments of antiquity. From an inſcription diſcovered there ſome time ago, and which mentions a vow made to Serapis, Iſis and Anubis, ſome have conjectured, that on this hill ſtood a temple dedicated to theſe Egyptian deities, though no where mentioned in hiſtory.—The city of Delos, as is manifeſt from the magnificent ruins ſtill extant, took up that ſpacious plain reaching from one coaſt to the other. It was well peopled, and the richeſt city in the Archipelago, eſpecially after the deſtruction of Corinth; merchants flocking thither from all parts, both in regard of the immunity they enjoyed there, and of the convenient ſituation of the place between Europe and Aſia. Strabo calls it one of the moſt frequented empories in the world; and Pliny tells us, that all the commodities of Europe and Aſia were ſold, purchaſed, or exchanged, there. It contained many noble and ſtately buildings; as, the temples of Apollo, Diana, and Latona; the porticoes of Philip of Macedon, and Dionyſius Eutyches; a gymnaſium; an oval baſon made at an immenſe expenſe, for the repreſentation of ſea-fights; and a moſt magnificent theatre. The temple of Apollo was, according to Plutarch, begun by *Eryſichton* the ſon of Cecrops; but afterwards enlarged and embelliſhed at the common charges of all the ſtates of Greece. Plutarch tells us, that it was one of the moſt ſtately buildings in the univerſe; and ſpeaks of an altar in it, which, in his opinion, deſerved a place among the wonders of the world. It was built with the horns of various animals, ſo artificially adapted to one another, that they hanged together without any cement. This altar is ſaid to have been a perfect cube; and the doubling it was a famous mathematical problem among the ancients. This went under the name of *Problema Deliacum*; and is ſaid to have been propoſed by the oracle, for the purpoſe of freeing the country from a plague. The diſtemper was to ceaſe when the problem was ſolved.—The trunk of the famous ſtatue of Apollo, mentioned by Strabo and Pliny, is ſtill an object of great admiration to travellers. It is without head, feet, arms, or legs; but from the parts that are yet remaining, it plainly appears, that the ancients did not exaggerate when they commended it as a wonder of art. It was of a gigantic ſize, though cut out of a ſingle block of marble; the ſhoulders being ſix feet broad, and the thighs nine feet round. At a ſmall diſtance from this ſtatue lies, amongſt confuſed heaps of broken columns, architraves, baſes, chapiters, &c. a ſquare piece of marble 15½ feet long, ten feet nine inches broad, and two feet three inches thick; which undoubtedly ſerved as a pedeſtal for this coloſſus. It bears in very fair characters this inſcription in Greek, "The Naxians to Apollo." Plutarch tells us, in the life of Nicias, that he cauſed to be ſet up near the temple of Delos, an huge palm-tree of braſs, which he conſecrated to Apollo; and adds, that a violent ſtorm of wind threw down this tree on a coloſſian ſtatue raiſed by the inhabitants of Naxos. Round the temple were magnificent porticoes built at the charge of various princes, as appears from inſcriptions which are ſtill very plain. The names of Philip king of Macedon, Dionyſius Eutyches, Mithridates Euergetes, Mithridates Eupator, kings of Pontus, and Nicomedes king of Bithynia, are found on ſeveral pedeſtals.—To this temple the inhabitants of the neighbouring iſlands ſent yearly a company of virgins to celebrate, with dancing, the feſtival of Apollo and his ſiſter Diana, and to make offerings in the name of their reſpective cities.

So very ſacred was the iſland of Delos held by the ancients, that no hoſtilities were practiſed here, even by the nations that were at war with one another, when they happened to meet in this place. Of this Livy gives an inſtance. He tells us, that ſome Roman deputies being obliged to put in at Delos, in their voyage to Syria and Egypt, found the galleys of Perſeus king of Macedon, and thoſe of Eumenes king of Pergamus, anchored in the ſame harbour, though theſe two princes were then making war upon one another. —Hence this iſland was a general aſylum, and the protection extended to all kinds of living creatures? for this reaſon it abounded with hares, no dogs being ſuffered to enter it. No dead body was ſuffered to be buried in it, nor was any woman ſuffered to lie-in there; all dying perſons, and women ready to be delivered, were carried over to the neighbouring iſland of Rhenæa.

DELPHI, (anc. geog.), a town of Phocis ſituated on the ſouth-weſt extremity of mount Parnaſſus. It was famous for a temple and oracle of that god, of which the following was ſaid to be the origin: A number of goats that were feeding on mount Parnaſſus came near a place which had a deep and long perforation. The ſteam which iſſued from the hole ſeemed to inſpire the goats, and they played and friſked about in ſuch an uncommon manner, that the goat-herd was tempted to lean on the hole, and ſee what myſteries the place contained. He was immediately ſeized with a fit of enthuſiaſm, his expreſſions were wild and extravagant, and paſſed for propheſies. This circumſtance was ſoon known about the country, and many experienced the ſame enthuſiaſtic inſpiration. The place was revered; a temple was ſoon after erected in honour of Apollo; and a city built, which became the chief and moſt illuſtrious in Phocis. The influence of its god has controlled the councils of ſtates, directed the courſe of armies, and decided the fate of kingdoms. The ancient hiſtory of Greece is full of his energy, and an early regiſter of his authority. The circumjacent cities were the ſtewards and guardians of the god. Their deputies compoſed the famous Amphictyonic aſſembly, which once guided Greece.

The temple of Apollo, it is related, was at firſt a kind of cottage covered with boughs of laurel: but he was early provided with a better habitation. An edifice of ſtone was erected by Trophonius and Agamedes, which ſubſiſted about 700 years, and was burned in the year 636 after the taking of Troy, and 548 before Chriſt. It is mentioned in the hymn to Apollo aſcribed to Homer. An opulent and illuſtrious family, called *Alcmæonidæ*, which had fled from Athens and the tyrant Hippias, contracted with the deputies for the building of a new temple, and exceeded their agreement. The front was raiſed with Parian marble, inſtead of the ſtone called *porus*; which reſembled it in whiteneſs, but was not ſo heavy. A Corinthian was the architect. The pediments were adorned with Diana, and Latona, and Apollo, and the Muſes; the ſetting of Phœbus or the ſun; with Bacchus, and the women called *Thyades*. The architraves were decorated with golden armour; bucklers ſuſpended by the Athenians after the battle of Marathon, and ſhields taken from the Gauls under Brennus. In the portico were inſcribed the celebrated maxims of the ſeven ſages of Greece. There was an image of Homer, and in the cell was an altar of Neptune, with ſtatues of the Fates, and of Jupiter and Apollo, who were ſurnamed *Leaders of the Fates*. Near the hearth before the altar, at which Neoptolemus the ſon of Achilles was ſlain by a prieſt, ſtood the iron chair of Pindar. In the ſanctuary was an image of Apollo gilded. The incloſure was of great extent, and filled with treaſuries, in which many cities had conſecrated tenths of ſpoil taken in war, and with the public donations of renowned ſtates in various ages. It was the grand repoſitory of ancient Greece, in which the labours of the ſculptor and ſtatuary, gods, heroes, and illuſtrious perſons, were ſeen collected and arranged; the inequalities of the area or acclivity contributing to a full diſplay of the noble aſſemblage.

The oracles were delivered by a prieſteſs called Pythia, who received the prophetic influence in the following manner. A lofty tripod, decked with laurel, was placed over the aperture, whence the ſacred vapour iſſued. The prieſteſs, after waſhing her body, and eſpecially her hair, in the cold water of Caſtalia, mounted on it, to receive the divine effluvia. She wore a crown of laurel, and ſhook a ſacred tree, which grew by. Sometimes ſhe chewed the leaves; and the frenzy which followed may with probability be attributed to this uſage, and the gentler or more violent ſymptoms to the quantity taken. In one inſtance the paroxyſm was ſo terrible, that the prieſts and ſuppliants ran away, and left her alone to expire, it was believed of the god. Her part was unpleaſant; but, if ſhe declined acting, they dragged her by force to the tripod. The habit of her order was that of virgins. The rules enjoined temperance and chaſtity, and prohibited luxury in apparel. The ſeaſon of enquiry was in the ſpring, during the month called Buſius; after which Apollo was ſuppoſed to viſit the altars of the Hyperboreans.

The city of Delphi aroſe in the form of a theatre, upon the winding declivity of Parnaſſus, whoſe fantaſtic tops overſhadowed it, like a canopy, on the north, while two immenſe rocks rendered it inacceſſible on the eaſt and weſt, and the rugged and ſhapeleſs mount Cirphis defended it on the ſouth. The foot of the laſt-named mountain was waſhed by the rapid Pliſtus, which diſcharged itſelf into the ſea at the diſtance of only a few leagues from the ſacred city. This inacceſſible and romantic ſituation, from which the place derived the name of Delphi (ſignifying, as explained in the gloſſaries, *ſolitary alone*), was rendered ſtill more ſtriking, by the innumerable echoes which multiplied every ſound, and increaſed the ignorant veneration of viſitants for the god of the oracle. The artful miniſters of Apollo gradually collected ſuch objects in the groves and temple as were fitted to aſtoniſh the ſenſes of the admiring multitude. The ſplendor of marble, the magic of painting, the invaluable ſtatues of gold and ſilver, repreſented (to uſe the language of antiquity) not the reſemblance of any earthly habitation, but rather expreſſed the image of Olympus, adorned and enlightened by the actual preſence of the gods.

The protection and ſuperintendence of this precious depoſitory of riches and ſuperſtition belonged to the Amphictyons, as already noticed. But the inhabitants of Delphi, who, if we may uſe the expreſſion, were the original proprietors of the oracle, always continued to direct the religious ceremonies, and to conduct the important buſineſs of prophecy. It was their province alone to determine at what time, and on what occaſion, the Pythia ſhould mount the ſacred tripod, to receive the prophetic ſteams by which ſhe communicated with Apollo. When overflowing with the heavely inſpiration, ſhe uttered the confuſed words, or rather fantic ſounds, irregularly ſuggeſted by the impulſe of the god; the Delphians collected theſe ſounds, reduced them into order, animated them with ſenſe, and adorned them with harmony. The Pythia, appointed and diſmiſed at pleaſure, was a mere inſtrument in the hands of thoſe artful miniſters, whoſe character became ſo venerable and ſacred, that they were finally regarded, not merely as attendants and worſhippers, but as the peculiar family of the god. Their number was conſiderable, and never exactly aſcertained, ſince all the principal inhabitants of Delphi, claiming an immediate relation to Apollo, were intitled to officiate in the rites of his ſanctuary; and even the inferior ranks belonging to that ſacred city were continually employed in dances, feſtivals, proceſſions, and in diſplaying all the gay pageantry of an airy and elegant ſuperſtition.

Delphi was conveniently ſituated for the conflux of votaries, lying in the centre of Greece, and, as was then imagined, of the univerſe. It was cuſtomary for thoſe who conſulted the oracle to make rich preſents to the god; his ſervants and prieſts feaſted on the numerous victims which were ſacrificed to him; and the rich magnificence of his temple had become proverbial even in the age of Homer. In aftertimes, Crœſus, the wealthieſt of monarchs, was particularly munificent in his donations. This ſacred repoſitory of opluence was therefore often the object of plunder. Neoptolemus was ſlain, while ſacrificing, on ſuſpicion of a deſign of that kind. Xerxes divided his army at Panopeus, and proceeded with the main body through Bœotia into Attica, while a party, keeping Parnaſſus on the right, advanced along Schiſte to Delphi; but was taken with a panic when near Ilium, and fled. This monarch, it is related, was as well appriſed of the contents of the

Delphi, Delphinia.

temple and the ſumptuous offerings of Halyattes and Crœſus as of the effects which he had left behind in his own palace. The divine hoard was ſeized by the Phoceniians under Philomelus, and diſſipated in a long war with the Amphictyons. The Gauls experienced a reception like that of the Perſians, and manifeſted ſimilar diſmay and ſuperſtition. Sylla, wanting money to pay his army, ſent to borrow from the holy treaſury, and when his meſſenger would have frightened him, by reporting a prodigy, that the ſound of a harp had been heard from within the ſanctuary, replied, it was a ſign that the god was happy to oblige him.

The trade of Apollo, after it had flouriſhed for a long period, was affected by the mal-practices of ſome concerned in the partnerſhip, who were convicted of bribery and corruption, and ruined the character of their principal. The temple in the time of Strabo was reduced to extreme poverty ; but the offerings which remained were very numerous. Apollo was ſilent, except ſome efforts at intervals to regain his loſt credit. Nero attempted to drive him, as it were by violence, from the cavern ; killing men at the mouth and polluting it with blood ; but he lingered on, and would not entirely forſake it. Anſwers were reported as given by him afterwards, but not without ſuſpicion of forgery. An oracle of Apollo at another place informed the conſulters, that he ſhould no more recover utterance at Delphi, but enjoined the continuance of the accuſtomed offerings.

The city of Delphi was free under the Romans. In the time of Pauſanias, who has particularly deſcribed it, there ſtill remained an invaluable treaſure of the offerings within the court of the temple. The number, variety, and beauties of theſe were prodigious. The ſtore appeared inexhauſtible ; and the robbery of Nero, who removed five hundred brazen images, was rather regretted than perceived. The holy treaſuries, though empty, ſerved as memorials of the piety and glory of the cities which erected them. The Athenian portico preſerved the beaks of ſhips and the brazen ſhields : trophies won in the Peloponneſian war. And a multitude of curioſities remained untouched.

Conſtantine the Great, however, proved a more fatal enemy to Apollo and Delphi than either Sylla or Nero. He removed the ſacred tripods to adorn the Hippodrome of his new city ; where theſe, with the Apollo, the ſtatues of the Heliconian muſes, and the celebrated Pan dedicated by the Greek cities after the war with the Medes, were extant when Sozomen wrote his hiſtory. Afterwards Julian ſent Oribaſius to reſtore the temple ; but he was admoniſhed by an oracle to repreſent to the emperor the deplorable condition of the place. ‘ Tell him the well-built court is fallen to the ground. Phœbus has not a cottage, nor the prophetic laurel, nor the ſpeaking fountain (Caſſotis) ; and even the beautful water is extinct.’ See DELPHOS.

DELPHINIA, in antiquity, feaſts which the inhabitants of Egina celebrated in the honour of Apollo, ſurnamed *Delphinius*, ſo called, as it is pretended, becauſe he aſſumed the form of a dolphin to conduct Caſtalius and his colony from the iſle of Crete to the *Sinus Criſſæus Delphinium*, one of the courts of judicature of the Athenians ; ſo called from the proximity of the place, where they held their aſſemblies, to the temple of Apollo Delphinius

Delphinium, Dephinus.

DELPHINIUM, DOLPHIN-FLOWER, or LARKSPUR : A genus of the trigynia order, belonging to the polyandria claſs of plants ; and in the natural method ranking under the 26th order, *Multiſiliquæ*. There is no calyx ; the petals are five ; the nectarium bifid, and horned behind ; the ſiliquæ three or one. There are ſeven ſpecies ; four are cultivated in gardens. Two of theſe are annual, and two perennial. They are harbaceous plants of upright growth, riſing from 18 inches to four feet in height, garniſhed with finely divided leaves, and terminated by long ſpikes of pentapetalous flowers of blue, red, white, or violet colours.—One ſpecies, the conſolida, is found wild in ſeveral parts of Britain, and grows in corn-fields. According to Mr Withering, the expreſſed juice of the petals, with a little alum, makes a good blue ink. The ſeeds are acrid and poiſonous. When cultivated, the bloſſoms often become double. Sheep and goats eat this plant : horſes are not fond of it ; cows and ſwine refuſe it.—The firſt mentioned ſpecies makes a very fine appearance in gardens, and is eaſily propagated by ſeeds ; being ſo hardy, that it thrives in any ſoil or ſituation.

DELPHINUS, or DOLPHIN ; a genus of fiſhes belonging to the order of Cete. There are three ſpecies.

1. The delphinus, or dolphin. Hiſtorians and philoſophers ſeem to have contended who ſhould invent moſt fables concerning this fiſh. It was conſecrated to the gods, was celebrated in the earlieſt time for its fondneſs of the human race, was honoured with the title of the *ſacred fiſh*, and diſtinguiſhed by thoſe of *boy-loving* and *philanthropiſt*. It gave riſe to a long train of inventions, proofs of the credulity and ignorance of the times. Ariſtotle ſteers the cleareſt of all the ancients from theſe fables, and gives in general a faithful hiſtory of this animal ; but the elder Pliny, Ælian, and others, ſeem to preſerve no bounds in their belief of the tales related of this fiſh's attachment to mankind. Scarce an accident could happen at ſea, but the dolphin offered himſelf to convey to ſhore the unfortunate. Arion the muſician, when flung into the ocean by the pirates, is received and ſaved by this benevolent fiſh.

> *Inde (ſide majus) tergo Delphinea recurvo,*
> *Se memorant onere ſuppoſuiſſe novo.*
> *Ille ſedens citharamque tenens, pretiumque vehendi*
> *Cantat, et æquoreas carmine mulcet aquas.*
>
> Ovid. *Faſti*, lib. ii. 113.

> But (paſt belief) a dolphin's arched back
> Preſerved Arion from his deſtined wrack ;
> Secure he ſits, and with harmonious ſtrains
> Requites his bearer for his friendly pains.

We are at a loſs to account for the origin of thoſe fables, ſince it does not appear that the dolphin ſhows a greater attachment to mankind than the reſt of the cetaceous tribe. We know that at preſent the appearance of this fiſh, and the porpeſſe, are far from being eſteemed favourable omens by the ſeamen ; for their boundings, ſprings, and frolics, in the water, are held to be ſure ſigns of an approaching gale.

It is from their leaps out of that element, that they aſſume a temporary form that is not natural to them ; but which the old painters and ſculptors have almoſt always given them. A dolphin is ſcarce ever exhibited by the ancients in a ſtraight ſhape, but almoſt always

ways incurvated: ſuch are thoſe on the coin of Alexander the Great, which is preſerved by Belon, as well as on ſeveral other pieces of antiquity. The poets deſcribe them much in the ſame manner, and it is not improbable but that the one had borrowed from the other:

> *Tumidumque pando tranſilit dorſo mare*
> *Tyrrhenus omni piſcis exſultat freto,*
> *Agitatque gyros.* Senic. Trag. Agam. 450.
> Upon the ſwelling waves the dolphins ſhow
> Their bending backs; then ſwiftly darting, go,
> And in a thouſand wreaths their bodies throw.

* Plate CLV.

The natural ſhape of the dolphin * is almoſt ſtraight, the back being very ſlightly incurvated, and the body ſlender: the noſe is long, narrow, and pointed, not much unlike the beak of ſome birds, for which reaſon the French call it *l'oye de mer*. It has in all 40 teeth; 21 in the upper jaw and 19 in the lower; a little above an inch long, conic at their upper end, ſharp-pointed, bending a little in. They are placed at ſmall diſtances from each other; ſo that when the mouth is ſhut the teeth of both jaws lock into one another: the ſpout hole is placed in the middle of the head; the tail ſemilunar; the ſkin is ſmooth, the colour of the back and ſides duſky, the belly whitiſh: it ſwims with great ſwiftneſs; and its prey is fiſh. It was formerly reckoned a great delicacy: Dr Caius ſays, that one which was taken in his time was thought a preſent worthy the Duke of Norfolk, who diſtributed part of it among his friends. It was roaſted and dreſſed with porpeſſe ſauce, made of crumbs of fine wheat bread, mixed with vinegar and ſugar. This ſpecies of dolphin muſt not be confounded with that to which ſeamen give the name; the latter being quite another kind of fiſh, the *coryphæna hippuris* of Linnæus, and the *dorado* of the Portugueſe.

2. The phocæna, or porpeſſe. This ſpecies is found in vaſt multitudes in all parts of the Britiſh ſeas; but in greateſt numbers at the time when fiſh of paſſage appear, ſuch as mackerel, herrings, and ſalmon, which they purſue up the bays with the ſame eagerneſs as a dog does a hare. In ſome places they almoſt darken the ſea as they riſe above water to take breath: but porpeſſes not only ſeek for prey near the ſurface, but often deſcend to the bottom in ſearch of ſand-eels and ſea-worms, which they root out of the ſand with their noſes in the ſame manner as hogs do in the fields for their food. Their bodies are very thick towards the head, but grow ſlender towards the tail, forming the figure of a cone. The noſe projects a little, is much ſhorter than that of the dolphin, and is furniſhed with very ſtrong muſcles, which enables it the readier to turn up the ſand. In each jaw are 48 teeth, ſmall, ſharp-pointed, and a little moveable: like thoſe of the dolphin, they are ſo placed as that the teeth of one jaw locks into thoſe of the other when cloſed. The eyes are ſmall; the ſpout hole is on the top of the head; the tail ſemilunar. the colour of the porpeſſe is generally black, and the belly whitiſh; but they ſometimes vary. In the river St Laurence there is a white kind; and Dr Borlaſe, in his voyage to the Scilly iſles, obſerved a ſmall ſpecies of cetaceous fiſh, which he calls *thornbacks*, from their broad and ſharp fin on the back. Some of theſe were brown, ſome quite white, others ſpotted: but whether they were only a variety of this fiſh, or whether they were ſmall grampuſes, which are alſo ſpotted, we cannot determine. The porpeſſe is remarkable for the vaſt quantity of the fat or lard that ſurrounds the body, which yields a great quantity of excellent oil: from this lard, or from their rooting like ſwine, they are called in many places *ſea-hogs*; the Germans call them *meerſchwein*; the Swedes *marſuin*; and the Engliſh *porpeſſe*, from the Italian *porco peſce*.—This was once a royal diſh, even ſo late as the reign of Henry VIII. and from its magnitude muſt have held a very reſpectable ſtation at the table; for in a houſehold book of that prince, extracts of which are publiſhed in the third volume of the Archæologia, it is ordered, that if a porpeſſe ſhould be too big for a horſe-load, allowance ſhould be made to the purveyor. This fiſh continued in vogue even in the reign of Elizabeth: for Dr Caius, on mentioning a dolphin (that was taken at Shoreham, and brought to Thomas Duke of Norfolk, who divided and ſent it as a preſent to his friends) ſays, that it eat beſt with porpeſſe ſauce, which was made of vinegar, crums of fine bread, and ſugar.

3. The orca, or grampus, is found from the length of 15 feet to that of 25. It is remarkably thick in proportion to its length, one of 18 feet being in the thickeſt place 10 feet diameter. With reaſon then did Pliny call this, "an immenſe heap of fleſh armed with deadful teeth. It is extremely veracious; and will not even ſpare the porpoſſe, a congenerous fiſh. It is ſaid to be a great enemy to the whale, and that it will faſten on it like a dog on a bull, till the animal roars with pain. The noſe is flat, and turns up at the end. There are 30 teeth in each jaw: thoſe before are blunt, round, and ſlender; the fartheſt ſharp and thick: between each is a ſpace adapted to receive the teeth of the oppoſite jaw when the mouth is cloſed. The ſpout-hole is in the top of the neck. The colour of the back is black, but on each ſhoulder is a large white ſpot; the ſides marbled with black and white; the belly of a ſnowy whitneſs. Theſe fiſhes ſometimes appear on our coaſts; but are found in much greater numbers off the North Cape in Norway, whence they are called the *North-Capers*. Theſe and all other whales are obſerved to ſwim againſt the wind; and to be much diſturbed, and tumble about with unuſual violence, at the approach of a ſtorm.

4. The beluga, a ſpecies called by the Germans *wit-fiſch*, and by the Ruſſians *beluga*; both ſignifying "white fiſh:" but to this the laſt add *morſkaia*, or "of the ſea," by way of diſtinguiſhing it from a ſpecies of ſturgeon ſo named: the head is ſhort; noſe blunt: ſpiracle ſmall, of the form of a creſcent: eyes very minute: mouth ſmall: in each ſide of each jaw are nine teeth, ſhort, and rather blunt; thoſe of the upper jaw are bent and hollowed, fitted to receive the teeth of the lower jaw when the mouth is cloſed: pectoral fins nearly of an oval form: beneath the ſkin may be felt the bones of five fingers, which terminate at the edge of the fin in five very ſenſible projections. This brings it into the next of rank in the order of being, with the *Manati*. The tail is divided into two lobes, which lie horizontally, but do not fork, except a little at their baſe. The body is oblong, and rather ſlender, tapering from the back (which is a little elevated) to the tail. It is quite deſtitute of the dorſal fin. Its length is from 12 to 18 feet. It makes great uſe of

its tail in ſwimming ; for it bends that part under it, as a lobſter does its tail, and works it with ſuch force as to dart along with the rapidity of an arrow. It is common in all the Arctic ſeas ; and forms an article of commerce, being taken on account of its blubber. They are numerous in the Gulph of St Laurence, and go with the tide as high as Quebec. There are fiſheries for them and the common porpeſſe in that river. A conſiderable quantity of oil is extracted ; and of their ſkins is made a ſort of Morocco leather, thin, yet ſtrong enough to reſiſt a muſket-ball. They are frequent in the Dwina and the Oby ; and go in ſmall families from five to ten, and advance pretty far up the rivers in purſuit of fiſh. They are uſually caught in nets, but are ſometimes harpooned. They bring only one young at a time, which is duſky ; but grow white as they advance in age, the change firſt commencing on the belly. They are apt to follow boats, as if they were tamed ; and appear extremely beautiful, by reaſon of their reſplendent whiteneſs.

DELPHINUS, in aſtronomy, a conſtellation of the northern hemiſphere.

DELPHOS, a town, or rather village, of Turkey in Aſia, in the province of Libadia ; occupying part of the ſite of the ancient Delphi. See DELPHI.

A late traveller † informs us, that ſome veſtiges of temples are viſible ; and above them, in the mountain-ſide are ſepulchres, niches with horizontal cavities for the body, ſome covered with ſlabs. Farther on is a niche cut in the rock with a ſeat, intended, it ſeems, for the accommodation of travellers wearied with the rugged track and the long aſcent. The monaſtery is on the ſite of the Gymnaſium. Strong terrace walls and other traces of a large edifice remain. The village is at a diſtance. Caſtalia is on the right hand as you aſcend to it, the water coming from on high and croſſing the road ; a ſteep precipice, above which the mountain ſtill riſes immenſely, continuing on in that direction. The village conſiſts of a few poor cottages of Albanians covering the ſite of the temple and oracle. Beneath it to the ſouth is a church of St Elias, with areas, terrace walls, arches, and veſtiges of the buildings once within the court. The concavity of the rock in this part gave to the ſite the reſemblance of a theatre. Turning to the left hand, as it were toward the extremity of one of the wings, you come again to ſepulchres hewn in the rock, and to a ſemicircular receſs or niche with a ſeat as on the other ſide. Higher up than the village is the hollow of the Stadium, in which were ſome ſeats and ſcattered fragments.

Higher up, within the village, is a piece of ancient wall, concealed from view by a ſhed, which it ſupports. The ſtone is brown, rough, and ordinary, probably that of Parnaſſus. On the ſouth ſide are many inſcriptions, with wide gaps between the letters, which are negligently and faintly cut ; all nearly of the ſame tenor, and very difficult to copy. They regiſter the purchaſe of ſlaves who had entruſted the price of their freedom to the god ; containing the contract between Apollo and their owners, witneſſed by his prieſts and by ſome of the archons. This remnant ſeems to be part of the wall before Caſſotis ; as above it is ſtill a fountain, which ſupplies the village with excellent water, it is likely from the ancient ſource.

The water of Caſtalia in the neighbourhood, from which the Pythia, and the poets who verſified her anſwers, were believed to derive a large ſhare of their inſpiration, deſcends through a cleft of Parnaſſus ; the rock on each ſide high and ſteep, ending in two ſummits ; of which one was called *Hyampeia*, and had beneath it the ſacred portion of Autonous, a local hero as diſtinguiſhed as Phylacus. From this precipice the Delphians threw down the famous Æſop. By the ſtream, within the cleft, are ſeen ſmall broken ſtairs leading to a cavity in which is water, and once perhaps up to the top. Grooves have been cut, and the marks of tools are viſible on the rock ; but the current, inſtead of ſupplying a fountain, now paſſes over its native bed, and haſtens down a courſe deep-worn to join the Pleiſtus. Cloſe by, at the foot of the eaſtern precipice, is a baſin with ſteps on the margin, once, it is likely, the bath uſed by the Pythia. Above, in the ſide of the mountain, is a petty church dedicated to St John, within which are excavations reſembling niches, partly concealed from view by a tree.

DELTA, is a part of Lower Egypt, which takes up a conſiderable ſpace of ground between the branches of the Nile and the Mediterranean Sea : the ancients called it the *Iſle of Delta*, becauſe it is in the ſhape of a triangle, like the Greek letter of that name. It is about 130 miles along the coaſt from Damietta to Alexandria, and 70 on the ſides from the place where the Nile begins to divide itſelf. It is the moſt plentiful country in all Egypt, and it rains more there than in other parts, but the fertility is chiefly owing to the inundation of the river Nile. The principal towns on the coaſt are Damietta, Roſetta, and Alexandria ; but within land, Menouſia, and Maala or Elmala.

DELTOIDES, in anatomy. See ANATOMY, *Table of the Muſcles*.

DELUGE, an inundation or overflowing of the earth, either wholly or in part, by water.

We have ſeveral deluges recorded in hiſtory ; as that of Ogyges, which overflowed almoſt all Attica ; and that of Deucalion, which drowned all Theſſaly in Greece : but the moſt memorable was that ' called the *Univerſal Deluge* or *Noah's Flood*,' which overflowed and deſtroyed the whole earth ; and from which only Noah, and thoſe with him in the ark, eſcaped.

1
Era of the deluge,

This flood makes one of the moſt conſiderable epochas in chronology. Its hiſtory is given by Moſes, Gen. ch. vi. and vii. Its time is fixed, by the beſt chronologers, to the year from the creation 1656, anſwering to the year before Chriſt 2293. From this flood, the ſtate of the world is divided into *diluvian* and *antediluvian*. See ANTEDILUVIANS.

2
Objections to the fact.

Among the many teſtimonies of the truth of this part of the Moſaic hiſtory, we may account the general voice of mankind at all times, and in all parts of the world. The objections of the free-thinkers have indeed principally turned upon three points, viz. 1. The want of any direct hiſtory of that event by the profane writers of antiquity ; 2. the apparent impoſſibility of accounting for the quantity of water neceſſary to overflow the whole earth to ſuch a depth as it is ſaid to have been : and, 3. There appearing no neceſſity for an univerſal deluge, as the ſame end might have been accompliſhed by a partial one.

I. The former of theſe objections has given riſe to ſeveral very elaborate treatiſes, though all that has yet

† Chandler's Travels in Greece.

been done in this way has ſcarcely been able to ſilence the objectors. Mr Bryant, in his Syſtem of Mythology, has with great learning and conſiderable ſucceſs endeavoured to ſhow, that the deluge was one of the principal, if not the only foundation of the Gentile worſhip; that the firſt of all their deities was Noah; that all nations of the world look up to him as their founder; and that he, his ſons, and the firſt patriarchs, are alluded to in moſt if not all of the religious ceremonies not only of the ancient but of the modern heathens. In ſhort, according to this author, the deluge, ſo far from being forgot, or obſcurely mentioned by the heathen world, is in reality conſpicuous throughout every one of their acts of religious worſhip.

3
Bryant's account of the ancient heroes.

The Egyptian Oſiris, according to him, was the ſame with Ham the ſon of Noah, though the name was ſometimes beſtowed on Noah himſelf. That this is the caſe, is evident, he thinks, from its being ſaid that he was expoſed in an ark, and afterwards reſtored to day; that he planted the vine, taught mankind agriculture, and inculcated upon them the maxims of religion and juſtice. Something of the ſame kind is related of Perſeus. He is repreſented by ſome ancient hiſtorians as a great aſtronomer, and well verſed in other ſciences. After being conceived in a ſhower of gold, he was expoſed in an ark upon the waters, and is ſaid to have had a renewal of life.—The hiſtory of Myrina the amazon affords a kind of abridgement and mixture of the hiſtories of Oſiris and Perſeus. Similar to theſe is the hiſtory of Hercules himſelf. But our author obſerves, that under the titles of *Oſiris, Perſeus, Myrina*, &c. the ancients ſpoke of the exploits of a whole nation, who were no other than the Cuthites or Cuſhites, the deſcendants of Cuſh the ſon of Ham and father of Nimrod. Theſe people ſpread themſelves into the moſt remote corners of the globe; and hence the heroes whom they repreſented are always ſet forth as conquering the whole world.—According to Diodorus Siculus, the Egyptian Oſiris was the ſame with the Dionyſus of the Greeks. He is ſaid to have been twice born, and to have had two fathers and two mothers; to have been wonderfully preſerved in an ark; to have travelled all over the earth; taught the uſe of the vine, to build, plant, &c. The Indians claim him as a native of their country, though ſome allow that he came from the weſt. Of Cronus and Aſtarte, it is ſaid that they went over the whole earth, diſpoſing of the countries as they pleaſed, and doing good wherever they came. The ſame is related of Ouranus, Themis, Apollo, &c. though all their exploits are ſaid to have been the effects of conqueſt, and their benevolence enforced by the ſword. In a ſimilar manner he explains the hiſtories of other heroes of antiquity: and having thus, in the characters and hiſtory of the moſt celebrated perſonages, found traces of the hiſtory of Noah and his family, our author proceeds to inquire into the memorials of the deluge itſelf to be met with in the hiſtory or religious rites of the different nations of antiquity. "We may reaſonably ſuppoſe (ſays he), that the particulars of the extraordinary event would be gratefully commemorated by the patriarch himſelf, and tranſmitted to every branch of his family; that they were made the ſubject of domeſtic converſe, where the hiſtory was often renewed, and ever attended with a reverential awe and horror, eſpecially in thoſe who had been witneſſes to the calamity, and had experienced the hand of providence in their favour. In proceſs of time, when there was a falling off from the truth, we might farther expect, that a perſon of ſo high a character as Noah, ſo particularly diſtinguiſhed by the Deity, could not fail of being reverenced by his poſterity; and, when idolatry prevailed, that he would be one of the firſt among the ſons of men to whom divine honours would be paid. Laſtly, we might conclude, that theſe memorials would be interwoven in the mythology of the Gentile world; and that there would be continual alluſions to theſe ancient occurrences in the rites and myſteries as they were practiſed by the nations of the earth. In conformity to theſe ſuppoſitions, I ſhall endeavour to ſhow that theſe things did happen; that the hiſtory of the deluge was religiouſly preſerved in the firſt ages; that every circumſtance of it is to be met with among the hiſtorians and mythologiſts of different countries; and traces of it are to be found particularly in the ſacred rites of Egypt and of Greece.

4
Teſtimonies of the deluge to be met with in heathen authors.

5
Various titles by which Noah was diſtinguiſhed.

"It will appear from many circumſtances in the more ancient writers, that the great patriarch was highly reverenced by his poſterity. They looked up to him as a perſon highly favoured by heaven; and honoured him with many titles, each of which had a reference to ſome particular part of his hiſtory. They ſtyled him *Prometheus, Deucalion, Atlas, Theuth, Zuth, Xuthus, Inachus, Oſiris*. When there began to be a tendency towards idolatry, and the adoration of the ſun was introduced by the poſterity of Ham, the title of *Helius*, among others, was conferred upon him. They called him alſo Μην and Μαν, which is the moon. When colonies went abroad, many took to themſelves the title of *Minyadæ* and *Minyæ* from him; juſt as others were denominated *Achæmenidæ, Auritæ, Heliadæ*, from the ſun. People of the former name are to be found in Arabia and in other parts of the world. The natives at Orchomenos were ſtyled *Minyæ*, as were ſome of the inhabitants of Theſſaly. Noah was the original Zeus and Dios. He was the planter of the vine, and inventor of fermented liquors: whence he was denominated *Zeuth*, which ſignifies ferment, rendered *Zeus* by the Greeks. He was alſo called *Dionuſos*, interpreted by the Latins *Bacchus*, but very improperly. Bacchus was Chus the grandſon of Noah; as Ammon may in general be eſteemed Ham, ſo much reverenced by the Egyptians.

"Among the people of the eaſt, the true name of the patriarch was preſerved, they called him *Noas, Naus*, and ſometimes contracted *Nous*; and many places of ſanctity, as well as rivers, were denominated from him. Anaxagoras of Clazomenæ had obtained ſome knowledge of him in Egypt. By him the patriarch was denominated *Noas* or *Nous*; and both he and his diſciples were ſenſible that this was a foreign appellation; notwithſtanding which he has acted as if it had been a term of the Greek language. Euſebius informs us, that the diſciples of Anaxagoras ſay, 'that Nous is by interpretation, the deity Dis or Dios; and they likewiſe eſteem Nous the ſame as Prometheus, becauſe he was the renewer of mankind, and was ſaid to have faſhioned them again,' after they had been in a manner extinct. After this, however, he gives a ſolution of the ſtory upon the ſuppoſition that Nous is the ſame with the Greek word νȣς the mind; that 'the mind was *Prometheia*; and Prometheus was ſaid to renew mankind, from new forming their minds, and leading them, by cultivation, from ignorance.'

" Suidas has preſerved, from ſome ancient author, a curious memorial of this wonderful perſonage, whom he affects to diſtinguiſh from Deucalion, and ſtyles *Nannacus*. According to him, this Nannacus was a perſon of great antiquity, and prior to the time of Deucalion. He is ſaid to have been a king, who, foreſeeing the approaching deluge, collected every body together, and led them to a temple where he offered up his prayers for them, accompanied with many tears. There is likewiſe a proverbial expreſſion about Nannacus applied to people of great antiquity.

" Stephanus gives great light to this hiſtory, and ſupplies many deficiencies. 'The tradition is (ſays he), that there was one formerly named *Annacus*, the extent of whoſe life was above 300 years. The people who were of his neighbourhood and acquaintance had inquired of an oracle how long he was to live: and there was an anſwer given, that when Annacus died, all mankind would be deſtroyed. The Phrygians, upon this account made great lamentations, from whence aroſe the proverb το επι Αννακȣ κλαυσειν, *the lamentation for Annacus*, made uſe of for people or circumſtances highly calamitous. When the flood of Deucalion came, all mankind were deſtroyed, according as the oracle had foretold. Afterwards, when the ſurface of the earth began to be again dry, Zeus ordered Prometheus and Minerva to make images of clay in the form of men; and, when they were finiſhed, he called the winds, and made them breathe into each, and render them vital.'

Inachus, Deucalion, and prometheus, the ſame with Noah.

From theſe hiſtories Mr Bryant concludes as follows: " However the ſtory may have been varied, the principal outlines plainly point out the perſon who is alluded to in theſe hiſtories. It is, I think, manifeſt, that Annacus, and Nannacus, and even Inacus, relate to Noacus or Noah. And not only theſe, but the hiſtories of Deucalion and Prometheus have a like reference to the patriarch; in the 600th year, and not the 300th, of whoſe life the waters prevailed upon the earth. He was the father of mankind, who were renewed in him. Hence he is repreſented by another author, under the character of Prometheus, as a great artiſt, by whom men were formed anew, and were inſtructed in all that was good.

" Noah was the original Cronus and Zeus; though the latter is a title conferred ſometimes upon his ſon Ham. There is a very particular expreſſion recorded by Clemens of Alexandria, and attributed to Pythagoras, who is ſaid to have called the ſea the *tear of Cronus*; and there was a farther tradition concerning this perſon, that he drank, or ſwallowed, up all his children. The tears of Iſis are repreſented as very myſterious. They are ſaid to have flowed whenever the Nile began to riſe, and to flood the country. The overflowing of that river was the great ſource of affluence to the people, and they looked upon it as their chief bleſſing; yet it was ever attended with myſtical tears and lamentations. This was particularly obſerved at Coptos, where the principal deity was Iſis. An ancient writer imagines that the tears and lamentations of the people were to implore an inundation; and the tears of Iſis were ſuppoſed to make the river ſwell. But all this was certainly ſaid and done in memorial of a former flood, of which they made the overflowing of the Nile a type.

" As the patriarch was by ſome repreſented as a king called *Naachus* and *Nauchus*; ſo by others he was ſtyled *Inachus*, and ſuppoſed to have reigned at Argos. Hence Inachus was made a king of Greece; and Phoroneus and Apis brought in ſucceſſion after him. But Inachus was not a name of Grecian original: it is mentioned by Euſebius, in his account of the firſt ages, that there reigned in Egypt Telegonus, a prince of foreign extraction, who was the ſon of Ones the ſhepherd, and the ſeventh in deſcent from Inachus. And in the ſame author we read, that a colony went forth from that country into Syria, where they founded the ancient city of Antioch: and that they were conducted by Caſus and Belus, who were ſons of Inachus. By Inachus is certainly meant Noah: and the hiſtory relates to ſome of the more early deſcendants of the patriarch. His name has been rendered very unlike itſelf, by having been lengthened with terminations, and likewiſe faſhioned according to the idiom of different languages. But the circumſtances of the hiſtory are ſo preciſe and particular, that we cannot miſs of the truth.

" He ſeems in the eaſt to have been called *Noas*, *Noaſis*, *Nuſus*, and *Nus*; and by the Greeks his name was compounded *Dionuſus*. The Amonians, wherever they came, founded cities to his honour: hence places called *Nuſa* will often occur: and indeed a great many of them are mentioned by ancient authors. Theſe, though widely diſtant, being ſituated in countries far removed, yet retained the ſame original hiſtories; and were generally famous for the plantation of the vine. Miſled by this ſimilarity of traditions, people in after times imagined that Dionuſus muſt neceſſarily have been where his hiſtory occurred: and as it was the turn of the Greeks to place every thing to the account of conqueſt, they made him a great conqueror, who went over the face of the whole earth, and taught mankind the plantation of the vine. We are informed, that Dionuſus went with an army over the face of the whole earth, and taught mankind, as he paſſed along, the method of planting the vine, and how to preſs out the juice, and receive it in proper veſſels. Though the patriarch is repreſented under various titles, and even theſe not always uniformly appropriated; yet there will continually occur ſuch peculiar circumſtances of his hiſtory as will plainly point out the perſon referred to. The perſon preſerved is always mentioned as preſerved in an ark. He is deſcribed as being in a ſtate of darkneſs, which is repreſented allegorically as a ſtate of death. He then obtains a new life, which is called a ſecond birth; and is ſaid to have his youth renewed. He is, on this account, looked upon as the firſt-born of mankind; and both his antediluvian and poſtdiluvian ſtates are commemorated, and ſometimes the intermediate ſtate is alſo ſpoken of. Diodorus calls him *Deucalion*; but deſcribes the deluge as in a manner univerſal. ‘ In the deluge which happened in the time of Deucalion, almoſt all fleſh died.’ Apollodorus having mentioned Deucalion εν λαρνακι, *conſigned to the ark*, takes notice, upon his quitting it, of his offering up an immediate ſacrifice to the God who delivered him. As he was the father of all mankind, the ancients have made him a perſon of very extenſive rule; and ſuppoſed him to have been a king. Sometimes he is deſcribed as a monarch of the whole earth; at other times he is reduced to a petty king of Theſſaly. He is mentioned by Helladias in this latter capacity; who ſpeaks of the deluge of his time, and of his building altars to the gods. Apollonius Rhodius ſuppoſes him to have been a native of Greece, according to the common notion: but nothwithſtanding his prejudices, he gives ſo particular a character of him, that the true hiſtory cannot be miſtaken. He makes him indeed the ſon of Prometheus, the ſon of Japetus; but in theſe ancient mythological accounts all genealogy muſt be entirely diſregarded. Though this character be not preciſely true, yet we may learn that the perſon repreſented was the firſt of men, through whom religious rites were renewed, cities built, and civil polity eſtabliſhed in the world; none of which circumſtances are applicable to any king of Greece. We are aſſured by Philo, that Deucalion was Noah; and the Chaldeans likewiſe mentioned him by the name of Xiſuthrus, as we are informed by Cedrenus.

7
Deucalion proved not to have belonged to Theſſaly.

“ That Deucalion was unduly adjudged by the people of Theſſaly to their country ſolely, may be proved from his name occurring in different parts of the world, and always accompanied with ſome hiſtory of the deluge. The natives of Syria laid the ſame claim to him. He was ſuppoſed to have founded the temple at Hierapolis, where was a chaſm through which the waters after the deluge were ſaid to have retreated. He was likewiſe reported to have built the temple of Jupiter at Athens; where there was a cavity of the ſame nature, and a like tradition, that the waters of the flood paſſed off through this aperture. However groundleſs the notions may be of the waters having retreated through theſe paſſages, yet they ſhow what impreſſions of this event were retained by the Amonians, who introduced ſome hiſtory of it wherever they came. As different nations ſucceeded one another in theſe parts, and time produced a mixture of generations, they varied the hiſtory, and modelled it according to their notions and traditions, yet the ground-work was always true, and the event for a long time univerſally commemorated. Joſephus, who ſeems to have been a perſon of extenſive knowledge, and verſed in the hiſtories of nations, ſays, that this great occurrence was to be met with in the writings of all perſons who treated of the firſt ages. He mentions Beroſus of Chaldea, Heronymus of Egypt, who wrote concerning the antiquities of Phenicia; alſo Alnaſeas, Abydenus, Melon, and Nicolaus Damaſcenus, as writers by whom it was recorded; and adds, that it was taken notice of by many others.

8
Accounts of the flood among the eaſtern nations.

“ Among the eaſtern nations, the traces of this event are more vivid and determinate than thoſe of Greece, and more conformable to the accounts of Moſes. Euſebius has preſerved a moſt valuable extract to this purpoſe from Abydenus; which was taken from the archives of the Medes and Babylonians. This writer ſpeaks of Noah, whom he names Seiſithrus, as a king; and ſays, that the flood began upon the 15th day of the month Deſius: that during the prevalence of the waters, Seiſithrus ſent out birds, that he might judge if the flood had returned: but that the birds not finding any reſting place, returned to him again. This was repeated three times; when the birds were found to return with their feet ſtained with ſoil; by which he knew that the flood was abated. Upon this he quitted the ark, and was never more ſeen of men, being taken away by the gods from the earth. Abydenus concludes with a particular, in which the eaſtern writers are unanimous; that the place of deſcent from the ark was in Armenia, and ſpeaks of its remains being preſerved for a long time. Plutarch mentions the Noachic dove, and its being ſent out of the ark. But the moſt particular hiſtory of the deluge, and the neareſt of any to the account given by Moſes, is to be found in Lucian. He was a native of Samoſata, a city of Comagene, upon the Euphrates, a part of the world where memorials of the deluge were particularly preſerved, and where a reference to that hiſtory was continually kept up in the rites and worſhip of the country. His knowledge therefore was obtained from the Aſiatic nations among whom he was born, and not from his kinſmen the Helladians, who were far inferior in the knowledge of ancient times. He deſcribes Noah under the name of Deucalion; and ſays, ‘ that the preſent race of mankind are different from thoſe who firſt exiſted; for thoſe of the antediluvian world were all deſtroyed. The preſent world is peopled from the ſons of Deucalion; having increaſed to ſo great a number from one perſon. In reſpect to the former brood, they were men of violence, and lawleſs in their dealings. They regarded not oaths, nor obſerved the rights of hoſpitality, nor ſhowed mercy to thoſe who ſued for it. On this account they were doomed to deſtruction: and for this purpoſe there was a mighty eruption of waters from the earth, attended with heavy ſhowers from above; ſo that the rivers ſwelled, and the ſea overflowed, till the whole earth was covered with a flood, and all fleſh drowned. Deucalion alone was preſerved to repeople the world. This mercy was ſhown to him on account of his piety and juſtice. His preſervation was effected in this manner: He put all his family, both his ſons and their wives, into a vaſt ark which he had provided, and he went into it himſelf. At the ſame time animals of every ſpecies, boars, horſes, lions, ſerpents, whatever lived upon the face of the earth, followed him by pairs: all which he received into the ark, and experienced no evil from them; for there prevailed a wonderful harmony throughout, by the immediate influence of the Deity. Thus were they wafted with him as long as the flood endured.’ After this he proceeds to mention, that, upon the diſappearing of the waters, Deucalion went forth from the ark, and raiſed an altar to God; but he tranſpoſes the ſcene to Hierapolis in Syria, where the natives pretended, as has been already mentioned, to have very particular memorials of the deluge.

9
Remains of the ark ſaid to have been long viſible.

“ Moſt of the authors who have tranſmitted to us theſe accounts, at the ſame time inform us, that the remains of the ark were to be ſeen in their days on one of the mountains of Armenia. Abydenus particularly ſays, in confirmation of this opinion, that the people of the country uſed to get ſmall pieces of the wood, which they carried about by way of amulet. And Beroſus mentions, that they ſcraped off the aſphaltus with which it was covered, and uſed it as a charm. Some of the fathers ſeem to inſiſt on the certainty of the ark being ſtill remaining in their time. Theophilus ſays expreſsly, that the remains were to be ſeen upon the mountains of Aram, or Armenia. And Chryſoſtom appeals to it as to a thing well known. 'Do not (ſays he) thoſe mountains of Armenia bear witneſs to the truth? thoſe mountains where the ark firſt reſted? And are not the remains of it preſerved there even unto this day?'

10 Boats or ſhips carried in proceſſion by the Amonians and Egyptians.

"There was a cuſtom among the prieſts of Amon, of carrying a boat in proceſſion at particular ſeaſons, in which was an oracular ſhrine held in great veneration. They were ſaid to have been 80 in number, and to have carried the ſacred veſſel about juſt as they were directed by the impulſe of the Deity. This cuſtom was likewiſe in uſe among the Egyptians; and biſhop Pocock has preſerved three ſpecimens of ancient ſculpture, wherein this ceremony is diſplayed. They are of wonderful antiquity, and were found by him in Upper Egypt.

"Part of the ceremony in moſt of the ancient myſteries conſiſted in carrying about a ſhip or boat; which cuſtom, upon due examination, will be found to relate to nothing elſe but Noah and the deluge. The ſhip of Iſis is well known, and the feſtivity among the Egyptians whenever it was carried in public. The name of this, and of all the navicular ſhrines, was Baris; which is remarkable; for it was the very name of the mountain, according to Nicolaus Damaſcenus, on which the ark of Noah reſted, the ſame as Ararat in Armenia. He mentions, that there is a large mountain in Armenia, which ſtands above the country of the Minyæ, called *Baris;* to this it was ſaid that many people betook themſelves in the time of the deluge, and were ſaved; and there is a tradition of one perſon in particular floating in an ark, and arriving at the ſummit of the mountain. We may be aſſured then, that the ſhip of Iſis was a ſacred emblem; in honour of which there was among the Egyptians an annual feſtival. It was in after times admitted among the Romans, and ſet down in their kalender for the month of March. The former, in their deſcription of the primary deities, have continually ſome reference to a ſhip or float. Hence we frequently read of Θεοι ναυτιλλοντες (ſailing gods). They oftentimes, ſays Porphyry, deſcribe the ſun in the character of a man ſailing upon a float. And Plutarch obſerves to the ſame purpoſe, that they did not repreſent the ſun and the moon in chariots, *but wafted about upon floating machines.* In doing which they did not refer to the luminaries, but to a perſon repreſented under thoſe titles. The ſun, or Orus, is likewiſe deſcribed by Jamblichus as ſitting up on the lotus, and ſailing in a veſſel.

11 Wonderful ſhip of Seſoſtris explained.

"It is ſaid of Seſoſtris, that he conſtructed a ſhip which was 280 cubits in length. It was of cedar, plated without with gold, and inlaid with ſilver; and it was, when finiſhed, dedicated to Oſiris at Thebes. It is not credible that there ſhould have been a ſhip of this ſize, eſpecially in an inland diſtrict, the moſt remote of any in Egypt. It was certainly a temple and a ſhrine. The former was framed upon this large ſcale; and it was the latter on which the gold and ſilver were ſo laviſhly expended. There is a remarkable circumſtance relating to the Argonautic expedition: that the dragon ſlain by Jaſon was of the ſize of a trireme; by which muſt be meant, that it was of the ſhape of a ſhip in general, for there were no triremes at the time alluded to. And I have moreover ſhown, that all theſe dragons, as they have been repreſented by the poets, were in reality temples, *Dracontia;* where, among other rites, the worſhip of the ſerpent was inſtituted. There is therefore reaſon to think, that this temple, as well as that of Seſoſtris, was faſhioned, in reſpect to its ſuperficial contents, after the model of a ſhip; and as to the latter, it was probably intended, in its outlines, to be the exact repreſentation of the ark, in commemoration of which it was certainly built. It was a temple ſacred to Oſiris at Theba; or, to ſay the truth, it was itſelf called *Theba;* and both the city, ſaid to be one of the moſt ancient in Egypt, as well as the province, was undoubtedly denominated from it. Now *Theba* was the name of the ark. It is the very word made uſe of by the ſacred writer; ſo that we may, I think, be aſſured of the prototype after which this temple was faſhioned. It is ſaid indeed to have been only 280 cubits in length; whereas the ark of Noah was 300. But this is a variation of only one-fifteenth in the whole: and as the ancient cubit was not in all countries the ſame, we may ſuppoſe that this diſparity aroſe rather from the manner of meaſuring than from any real difference in the extent of the building. It was an idolatrous temple, ſaid to have been built by Seſoſtris in honour of Oſiris. I have been repeatedly obliged to take notice of the ignorance of the Greeks in reſpect to ancient titles, and have ſhown their miſapplication of terms in many inſtances; eſpecially in their ſuppoſing temples to have been erected by perſons to whom they were in reality ſacred. Seſoſtris was Oſiris; the ſame as Dionuſus, Menes, and Noah. He is called *Seiſithrus* by Abydenus; *Xixouthros* by Beroſus and Apollodorus; and is repreſented by them as a prince in whoſe time the deluge happened. He was called *Zuth*, *Xuth*, and *Zeus;* and had certainly divine honours paid him.

12 Other emblematical repreſentations explained.

"Pauſanias gives a remarkable account of a temple of Hercules at Eruthra in Ionia; which he mentions as of the higheſt antiquity, and very like thoſe of Egypt. The deity was repreſented upon a float, and was ſuppoſed to have come thither in this manner from Phenicia. Ariſtides mentions, that at Smyrna, upon the feaſt called *Dionyſia*, a ſhip uſed to be carried in proceſſion. The ſame cuſtom prevailed among the Athenians at the Panathenæa; when what was termed the ſacred ſhip was borne with great reverence through the city to the temple of Dameter at Eleuſis. At Phalerus, near Athens, there were honours paid to an unknown hero, who was repreſented in the ſtern of a ſhip. At Olympia, the moſt ſacred place in Greece, was a repreſentation of the like nature. It was a building like the fore-part of a ſhip, which ſtood facing the end of the Hippodromus, and towards the middle of it was an altar, upon which, at the renewal of each Olympiad, certain rites were performed.

"I think it is pretty plain that all theſe emblematical repreſentations, of which I have given ſo many inſtances, related to the hiſtory of the deluge, and the conſervation of one family in the ark. This hiſtory was pretty recent when theſe works were executed in Egypt, and when the rites were firſt eſtabliſhed; and there is reaſon to think, that in early times moſt ſhrines of the Mizraim were formed under the reſemblance of a ſhip, in the memory of this great event. Nay, farther, both ſhips and temples received their names from thence; being ſtyled by the Greeks, who borrowed largely from Egypt, Ναυς and Ναος, and mariners Ναυται, *Nautæ*, in reference to the patriarch who was variouſly ſtyled *Noas*, *Nous*, and *Noah*.

"However the Greeks may, in their myſteries, have ſometimes introduced a ſhip as a ſymbol, yet in their references to the deluge itſelf, and to the perſons preſerved, they always ſpeak of an ark. And though they were apt to mention the ſame perſon under various titles, and by theſe means different people ſeem to be made principals in the ſame hiſtory; yet they were ſo far uniform in their account of this particular event, that they made each of them to be expoſed in an ark. Thus it is ſaid of Deucalion, Perſeus, and Dionuſus, that they were expoſed upon the waters in a machine of this fabric. Adonis was hid in an ark by Venus, and was ſuppoſed to have been in a ſtate of death for a year. Theocritus introduces a paſtoral perſonage named *Comates*, who was expoſed in an ark for the ſame term, and wonderfully preſerved. Of Oſiris being expoſed in an ark we have a very remarkable account in Plutarch; who mentions, that it was on account of *Typhon*, and that it happened on the 17th of the month Athyr, when the ſun was in Scorpio. This, in my judgment, was the preciſe time when Noah entered the ark, and when the flood came, which, in the Egyptian mythology, was called *Typhon*.

13
Explanation of the word Typhon.

"Typhon is one of thoſe whoſe character has been greatly confounded. This has ariſen from two different perſonages being included under one name, who undoubtedly were diſtinguiſhed in the language of Egypt. Typhon was a compound of *Tuph* or *Tupha-On*; and ſignified an high altar of the Deity. There were ſeveral ſuch in Egypt, upon which they offered human ſacrifices; and the cities which had theſe altars were ſtyled *Typhonian*. But there was another Typhon, who was very different from the former, however by miſtake blended with that character. By this was ſignified a mighty whirlwind and inundation: and it oftentimes denoted the ocean; and particularly the ocean in a ferment. For, as Plutarch obſerves, by Typhon was underſtood any thing violent and unruly. It was a derivative from *Tuph*, like the former name; which Tuph ſeems here to have been the ſame as the Suph of the Hebrews. By this they denoted a whirlwind; but among the Egyptians it was taken in a greater latitude, and ſignified any thing boiſterous, particularly the ſea. Plutarch ſpeaks of it as denoting the ſea; and ſays likewiſe, that the ſalt of the ſea was called the foam of Typhon. It ſignified alſo a whirlwind, as we learn from Euripides, who expreſſes it Tuphos; and the like is to be found in Heſychius, who calls it a violent wind.

"The hiſtory of Typhon was taken from hieroglyphical deſcriptions. In theſe the dove, *oinas*, was repreſented as hovering over the *mundane* egg, which was expoſed to the fury of Typhon: For an egg, containing in it the elements of life, was thought no improper emblem of the ark, in which were preſerved the rudiments of the future world. Hence in the Dionuſiaca, and in other myſteries one part of the nocturnal ceremony conſiſted in the conſecration of an egg. By this, as we are informed by Prophyry, was ſignified the world. This world was Noah and his family; even all mankind, incloſed and preſerved in the ark.

"In reſpect to Typhon, it muſt be confeſſed that the hiſtory given of him is attended with ſome obſcurity. The Grecians have comprehended ſeveral characters under one term, which the Egyptians undoubtedly diſtinguiſhed. The term was uſed for a title as well as a name; and ſeveral of thoſe perſonages which had a relation to the deluge were ſtyled Typhonian or Diluvian. All theſe the Grecians have included under one and the ſame name Typhon. The real deity by whom the deluge was brought upon the earth had the appellation of Typhonian, by which was meant *Diluvii Deus* (A). It is well known that the ark was conſtructed by a divine commiſſion; in which, when it was completed, God incloſed the patriarch and his family. Hence it is ſaid, that Typhon made an ark of curious workmanſhip, that he might diſpoſe of the body of Oſiris. Into this Oſiris entered; and was ſhut up by Typhon. All this relates to the Typhonian deity who incloſed Noah, together with his family, within the limits of an ark. The patriarch alſo, who was thus intereſted in the event, had the title of Typhonian. I have ſhown that the ark by the mythologiſts was ſpoken of as the mother of mankind. The ſtay in the ark was looked upon as a ſtate of death and of regeneration. The paſſage to life was through the door of the ark, which was formed in its ſide. Through this the patriarch made his deſcent; and at this point was the commencement of time. This hiſtory is obſcurely alluded to in the account of Typhon; of whom it is ſaid, that without any regard to time or place, he forced a paſſage and burſt into light obliquely through the ſide of his mother. This return to light was deſcribed as a revival from the grave; and Plutarch accordingly mentions the return of Oſiris from *Hades*, after he had been for a long ſeaſon incloſed in an ark and in a ſtate of death. This renewal of life was by the Egyptians eſteemed a ſecond ſtate of childhood. They accordingly, in their hieroglyphics, deſcribed him as a boy, whom they placed upon the lotos or water lily, and called him Orus. He was the ſuppoſed ſon of Iſis; but it has been ſhown that Iſis, Rhea, Atargatis, were all emblems of the ark, that *receptacle* which was ſtyled the mother of mankind. Orus is repreſented as undergoing from the Titans all that Oſiris ſuffered from Typhon; and the hiſtory at bottom is the ſame. Hence it is ſaid of

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(A) "Plutarch owns that the Egyptians in ſome inſtances eſteemed Typhon to be no other than Helius the chief deity; and they were in the right, though he will not allow it."

of Iſis, that ſhe had the power of making people immortal; and that when ſhe found her ſon Orus, in the midſt of the waters, dead through the malice of the Titans, ſhe not only gave him a renewal of life, but alſo conferred upon him immortality."

14 Account of the Apamean medal.

In this manner does our author decypher almoſt all the ancient fables of which no ſatisfactory ſolution was ever given before. He ſhows that the primitive gods of Egypt, who were in number eight, were no other than the eight perſons ſaved in the ark; that almoſt all the heathen deities had one way or other a reference to Noah. He ſhows that he was characteriſed under the titles of Janus, Nereus, Proteus, Oannes, Dagon, &c. &c. and in ſhort, that the deluge, ſo far from being unknown to the heathens, or forgot by them, was in a manner the baſis of the whole of their worſhip. He traces the hiſtory of the raven and dove ſent forth by Noah in the cuſtoms of various nations, not only in the eaſt but the weſt alſo. Of the numberleſs teſtimonies of the truth of this part of ſacred hiſtory to be met with among the weſtern nations, however, we ſhall ſelect one more, which is an ancient coin uſually known by the name of the *Apamean medal*. "The learned Falconerius (ſays Mr Bryant) has a curious diſſertation upon a coin of Philip the Elder, which was ſtruck at Apamea (B), and contained on its reverſe an epitome of this hiſtory. The reverſe of moſt Aſiatic coins relate to the religion and mythology of the places where they were ſtruck. On the reverſe of this coin is delineated a kind of ſquare machine floating upon water. Through an opening in it are ſeen two perſons, a man and a women, as low as the breaſt; and upon the head of the woman is a veil. Over this ark is a triangular kind of pediment, on which there ſits a dove; and below it another, which ſeems to flutter its wings, and hold in its mouth a ſmall branch of a tree. Before the machine is a man following a woman, who by their attitude ſeem to have juſt quitted it, and to have got upon dry land. Upon the ark itſelf, underneath the perſons there incloſed, is to be read in diſtinct characters, ΝΩΕ. The learned editor of this account ſays, that it had fallen to his lot to meet with three of theſe coins. They were of braſs, and of the medallion ſize. One of them he mentions to have ſeen in the collection of the Duke of Tuſcany; the ſecond in that of the Cardinal Ottoboni; and the third was the property of Auguſtino Chigi, nephew to Pope Alexander VII."

15 Accounts of the flood to be met with in China and Japan.

Not content with theſe teſtimonies, however, which are to be met with in the weſtern regions, or at leaſt in thoſe not very far to the eaſtward, our author ſhows that "the ſame mythology (of the Egyptians), and the ſame hieroglyphics, were carried as far as China and Japan; where they are to found at this day. The Indians have a perſon whom they call Buto or Budo. This is the ſame as Boutus of Egypt, Battus of Cyrene, and Bœotus of Greece. The account given of him is ſimilar to that of Typhon: for it is ſaid that he did not come to life in the uſual way, but made himſelf a paſſage through the ſide of his mother; which mother is repreſented as a virgin. This hiſtory, though now current among the Indians, is of great antiquity, as we may learn from the account given of this perſonage by Clemens Alexandrinus. 'There is a caſt of Indians (ſays he) who are diſciples of Boutas. This perſon, on account of his extraordinary ſanctity, they look up to as a god.' The name of Boutas, Battus, and Bœotus, though apparently conferred upon the patriarch, yet originally related to the machine in which he was preſerved. Of this ſome traces may be found among the Greeks. One of the Amonian names for the ark were Aren and Arene; and Bœotus is ſaid by Diodorus Siculus to have been the ſon of Neptune and Arne, which is a contraction of *arene* the ark. The chief city, Boutus in Egypt, where was the floating temple, ſignified properly the city of the float or ark. The Bœotians, who in the Dionuſiaca ſo particularly commemorated the ark, were ſuppoſed to be deſcended from an imaginary perſonage, *Bœotus*; and from him likewiſe their country was thought to have received its name. But Bœotian was merely a variation from Boutus, and Butus, the ark; which in ancient times was indifferently ſtyled Theba, Argus, Aren, Butus, and Bœotus. The term Cibotus is a compound of the ſame purport, and ſignifies both the temple of the ark and alſo a place for ſhipping.

16 Explanation of the body *Chaos*.

"All the myſteries of the Gentile world ſeem to have been memorials of the deluge, and of the event which immediately ſucceeded. They conſiſted for the moſt part of a melancholy proceſs; and were celebrated by night in commemoration of the ſtate of darkneſs in which the patriarch and his family had been involved. The firſt thing at thoſe awful meetings was to offer an oath of ſecrecy to all who were to be initated: after which they proceeded to the ceremonies. Theſe began with a deſcription of chaos: by which was ſignified ſome memorial of the deluge. Chaos was certainly the ſame as βυθος, the great abyſs. Who ſays Epiphanius, is ſo ignorant as not to know, that Chaos and Buthos, the abyſs, are of the ſame purport?

"The names of the deities in Japan and China, and the form of them, as well as the mythology with which they are attended, point out the country from whence they originally came. In China the deity upon the lotos in the midſt of waters has been long a favourite emblem, and was imported from the weſt. The inſigne of the dragon was from the ſame quarter. The Cuthites worſhipped Cham, the ſun; whoſe name they variouſly compounded. In China moſt things which have any reference to ſplendor and magnificence, ſeem to be denominated from the ſame object. Cham is ſaid, in the language of that country, to ſignify any thing *ſupreme*. Com is a fine building or palace, ſimilar to Coma of the Amonians, Cum is a lord or maſter; Cham a ſceptre. Laſtly, by Cham is ſignified a prieſt, analogous to the Chamanim and Chamenim of Cutha and Babylonia. The country itſelf is by the Tartars called *Ham*. The cities Cham-ju, Champion, Compition, Cumdan, Chamul, and many others of the ſame form, are manifeſtly compounded of the ſacred term Cham. Cambalu, the name of the ancient metropolis

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(B) Our author had before ſhown that the ancient name of Apamea was *Cibotus*, one of the names of the ark.

tropolus, is the city of Cham-bal; and Milton ſtyles it very properly *Cambalu, ſeat of Cathaian Chan.* By this is meant the chief city of the Cuthean monarch; for Chan is a derivative of Chaen, a prince. It ſeems ſometimes in China and Japan to have been expreſſed Quan and Quano.

" Two temples are taken notice by Hamilton, near Syrian in Pegu, which he repreſents as ſo like in ſtructure, that they ſeem to be built on the ſame model. One of theſe was called Kiakiack, or the *God of Gods temple.* The other is called *the temple of Dagun;* and the doors and windows of it are perpetually ſhut, ſo that none can enter but the prieſts. They will not tell of what ſhape the idol is, but only ſay that it is not of a human form. The former deity, Kiakiack, is repreſented as aſleep, of a human ſhape, and 60 feet long; and when he awakes, the world is to be deſtroyed. As ſoon as Kiakiack has diſſolved the frame and being of this world, Dagun will gather up the fragments, and make a new one. I make no doubt but the true name of the temple was *Iach-Iach,* and dedicated to the ſame god as the Jachuſi in Japan. Mr Wiſe takes notice of the Grecian exclamation to Dionuſus, when the terms *Iacche, O Iacche,* were repeated: and he ſuppoſes, with great probability, that the Peguan name had a reference to the ſame deity. It is certain, that the worſhip, of Dionuſus prevailed very early among the nations in the eaſt. The Indians uſed to maintain, that his rites firſt began among them. Profeſſor Bayer has ſhown, that traces of his worſhip are ſtill to be obſerved among the Tamuli of Tranquebar. ' They have a tradition (ſays he), that there was once a gigantic perſon named *Maidaſhuren,* who was born at Niſadabura near the mountain Meru. He had the horns of a bull, and drank wine and made war upon the gods. He was attended by eight *Pudam,* who were gigantic and miſchievous dæmons, of the family of thoſe Indian ſhepherds called *Kobaler.*' In this account we have a manifeſt reference to the hiſtory of Dionuſus, as well as that of the Dionuſians, by whom his rites were introduced. And we may preceive, that it bears a great reſemblance to the accounts tranſmitted by the Grecians. What are theſe Kobaler, who were deſcended from the ſhepherds, but the ſame as the Cobali of Greece, the uniform attendants upon Dionuſus? a ſet of prieſts whoſe cruelty and chicanery rendered them infamous. ' The Cobali (ſays an ancient author) were a ſet of cruel dæmons, who followed in the retinue of Dionuſus. It is a term made uſe of for knaves and cheats.'

" As the deity, in the ſecond temple of Syrian, to which ſtrangers were not admitted, was not of a human form, and was called *Dagun,* we may eaſily conceive the hidden character under which he was deſcribed. We may conclude, that it was no other than that mixed figure of a man and a fiſh, under which he was of old worſhipped both in Paleſtine and Syria. He is expreſſed under this ſymbolical repreſentation in many parts of India; and, by the Bramins is called *Wiſtnou* or *Viſhnou.* Dagon and Viſhnou have a like reference. They equally repreſent the man of the ſea, called by Beroſus *Oannes;* whoſe hiſtory has been reverſed by the Indians. They ſuppoſe that he will reſtore the world when it ſhall be deſtroyed by the chief God. But by Dagon is ſignified the very perſon thro' whom the earth has been already reſtored when it was in a ſtate of ruin; and by whom mankind was renewed. Dagon and Noah I have ſhown to be the ſame Viſhnou is repreſented, like Dagon, under the mixed figure of a man and a fiſh, or rather of a man, a princely figure, proceeding from a fiſh. The name of this diſtrict, near which the temples above ſtand, we find to be called *Syrian;* juſt as was named the region where ſtood the temples of Atargatus and Dagon. Syrus, Syria, and Syrian are all of the ſame purport, and ſignify Cœleſtis and Solaris, from *Sehor,* the ſun."

Our author next proceeds to deſcribe ſome of the Indian temples or pagodas; particulaly thoſe of ſalſette, Eliphanta, and another called *Elora* near Aurangeabad in the province of Balagate, which was viſited by Thevenot. That traveller relates, that " upon making diligent inquiry among the natives about the origin of theſe wonderful buildings, the conſtant tradition was, that all theſe pagodas, great and ſmall, with all their works and ornaments, were made by giants; but in what age they could not tell."

" Many of theſe ancient ſtructures (continues Mr Bryant) have been attributed to *Ramſcander,* or Alexander the Great; but there is nothing among theſe ſtately edifices that in the leaſt ſavours of Grecian workmanſhip; nor had that monarch, nor any of the princes after him, opportunity to perform works of this nature. We have not the leaſt reaſon to think that they ever poſſeſſed the country: for they were called off from their attention this way by feuds and engagements nearer home. There is no tradition of this country having been ever conquered except by the fabulous armies of Hercules and Dionuſus. What has led people to think that theſe works were the operation of Alexander, is the ſimilitude of the name *Ramtxander.* To this perſon they have ſometimes been attributed; but Ramtxander was a deity, the ſuppoſed ſon of Bal; and he is introduced among the perſonages who were concerned in the incarnations of Viſhnou.

" The temple of Elora, and all the pagodas of which I have made mention, muſt be of great antiquity, as the natives cannot reach their era. They were undoubtedly the work of the Indo-Cuthites, who came ſo early into theſe parts. And that theſe ſtructures, were formed by them, will appear from many circumſtances; but eſpecially from works of the ſame magnificence which were performed by them in other places. For ſcarce any people could have effected ſuch great works, but a branch of that family which erected the tower of Babylonia, the walls of Balbec, and the pyramids of Egypt."

Having then deſcribed a number of Eaſt Indian idols of ſurpriſing magnitude, " the Babylonians and Egyptians (ſays he), and all of the ſame great family, uſed to take a pleaſure in forming gigantic figures, and exhibiting other repreſentations equally ſtupendous. Such were the coloſſal ſtatues at Thebes, and the ſphinx in the plains of Coume. The ſtatue erected by Nebuchadnezzar in the plains of Dura, was in height threeſcore Babyloniſh cubits. It was probably raiſed in honour of *Cham,* the ſun; and perhaps it was alſo dedicated to the head of the Chaldaic family; who was deified, and reverenced under that title. Marcellinus takes notice of a ſtatue of Apollo named *Comeus;* which, in the time of the emperor Verus, was brought from Seleucia to Rome. This related to the ſame deity as the preceding. We may alſo infer, that the temple at Kamju was erected to Cham the ſun, whom the people worſhipped under the name of *Samoniſu*."

It is remarkable, that in Japan the prieſts and nobility have the title of Cami. The emperor Quebacondono, in a letter to the Portugueſe viceroy 1585, tells him, that Japan is the kingdom of Chamis; whom, ſays he, we hold to be the ſame as *Scin*, the origin of all things. By Scin is probably meant *San*, the ſun: who was the ſame as Cham, rendered here *Chamis*. The laws of the country are ſpoken of as the laws of Chamis; and we are told by the Kæmpfer, that all the gods were ſtyled either *Sin* or *Cami*. The founder of the empire is ſaid to have been *Tenſio Dai Sin*, or "Tenſio the god of light." Near his temple was a cavern religiouſly viſited, upon account of his having been once hid when no ſun nor ſtars appeared. He was eſteemed the fountain of day, and his temple was called *the temple of Naiku*. Near this cavern was another temple, in which the canuſi or prieſts ſhowed an image of the deity ſitting upon a cow. It was called *Dainits No Kay*, "the great repreſentation of the ſun." One of their principal gods is *Jakuſi*, ſimilar to the Iacchus of the Weſt. Kæmpfer ſays, that he is the Apollo of the Japaneſe, and they deſcribe him as the Egyptians did Orus. His temple ſtands in a town called *Minnoki*: and Jakuſi is here repreſented upon a gilt tarate flower; which is ſaid to be the *nymphæa paluſtris maxima*, or *faba Ægyptiaca* of Proſper Alpinus. One half of a large ſcallop ſhell is like a canopy placed over him; and his head is ſurrounded with a crown of rays. They have alſo an idol named *Menippe*, much reverenced in different parts. Both theſe, continues our author, relate to the ſame perſon, *viz.* Noah. Kæmpfer, an author of great credit, ſaw the temple of Dabys, which he truly renders *Daibod*, at Jedo in Japan. By *Dai-Bod* was meant the god Budha, whoſe religion was ſtyled the *Budſo*, and which prevailed greatly upon the Indus and Ganges. Kæmpfer, from whom Mr Bryant takes this account, ſays, that the people of Siam repreſent him under the form of a Moor, in a ſitting poſture, and of a prodigious ſize. His ſkin is black, and his hair curled (probably woolly), and the images about him are of the ſame complexion. "This god was ſuppoſed (ſays Mr Bryant) to have neither father nor mother. By *Budha* we are certainly to underſtand the idolatrous ſymbol called by ſome nations *Buddo*; the ſame as *Argus* and *Theba* (names for the ark). In the mythology concerning it, we may ſee a reference both to the machine itſelf and to the perſon preſerved in it. In conſequence of which we find this perſon alſo ſtyled *Bod*, *Budha*, and *Buddo*; and in the Weſt *Butus*, *Battus* and *Bæotus*. He was ſaid by the Indians not to have been born in the ordinary way, but to have come to light indirectly through the ſide of his mother. By Clemens of Alexandria he is called *Bouta*: and in the hiſtory of this perſon, however varied, we may perceive a relation to the arkite deity of the ſea, called *Poſeidon* or Neptune; alſo to Arculus and Dionuſus, ſtyled *Bæotus* and *Thebanus*. Kæmpfer has a curious hiſtory of a deity of this ſort called *Abutto*; whoſe temple ſtood in the province of Bungo, upon the ſea-ſhore, near the village of Toma. About a quarter of a German mile before you come to this village ſtands a famous temple of the god Abutto; which is ſaid to be very eminent for miraculouſly curing many inveterate diſtempers, as alſo for procuring a wind and good paſſage. For this reaſon, ſailors and paſſengers always tie ſome farthings to a piece of wood, and throw it into the ſea, as an offering to this Abutto, to obtain a favourable wind. The ſame deity, but under a different name, was worſhipped in China. The Apis, Mneuis, and Anubis of Egypt, have often been mentioned and explained as well as the Minotaur of Crete. The ſame hieroglyphics occur in Japan; and we are informed by Marco Polo, that the inhabitants worſhip idols of different ſhapes. Some have the head of an ox, ſome of a ſwine, and others the head of a dog. The moſt common repreſentation in this country is that of *Godſo Ten Oo*, or 'the ox-headed prince of heaven.'

"It has already been taken notice, that the ark was repreſented under the ſymbol of an egg, called the *mundane egg*; which was expoſed to the rage of Typhon. It was alſo deſcribed under the figure of a lunette, and called *Sælene*, the moon. The perſon by whom it was framed, and who through its means was providentially preſerved, occurs, under the character of a ſteer, and the machine itſelf under the ſemblance of a cow or a heifer. We have moreover been told, that it was called *Cibotus*, which Clemens of Alexandria calls *Thebocha*. Epiphanius mentions it by the name of *Idaal Baoth*; and ſays that, according to an eaſtern tradition, a perſon named *Nun* was preſerved in it. The horſe of Neptune was another emblem, as was alſo the hippopotamus or river-horſe. The people of Elis made uſe of the tortoiſe for the ſame purpoſe, and repreſented Venus as reſting upon its back. Some traces of theſe hieroglyphics are to be found in Japan, which were certainly carried thither by the Indic Ethiopians.

"From an account of a temple of *Daiboth* (probably the ſame with Daibod) at Meaco in Japan, we may perceive, that the people there ſpeak of the renewal of the world at the deluge as the real creation, which I have ſhown to be a common miſtake in the hiſtories of this event. And though the ſtory is told with ſome variation, yet in all the circumſtances of conſequence it accords very happily with the mythology of Egypt, Syria, and Greece. It matters not how the emblems have by length of time been miſinterpreted. We have the mundane egg upon the waters, and the concomitant ſymbol of the moon; and the egg at laſt opened by the aſſiſtance of the ſacred ſteer, upon which the world iſſues forth to this day." The author proceeds afterwards to mention the great veneration paid in theſe parts to the ox and cow; and ſays, that nobody dares injure them. One deity of the Japaneſe was Canon, the reputed lord of the ocean. He was repreſented in an erect poſture, crowned with a flower, and coming out of the mouth of a fiſh. He is repreſented in the ſame manner by the natives of India, and named *Viſhnou* and *Macauter*; and he is to be found in other parts of the Eaſt. Father Bouſhet mentions a tradition among the Indians concerning a flood in the days of Viſhnou which covered the whole earth. It is moreover reported of him, that ſeeing the prevalence of the waters, he made a float: and being turned into a fiſh, he ſteered it with his tail. This perſon, in the account of the Banians by Lord, is called *Menow*; which certainly ſhould be expreſſed *Men-Now*. It is ſaid, that in the Shaſter of this people, a like hiſtory is given of the earth being overwhelmed by a deluge, in which mankind periſhed; but the world was afterwards renewed in two perſons called *Menou* and *Ceteroupa*. Viſhnou is deſcribed under many characters, which he is ſaid at times to have aſſumed. One of theſe, according to the bramins of Tanjour, was that of Rama Sami. This undoubtedly is the ſame as Sama Rama of Babylonia, only reverſed; and it relates to that great phenomenon the Iris; which was generally accompanied with the dove, and held in veneration by the Semarim.

" As the hiſtory of China is ſuppoſed to extend upwards to an amazing height, it may be worth while to conſider the firſt eras in the Chineſe annals, as they are repreſented in the writings of Japan: for the Japaneſe have preſerved hiſtories of China; and by ſuch a collation, I believe no ſmall light may be obtained towards the diſcovery of ſome important truths. Hitherto it has not been obſerved that ſuch a collation could be made.

17 Japaneſe hiſtory of China.

" In the hiſtories of this country, the firſt monarch of China is named *Foki*; the ſame whom the Chineſe call *Fohi*, and place at the head of their liſt. This prince had, according to ſome, the body, according to others the head, of a ſerpent. If we may believe the Japaneſe hiſtorians, he began his reign above 21,000 years before Chriſt. The ſecond Chineſe emperor was Sin-Noo, by the people of China called *Sin Num*; and many begin the chronology of the country with him. He is ſuppoſed to have lived about 3000 years before Chriſt; conſequently there is an interval of near 18,000 years between the firſt emperor and the ſecond; a circumſtance not to be credited. The third, who immediately ſucceeded Sin-Noo, was Hoam-Ti. In this account we may, I think, perceive, that the Chineſe have acted like the people of Greece and other regions. The hiſtories which were imported they have prefixed to the annals of their nation; and adopted the firſt perſonages of antiquity, and made them monarchs in their own country. Whom can we ſuppoſe Fohi, with the head of a ſerpent, to have been, but the great founder of all kingdoms, the father of mankind? They have placed him at an immenſe diſtance, not knowing his true era. And I think we may be aſſured, that under the character of Sin Num and Sin-Noo we have the hiſtory of Noah; and Haam-Ti was no other than Ham. According to Kæmpfer, Sin-Noo was exactly the ſame character as Serapis of Egypt. 'He was an huſbandman, and taught mankind agriculture, and thoſe arts which relate to the immediate ſupport of life. He alſo diſcovered the virtues of many plants; and he was repreſented with the head of an ox, and ſometimes only with two horns. His picture is held in high eſtimation by the Chineſe.' Well indeed might Kæmpfer think, that in Sin-Noo he ſaw the character of Serapis; for this perſonage was no other than Sar-Apis, the great father of mankind, the ſame as Men-Neuas of Egypt, the ſame alſo as Dionuſus and Oſiris. By Du Halde he is called *Chin-Nong*, and made the next monarch after Fohi. The Chineſe accounts afford the ſame hiſtory as has been given above.

" As the family of Noah conſiſted of eight perſons incluſive, there have been writers who have placed ſome of them in ſucceſſion, and ſuppoſed that there were three or four perſons who reigned between Sin-Noo and Hoam. But Du Halde ſays, that in the true hiſtories of the country, the three firſt monarchs were Fohi, Chin-Nong, and Hoam, whom he ſtyles *Hoang-Ti*. To theſe, he ſays, the arts and ſciences owe their invention and progreſs. Thus we find, that thoſe who were heads of families have been raiſed to be princes; and their names have been prefixed to the liſts of kings, and their hiſtory ſuperadded to the annals of the country. It is further obſervable, in the accounts given of thoſe ſuppoſed kings, that their term of life, for the firſt five or ſix generations, correſponds with that of the patriarchs after the flood, and decreaſes much in the ſame proportion.

18 Hiſtory of Japan.

" The hiſtory of Japan is divided into three eras; which conſiſt of gods, demigods, and mortals. The perſon whom the natives look upon to be the real founder of their monarchy is named *Synmu*; in whoſe reign the Sintoo religion, the moſt ancient of the country, was introduced. It was called *Sin-sju* and *Chami-mitſa*; from Sin and Chami, the deities which were the objects of worſhip. At this time it is ſaid that 600 foreign idols were brought into Japan. To the Sintoo religion was afterwards added the Budſo, together with the worſhip of Armida. This deity they commonly repreſented with the head of a dog, and eſteemed him the guardian of mankind. This religion was more complicated than the former, and abounded with hieroglyphical repreſentations and myſterious rites. It is the ſame which I have termed the *Arkite Idolatry*, wherein the ſacred ſteer and cow were venerated. The deity was repreſented upon the lotus and upon a tortoiſe, and oftentimes as proceeding from a fiſh. In this alſo, under the character of Budha, we may trace innumerable memorials of the ark, and of the perſon preſerved in it. The author above, having mentioned the eleventh emperor incluſive from Syn Mu, tells us, that in his time theſe rites began. 'In his reign Budo, otherwiſe called KOBOTUS, came over from the Indies to Japan; and brought with him, upon a white horſe, his religion and doctrines.' We find here, that the object of worſhip is made the perſon who introduced it (a miſtake almoſt univerſally prevalent); otherwiſe in this ſhort account, what a curious hiſtory is unfolded!

" The only people to whom we can have recourſe for any written memorials concerning theſe things are the inhabitants of India Proper. They were, we find, the perſons who introduced theſe hieroglyphics both in China and Japan. It will therefore be worth while to conſider what they have tranſmitted concerning their religious opinions; as we may from hence obtain ſtill greater light towards explaining this ſymbolical worſhip. Every manifeſtation of God's goodneſs to the world was in the firſt ages expreſſed by an hieroglyphic; and the Deity was accordingly deſcribed under various forms, and in different attitudes. Theſe at length were miſtaken for real transfigurations; and Viſhnou was ſuppoſed to have appeared in different ſhapes, which were ſtyled *incarnations*.

tions. In one of theſe he is repreſented under the figure before mentioned, of a princely perſon coming out of a fiſh. In another he appears with the head of a boar, treading upon an evil demon, which ſeems to be the ſame as the Typhon of the Egyptians. On his head he ſupports a lunette, in which are ſeen cities, towers, in ſhort, all that the world contains. In Baldæus we have a delineation and hiſtory of this incarnation. Kircher varies a little in his repreſentation, yet gives him a ſimilar figure of the Deity, and ſtyles him *Viſhnou Barachater*. By this I ſhould think was ſignified Viſhnou, "the offſpring of the fiſh." The bramins ſay, that there was a time when the ſerpent with a thouſand heads withdrew itſelf, and would not ſupport the world, it was ſo overburdened with ſin. Upon this the earth ſunk in the great abyſs of waters, and mankind and all that breathed periſhed. But Viſhnou took upon himſelf the form above deſcribed, and diving to the bottom of the ſea, lifted up the earth out of the waters, and placed it, together with the ſerpent of a thouſand heads, upon the back of a tortoiſe.

19
Account of the coſmogony and deluge given by the Parſees.

"In the third volume of M. Perron's Zendaveſta, there is an account given of the coſmogony of the Parſees; alſo of the ſubſequent great events that enſued. The ſupreme Deity, called by him *Ormiſda*, is ſaid to have accompliſhed the creation at ſix different intervals. He firſt formed the heavens; at the ſecond the waters; at the third the earth. Next in order were produced the trees and vegetables: in the fifth place were formed birds and fiſhes, and the wild inhabitants of the woods; and in the ſixth and laſt place, he created man. The man thus produced is ſaid to have been an *ox-like* perſon, and is deſcribed as conſiſting of a purely divine and a mortal part. For ſome time after his creation he lived in great happineſs; but at laſt the world was corrupted by a dæmon named *Ahriman*. This dæmon had the boldneſs to viſit heaven; whence he came down to the earth in the form of a ſerpent, and introduced a ſet of wicked beings, called *karſeſters*. By him the firſt ox-like perſonage, called *Aboudad*, was ſo infected that he died; after which Kaiomorts, probably the divine part, of which the ox was the repreſentative, died alſo. Out of the left arm of the deceaſed proceeded a being called *Goſchoraun*, who is ſaid to have raiſed a cry louder than the ſhout of 1000 men. After ſome converſation between the ſupreme Deity and Goſchoraum, it was determined to put Ahriman to flight, and to deſtroy all thoſe wicked perſons he had introduced; for there now ſeemed to be an univerſal oppoſition to the Supreme Deity Ormiſda. At this ſeaſon a ſecond ox-like perſonage is introduced by the name of *Taſchter*. He is ſpoken of both as a ſtar and a ſun. At the ſame time he is mentioned as a perſon upon earth under three forms. By Taſchter is certainly ſignified *De Aſhter*; the ſame perſon whom the Greeks and Syrians repreſented as a female, and called *Aſtarte*. She was deſcribed horned, and ſometimes with the head of a bull; ſuppoſed to proceed from an egg; and they eſteemed her the ſame as Juno and the moon. At laſt it was thought proper to bring an univerſal inundation over the face of the earth; that all impurity might be waſhed away: which being accompliſhed by Taſchter, every living creature periſhed, and the earth was for ſome time entirely covered. At laſt, the waters retreating within their proper bounds, the mountain of Albordi in Ferakn-kand firſt appeared; which the author compares to a tree, and ſuppoſes that all other mountains proceeded from it. After this there was a renewal of the world; and the earth was reſtored to its priſtine ſtate. The particular place where Ormiſda planted the germina from whence all things were to ſpring, was Ferakh-kand; which ſeems to be the land of Arach: the country upon the Araxes in Armenia."

Thus we have given an ample ſpecimen of this very ingenious author's method of reaſoning, and diſcovering traces of the ſacred hiſtory even in things which have been thought leaſt to relate to it. That the Greeks and weſtern nations had ſome knowledge of the flood, has never been denied, and from what has been already related, it appears that the ſame has pervaded the remoteſt regions of the eaſt. The knowledge which theſe people have of the fall of man, and the evil conſequences which enſued, cannot, according to our author, be the conſequences of their intercourſe with Chriſtians; for their traditions afford neither any traces of Chriſtianity nor its founder. Whatever truths may be found in their writings, therefore, muſt be derived from a more ancient ſource. "There are (ſays he) in every climate ſome ſhattered fragments of original hiſtory; ſome traces of a primitive and univerſal language: and theſe may be obſerved in the names of deities, terms of worſhip, and titles of honour, which prevail among nations widely ſeparated, who for ages had no connection. The like may be found in the names of pagodas and temples; and of ſundry other objects which will preſent themſelves to the traveller. Even America would contribute to this purpoſe. The more rude the monuments, the more ancient they may poſſibly prove, and afford a greater light upon inquiry."

20
American accounts of the deluge.

The accounts hitherto met with in this continent, indeed, are far from being equally authentic and ſatisfactory with thoſe hitherto treated of. In Acaſta's hiſtory of the Indies, however, we are informed, that the Mexicans make particular mention of a deluge in their country, by which *all men* were drowned. According to them, one *Viracocha* came out of the great lake Titicaca in their country. This perſon ſtaid in Tiaguanaco, where at this day are to be ſeen the ruins of ſome ancient and very ſtrange buildings. From thence he came to Cuſco, where mankind began to multiply. They ſhow alſo a ſmall lake, where they ſay the ſun hid himſelf; for which reaſon they ſacrifice largely to him, both men and other animals.—Hennepin informs us, that ſome of the ſavages are of opinion, that a certain ſpirit, called *Otkon* by the Iroquois, and *Atahauta* by thoſe at the mouth of the river St Laurence, is the Creator of the world; that *Meſſou* repaired it after the deluge. They ſay, that this Meſſou or Otkon, being a hunting one day, his dogs loſt themſelves in a great lake, which thereupon overflowing, covered the whole earth in a ſhort time, and ſwallowed up the world. According to Herrera, the people of Cuba knew that the heavens and the earth had been created: and ſaid they had much information concerning the flood; and that the world had been deſtroyed by water, by three perſons, who came three ſeveral ways. Gabriel de Cabrera was told by a man of more than 70 years of age, that an old man, knowing the deluge was to come, built a great ſhip, and went into it with his family and abundance of animals; that he ſent out a crow, which did not at firſt return, ſtaying to feed on the carcaſes of dead animals, but afterwards came back with a green branch. He is ſaid to have added other particulars nearly conſonant to the Moſaic account, as far as Noah's ſons covering him when drunk, and the other ſcoffing at it. The Indians, he ſaid, deſcended from the latter, and therefore had no clothes; but the Spaniards deſcending from the former, had both clothes and horſes.—The ſame author likewiſe informs us, that it was reported by the inhabitants of Caſtilla del Oro in Terra Firma, that when the univerſal deluge happened, one man with his wife and children eſcaped in a canoe, and that from them the world was peopled. The Peruvians, according to our author, likewiſe affirmed, that they had received by tradition from their anceſtors, that, many years before there were any incas or kings, when the country was very populous, there happened a great flood: the ſea breaking out beyond its bounds, ſo that the land was covered with water, and all the people periſhed. To this it is added by the Guancas, inhabiting the vale of Xauſea, and the natives of Chiquito in the province of Callao, that ſome perſons remained in the hollows and caves of the higheſt mountains, who again peopled the land. Others affirm, that all periſhed in a deluge, only ſix perſons being ſaved in a float, from whom deſcended all the inhabitants of that country. In Nieuhoff's voyages to Braſil, we are informed, that the moſt barbarous of the Braſilians, inhabiting the inland countries, ſcarce knew any thing of religion or an Almighty Being: they have ſome knowledge remaining of a general deluge: it being their opinion that the whole race of mankind were extirpated by a general deluge, except one man and his ſiſter, who, being with child before, they by degrees repeopled the world. M. Thevet gives us the creed of the Braſilians in this matter more particularly. In the opinion of theſe ſavages, the deluge was univerſal. They ſay, that *Sommay*, a Caribbee of great dignity, had two children named *Tamendonare* and *Ariconte*. Being of contrary diſpoſitions, one delighting in peace and the other in war and rapine, they mortally hated each other. One day Ariconte, the warrior, brought an arm of an enemy he had encountered to his brother, reproaching him at the ſame time with cowardice. The other retorted by telling, that if he had been poſſeſſed of the valour he boaſted, he would have brought his enemy entire. Ariconte on this threw the arm againſt the door of his brother's houſe. At that inſtant the whole village was carried up into the ſky, and Tamendonare ſtriking the ground with violence, a vaſt ſtream of water iſſued out from it, and continued to flow in ſuch quantity, that in a ſhort time it ſeemed to riſe above the clouds, and the earth was entirely covered. The two brothers, ſeeing this, aſcended the higheſt mountains of the country, and with their wives got upon the trees that grew upon them. By this deluge all mankind, as well as all other animals, were drowned, except the two brothers abovementioned and their wives: who having deſcended when the flood abated, became heads of two different nations." &c.

21
Teſtimonies from Otaheite and the Eaſt Indies.

To theſe American teſtimonies we may add another from the remote and uncivilized iſland of Otaheite. Dr Watſon†, in his diſcourſe to the clergy, informs us, that one of the navigators to the ſouthern hemiſphere having aſked ſome of the inhabitants of that iſland concerning their origin, was anſwered, that their ſupreme God, a long time ago, being angry, dragged the earth through the ſea, and their iſland being broken off, was preſerved. In the Eaſt Indies alſo we are informed by Dr Watſon‡, that Sir William Jones, by whom a ſociety for the advancement of Aſiatic literature has been inſtituted at Calcutta, has diſcovered, that in the oldeſt mythological books of that country, there is ſuch an account of the deluge as correſponds ſufficiently with that of Moſes.

22
Hypotheſes concerning the means by which the deluge took place.

II. The fact being thus eſtabliſhed by the univerſal conſent of mankind, that there was a general deluge which overflowed the whole world; it remains next to inquire, by what means it may reaſonably be ſuppoſed to have been accompliſhed. The hypotheſes on this ſubject have been principally the following.

23
Suppoſed creation and annihilation of water.

1. It has been aſſerted, that a quantity of water was created on purpoſe, and at a proper time annihilated, by divine power. This, however, beſides its being abſolutely without evidence, is directly contrary to the words of the ſacred writer whom the aſſerters of this hypotheſis mean to defend. He expreſsly derives the waters of the flood from two ſources; firſt, the fountains of the great deep, which he tells us were all broken up; and ſecondly, the windows of heaven, which he ſays were opened: and ſpeaking of the decreaſe of the waters, he ſays, the fountains of the deep and the windows of heaven were ſtopped, and the waters returned continually from off the earth. Here it is obvious, that Moſes was ſo far from having any difficulty about the quantity of water, that he thought the ſources from whence it came were not exhauſted; ſince both of them required to be ſtopped by the ſame almighty hand who opened them, leſt the flood ſhould increaſe more than it actually did.

24
Theory of Dr Burnet.

2. Dr Burnet, in his *Telluris Theoria Sacra*, endeavours to ſhow, that all the waters in the ocean are not ſufficient to cover the earth to the depth aſſigned by Moſes. Suppoſing the ſea drained quite dry, and all the clouds of the atmoſphere diſſolved into rain, we ſhould ſtill, according to him, want much the greateſt part of the water of a deluge. To get clear of this difficulty, Dr Burnet and others have adopted Deſcartes's theory. That philoſopher will have the antediluvian world to have been perfectly round and equal, without mountains or valleys. He accounts for its formation on mechanical principals, by ſuppoſing it at firſt in the condition of a thick turbid fluid replete with divers heterogeneous matters; which, ſubſiding by ſlow degrees, formed themſelves into different concentric ſtrata, or beds, by the laws of gravity. Dr Burnet improves on this theory, by ſuppoſing the primitive earth to have been no more than a ſhell or cruſt inveſting the ſurface of the water contained in the ocean, and in the central abyſs which he and others ſuppoſe to exiſt in the bowels of the earth.* At the time of the flood, this outward cruſt, according to him, broke in a thouſand places; and conſequently ſunk down among the water which thus ſpouted up in vaſt cataracts, and overflowed the whole ſurface. He ſuppoſes alſo, that before the flood there was a

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† *Sermons and Tracts*, p 208.

‡ *Ibid.* p 221.

* See *Abyſs*.

perfect coincidence of the equator with the ecliptic, and conſequently that the antediluvian world enjoyed a perpetual ſpring; but that the violence of the ſhock by which the outer cruſt was broken, ſhifted alſo the poſition of the earth, and produced the preſent obliquity of the ecliptic. This theory, it will be obſerved, is equally arbitrary with the former. But it is, beſides, directly contrary to the words of Moſes, who aſſures us, that all the high hills were covered; while Dr Burnet affirms that there were then no hills in being.

25
Centre of gravity of the earth ſuppoſed to be ſhifted.

3. Other authors, ſuppoſing a ſufficient fund of water in the abyſs or ſea, are only concerned for an expedient to bring it forth: accordingly ſome have recourſe to a ſhifting of the earth's centre of gravity, which, drawing after it the water out of its channel, overwhelmed the ſeveral parts of the earth ſucceſſively.

26
Mr Whiſton's theory.

4. The inquiſitive Mr Whiſton, in his *New Theory of the Earth*, ſhows from ſeveral remarkable coincidences, that a comet deſcending in the plane of the ecliptic, towards its perihelion, paſſed juſt before the earth on the firſt day of the deluge; the conſequences whereof would be, firſt, that this comet, when it came below the moon, would raiſe a vaſt and ſtrong tide, both in the ſmall ſeas, which according to his hypotheſis were in the antediluvian earth (for he allows no great ocean there as in ours), and alſo in the abyſs which was under the upper cruſt of the earth. And this tide would riſe and increaſe all the time of the approach of the comet towards the earth; and would be at its greateſt height when the comet was at its leaſt diſtance from it. By the force of which tide, as alſo by the attraction of the comet, he judges, that the abyſs muſt put on an elliptical figure, whoſe ſurface being conſiderably larger than the former ſpherical one, the outward cruſt of the earth, incumbent on the abyſs, muſt accommodate itſelf to that figure, which it could not do while it held ſolid, and conjoined together. He concludes, therefore, that it muſt of neceſſity be extended, and at laſt broke by the violence of the ſaid tides and attraction; out of which the included water iſſuing, was a great means of the deluge: this anſwering to what Moſes ſpeaks of the "fountains of the great deep being broke open."—Again, the ſame comet, he ſhows, in its deſcent towards the ſun, paſſed ſo cloſe by the body of the earth, as to involve it in its atmoſphere and tail for a conſiderable time; and of conſequence left a vaſt quantity of its vapours, both expanded and condenſed, on its ſurface; a great part of which being rarefied by the ſolar heat, would be drawn up into the atmoſphere, and afterwards return in violent rains: and this he takes to be what Moſes intimates by "the windows of heaven being opened," and particularly by the "forty days rain." For as to the following rain, which with this made the whole time of raining 150 days, Mr Whiſton attributes it to the earth coming a ſecond time within the atmoſphere of the comet as the comet was on its return from the ſun. Laſtly, to remove this vaſt orb of waters again, he ſuppoſes a mighty wind to have ariſen, which dried up ſome, and forced the reſt into the abyſs through the clefts by which it came up; only a good quantity remained in the alveus of the great ocean, now firſt made, and in leſſer ſeas, lakes, &c. This theory was at firſt only propoſed as an hypotheſis; but, on further conſideration, Mr Whiſton thought he could actually prove that a comet did at that time paſs very near the earth, and that it was the ſame which afterwards appeared in 1680. After this, he looked upon his theory no longer as an hypotheſis, but publiſhed it in a particular tract, entitled, *The Cauſe of the Deluge demonſtrated*. But the uncertainty of the comet's return in 1758, and the abſolute failure to that which ought to have appeared in 1788 or 1789, muſt certainly render Mr Whiſton's calculations for ſuch a length of time extremely dubious; and the great ſimilarity between the tails of the comets and ſtreams of electric matter renders his ſuppoſition of their being aqueous vapours exceedingly improbable.

27
Theory of Mr de la Pryme.

5. According to Mr de la Pryme, the antediluvian world had an external ſea as well as land, with mountains, rivers, &c. and the deluge was effected by breaking the ſubterraneous caverns, and pillars thereof, with dreadful earthquakes, and cauſing the ſame to be for the moſt part, if not wholly, abſorbed and ſwallowed up, and covered by the ſeas that we now have. Laſtly, this earth of ours aroſe out of the bottom of the antediluvian ſea; and in its room, juſt as many iſlands are ſwallowed down, and others thruſt up in their ſtead. On this, as on all the other hypotheſes, it may be remarked, that it is quite arbitrary, and without the leaſt foundation from the words of Moſes. The ſacred hiſtorian ſpeaks not one word of earthquakes, nay, from the nature of the thing, we know it is impoſſible that the flood could have been occaſioned by an earthquake, and the ark preſerved, without a miracle. It is certain, that if a ſhip ſinks at ſea, the commotion excited in the water by the deſcent of ſuch a large body, will ſwallow up a ſmall boat that happens to come too near. If the pillars of the earth itſelf then, were broken, what muſt the commotion have been when the continents of Europe, Aſia, and Africa, deſcended into the abyſs at once? not to mention America, which lying at ſo great a diſtance from Noah, he might be ſuppoſed out of danger from that quarter. By what miracle was the little ark preſerved amidſt the tumult of thoſe impetuous waves which muſt have ruſhed in from all quarters? Beſides, as the ark was built not at ſea, but on dry ground; when the earth on which it reſted ſunk down, the ark muſt have ſunk along with it; and the waters falling in as it were overhead, muſt have daſhed in pieces the ſtrongeſt veſſel that can be imagined. Earthquakes, alſo, operate ſuddenly and violently; whereas, according to the Moſaic account, the flood came on gradually, and did not arrive at its height till ſix weeks, or perhaps five months, after it began.

28
Hutchinſonian theory.

6. Mr Hutchinſon and his followers preſent us with a theory of the deluge, which they pretended to derive from the word of God itſelf. This theory hath been particularly enlarged upon and illuſtrated by Mr Catcot, who in 1768 publiſhed a volume on the ſubject. This gentleman aſſerts, that when the world was firſt created, at the time when it is ſaid to have been "without form and void," the terreſtrial matter was then entirely diſſolved in the aqueous; ſo that the whole formed, as it were, a thick muddy water. The figure of this maſs was ſperical; and on the outſide of this ſphere lay the groſs dark air. Within the ſphere of earth and water was an immenſe cavity, called by Mo-

ſes the *deep;* and this internal cavity was filled with air of a kind ſimilar to that on the outſide. On the creation of light, the internal air received elaſticity ſufficient to burſt out through the external covering of earth and water. Upon this the water deſcended, filled up the void, and left the earth in a form ſimilar to what it hath at preſent. Thus, according to him, the antediluvian world, as well as the preſent, conſiſted of a vaſt collection or nucleus of water, called the *great deep,* or the *abyſs;* and over this the ſhell of earth perforated in many places; by which means the waters of the ocean communicated with the abyſs. The breaking up of theſe fountains was occaſioned by a miraculous preſſure of the atmoſphere, from the immediate action of the Deity himſelf. So violent was this preſſure, that the air deſcended to where it had been originally; occupied the ſpace of the abyſs; and drove out the waters over the whole face of the dry land. But this account, ſo far from being infallibly certain, ſeems inconſiſtent with the moſt common obſervations. No preſſure, however violent, will cauſe water riſe above its level, unleſs that preſſure is unequal. If, therefore, the atmoſphere entered into the ſuppoſed abyſs, by a vehement preſſure on the ſurface of the ocean, that preſſure muſt only have been on one place, or on a few places: and even though we ſuppoſe the atmoſphere to have been the agent made uſe of, it is impoſſible that it could have remained for any time in the abyſs without a continued miracle; as the preſſure of the water would immediately have forced it up again through thoſe holes which had afforded it a paſſage downwards.

The explication given from Hutchinſon by Mr Catcot, of the "windows of heaven," is ſomewhat extraordinary. According to him, theſe windows are not in heaven, but in the bowels of the earth; and mean no more than the cracks and fiſſures by which the *airs,* as he calls them, found a paſſage through the ſhell or covering of earth, which they utterly diſſolved and reduced to its original ſtate of fluidity. It is, however, difficult to conceive how the opening of ſuch windows as theſe could cauſe a violent rain for 40 days and nights.

It is not to be ſuppoſed, that we can pretend to aſcertain any thing on the ſubject more than others have done. The following conjectures, however, may be offered on the manner in which the deluge might have happened without any violence to the eſtabliſhed laws of nature.

29 Another theory.

1. If we conſider the quantity of water requiſite for the purpoſe of the deluge, it will not appear ſo very extraordinary as has been commonly repreſented. The height of the higheſt hills is thought not to be quite four miles. It will therefore be deemed a ſufficient allowance, when we ſuppoſe the waters of the deluge to have been four miles deep on the ſurface of the ground. Now it is certain, that water, or any other matter, when ſpread out at large upon the ground, ſeems to occupy an immenſe ſpace in compariſon of what it does when contained in a cubical veſſel, or when packed together in a cubical form. Suppoſe we wanted to overflow a room 16 feet every way, or containing 256 ſquare feet, with water, to the height of one foot, it may be nearly done by a cubical veſſel of ſix feet filled with water. A cube of eight feet will cover it two feet deep, and a cube of ten feet will very nearly cover it four feet deep. It makes not the leaſt difference whether we ſuppoſe feet or miles to be covered. A cube of ten miles of water would very nearly overflow 256 ſquare miles of plain ground to the height of four miles. But if we take into our account the vaſt number of eminences with which the ſurface of the earth abounds, the abovementioned quantity of water would do a great deal more. If, therefore, we attempt to calculate the quantity of water ſufficient to deluge the earth, we muſt make a very conſiderable allowance for the bulk of all the hills on its ſurface. To conſider this matter, however, in its utmoſt latitude: The ſurface of the earth is ſuppoſed, by the lateſt computations, to contain 199,512,595 ſquare miles. To overflow this ſurface to the height of four miles, is required a parallelopiped of water 16 miles deep, and containing 49,878,148 ſquare miles of ſurface. Now, conſidering the immenſe thickneſs of the globe of the earth, it can by no means be improbable, that this whole quantity of water may be contained in its bowels, without the neceſſity of any remarkable abyſs or huge collection of water, ſuch as moſt of our theoriſts ſuppoſe to exiſt in the centre. It is certain, that as far as the earth has been dug, it hath been found not dry, but moiſt; nor have we the leaſt reaſon to imagine, that it is not at leaſt equally moiſt all the way down to the centre. How moiſt it really is cannot be known, nor the quantity of water requiſite to impart to it the degree of moiſture it has; but we are ſure it muſt be immenſe. The earth is computed to be near 8000 miles in diameter. The ocean is of an unfathomable depth; but there is no reaſon for ſuppoſing it more than a few miles. To make all reaſonable allowances, however, we ſhall ſuppoſe the whole ſolid matter in the globe to be only equal to a cube of 5000 miles; and even on this ſuppoſition we ſhall find, that all the waters of the deluge would not be half ſufficient to moiſten it. The abovementioned parallelopiped of water would indeed contain 798,050,368 cubic miles of that fluid; but the cube of earth containing no leſs than an hundred and twenty-five thouſand millions of cubic miles, it is evident that the quantity aſſigned for the deluge would ſcarce be known to moiſten it. It could have indeed no more effect this way, than a ſingle pound of water could have upon 150 times its bulk of dry earth. We are perſuaded therefore, that any perſon who will try by experiment how much water a given quantity of earth contains, and from that experiment will make calculations with regard to the whole quantity of water contained in the bowels of the earth, muſt be abundantly ſatisfied, that though *all* the water of the deluge had been thence derived, the diminution of the general ſtore would, comparatively ſpeaking, have been next to nothing.

2. It was not from the bowels of the earth only that the waters were diſcharged, but alſo from the air; for we are aſſured by Moſes, that it rained 40 days and 40 nights. This ſource of the delavian waters hath been conſidered as of ſmall conſequence by almoſt every one who hath treated on the ſubject. The general opinion concerning this matter we ſhall tranſcribe from the Univerſal Hiſtory, Vol. I. where it is very fully expreſſed. "According to the obſervations made of the

quantity of water that falls in rain, the rains could not afford one ocean, nor half an ocean, and would be a very inconſiderable part of what was neceſſary for a deluge. If it rained 40 days and 40 nights throughout the whole earth at once, it might be ſufficient to lay all the lower grounds under water, but it would ſignify very little as to the overflowing of the mountains; ſo that it has been ſaid, that if the deluge had been made by rains only, there would have needed not 40 days, but 40 years, to have brought it to paſs. And if we ſuppoſe the whole atmoſphere condenſed into water, it would not all have been ſufficient for this effect; for it is certain that it could not have riſen above 32 feet, the height to which water can be raiſed by the preſſure of the atmoſphere: for the weight of the whole air, when condenſed into water, can be no more than equal to its weight in its natural ſtate, and muſt become no leſs than 800 times denſer; for that is the difference between the weight of the heavieſt air and that of water."

On this ſubject we muſt obſerve, that there is a very general miſtake with regard to the air, ſimilar to the abovementioned one regarding the earth. Becauſe the earth below our feet appears to our ſenſes firm and compact, therefore the vaſt quantity of water, contained even in the moſt ſolid parts of it, and which will readily appear on proper experiment, is overlooked, and treated as a non-entity. In like manner, becauſe the air does not always deluge with exceſſive rains, it is alſo imagined that it contains but very little water. Becauſe the preſſure of the air is able to raiſe only 32 feet of water on the ſurface of the earth, it is therefore ſuppoſed we may know to what depth the atmoſphere could deluge the earth if it was to let fall the *whole* water contained in it. But daily obſervations ſhow, that the preſſure of the atmoſphere hath not the leaſt connection with the quantity of water it contains. Nay, if there is any connection, the air ſeems to be lighteſt when it contains moſt water. In the courſe of a long ſummer's drought, for inſtance, the mercury in the barometer will ſtand at 30 inches, or little more. If it does ſo at the beginning of the drought, it ought to aſcend continually during the time the dry weather continues; becauſe the air is all the while abſorbing water in great quantity from the ſurface of the earth and ſea. This, however, is known to be contrary to fact. At ſuch times the mercury does not aſcend, but remains ſtationary; and what is ſtill more extraordinary, when the drought is about to have an end, the air, while it yet contains the whole quantity of water it abſorbed, and hath not diſcharged one ſingle drop, becomes ſuddenly lighter, and the mercury will perhaps ſink an inch before any rain falls. The moſt ſurpriſing phenomenon, however, is yet to come. After the atmoſphere has been diſcharging for a number of days ſucceſſively a quantity of matter 800 times heavier than itſelf, inſtead of being *lightened* by the diſcharge, it becomes *heavier*, nay *ſpecifically* heavier, than it was before. It is alſo certain, that very dry air, provided it is not at the ſame time very hot, is always heavieſt; and the drieſt air which we are acquainted with, namely Dr Prieſtley's *dephlogiſticated* air, is conſiderably heavier than the air we commonly breathe. For theſe reaſons we think the quantity of water contained in the whole atmoſphere ought to be conſidered as *indefinite*, eſpecially as we know that by whatever agent it is ſuſpended, that agent muſt counteract the force of gravity, otherwiſe the water would immediately deſcend; and while the force of gravity in any ſubſtance is counteracted, that ſubſtance cannot appear to us to gravitate at all.

3. The above conſiderations render it *probable* at leaſt, that there is in nature a quantity of water ſufficient to deluge the world, provided it was applied to the purpoſe. We muſt next conſider whether there is any natural agent powerful enough to effectuate this purpoſe. We ſhall take the phraſes uſed by Moſes in their moſt obvious ſenſe. The *breaking up of the fountains of the deep* we may reaſonably ſuppoſe to have been the opening of all the paſſages, whether ſmall or great, through which the ſubterraneous waters poſſibly could diſcharge themſelves on the ſurface of the earth. The *opening of the windows of heaven* we may alſo ſuppoſe to be the pouring out the water contained in the atmoſphere thro' thoſe inviſible paſſages by which it enters in ſuch a manner as totally to elude every one of our ſenſes, as when water is abſorbed by the air in evaporation. As both theſe are ſaid to have been opened at the ſame time, it ſeems from thence probable, that one natural agent was employed to do both. Now it is certain, that the induſtry of modern inquirers hath diſcovered an agent unknown to the former ages, and whoſe influence is ſo great, that with regard to this world it may be ſaid to have a kind of *omnipotence*. The agent we mean is electricity. It is certain, that by means of it, immenſe quantities of water can be raiſed to a great height in the air. This is proved by the phenomena of water-ſpouts. Mr Forſter relates, that he happened to ſee one break very near, him, and obſerved a flaſh of lightning proceed from it at the moment of its breaking. The concluſion from this is obvious. When the electric matter was diſcharged from the water, it could no longer be ſupported by the atmoſphere, but immediately fell down. Though water-ſpouts do not often appear in this country, yet every one muſt have made an obſervation ſomewhat ſimilar to Mr Forſter's. In a violent ſtorm of thunder and rain, after every flaſh of lightning or diſcharge of electricity from the clouds, the rain pours down with increaſed violence; thus ſhowing, that the cloud, having parted with ſo much of its electricity, cannot longer be ſupported in the form of vapour, but muſt deſcend in rain. It is not indeed yet diſcovered that electricity is the cauſe of the ſuſpenſion of water in the atmoſphere; but it is certain that evaporation is promoted by electrifying the fluid to be evaporated *. It may therefore be admitted as a *poſſibility*, that the electric fluid contained in the air is the agent by which it is enabled to ſuſpend the water which riſes in vapour. If therefore the air is deprived of the due proportion of this fluid, it is evident that rain muſt fall in prodigious quantities.

Again, we are aſſured from the moſt undeniable obſervations, that electricity is able to ſwell up water on the ſurface of the earth. This we can make it do even in our trifling experiments; and much more muſt the whole force of the fluid be ſuppoſed capable of doing it, if applied to the waters of the ocean, or any others. The agitation of the ſea in earthquakes is a ſufficient proof of this †. It is certain, that at theſe times there is a diſcharge of a vaſt quantity of electric matter from the earth into the air; and as ſoon as this happens, all becomes quiet on the ſurface of the earth.

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* See *Electricity* and *Evaporation*.

† See *Earthquake*.

From a multitude of obſervations it alſo appears, that there is at all times a paſſage of electric matter from the atmoſphere into the earth, and *vice verſa* from the earth into the atmoſphere. There is therefore no abſurdity in ſuppoſing the Deity to have influenced the action of the natural powers in ſuch a manner that for 40 days and nights the electric matter contained in the atmoſphere ſhould deſcend into the bowels of the earth;—if indeed there is occaſion for ſuppoſing any ſuch immediate influence at all, ſince it is not impoſſible that there might have been, from ſome natural cauſe, a deſcent of this matter from the atmoſphere for that time. But by whatever cauſe the deſcent was occaſioned, the conſequence would be, the *breaking up of the fountains of the deep*, and the *opening the windows of heaven*. The water contained in the atmoſphere being left without ſupport, would deſcend in impetuous rains; while the waters of the ocean, thoſe from which fountains originate, and thoſe contained in the ſolid earth itſelf, would riſe from the very centre, and meet the waters which deſcended from above. Thus the breaking up of the fountains of the deep, and the opening the windows of heaven, would accompany each other, as Moſes tells us they actually did; for, according to him, both happened on the ſame day.

In this manner the flood would come on quietly and gradually, without that violence to the globe which Burnet, Whiſton, and other theoriſts, are obliged to ſuppoſe. The abatement of the waters would enſue on the aſcent of the electric fluid to where it was before. The atmoſphere would then abſorb the water as formerly; that which had aſcended through the earth would again ſubſide; and thus every thing would return to its priſtine ſtate.

30 Voſſius's ſcheme of partial deluge.

III. Having thus ſhown in what manner it is poſſible that an univerſal deluge might take place by means of the natural agents known to us at preſent, we ſhall next conſider ſome more of the evidences that ſuch an event actually did happen, and that the deluge was univerſal. The proof here is ſo ſtrong from the traditions prevalent among almoſt every nation on the face of the earth, and which have been already ſo amply treated, that no farther objection could be made to the Moſaic account, were it not that the *neceſſity* of an univerſal deluge is denied by ſome, who contend that all the deluges mentioned in hiſtory or recorded by tradition were only partial, and may be accounted for from the ſwelling of rivers or other accidental cauſes. Many indeed, even of thoſe who profeſs to believe the Moſaic account, have thought that the deluge was not univerſal; or, though it might be univerſal with reſpect to mankind, that it was not ſo with regard to the earth itſelf. The learned Iſaac Voſſius was of this opinion, though his reaſons ſeem principally to have been that he could not conceive how an univerſal deluge could happen. "To effect this (ſays he) many miracles muſt have concurred; but God works no miracles in vain. What need was there to drown thoſe lands where no men lived, or are yet to be found? 'Tis a fooliſh thing to think that mankind had multiplied ſo much before the flood as to have overſpread all the earth. How ſlow and ſluggiſh the firſt men were in propagating their kind is evident from hence, that Noah was but the ninth in a lineal deſcent from Adam. They are quite wide of the truth, therefore, who think mankind to have ſpread over all the earth in the days of Noah, who perhaps at that time had not extended themſelves beyond the borders of Syria and Meſopotamia: but no reaſon obligeth us to extend the inundation of the deluge beyond thoſe bounds which were inhabited; yea, it is altogether abſurd to aver, that the effect of a puniſhment inflicted upon mankind only, ſhould extend to thoſe places where no men lived. Although we ſhould therefore believe that part of the earth only to have been overflowed by the waters which we have mentioned, and which is not the hundredth part of the terreſtrial globe, the deluge will nevertheleſs be *univerſal, œcumenical,* ſince the deſtruction was univerſal, and overwhelmed the whole habitable world."

31 Coetlogon's ſcheme.

Another ſcheme of a partial deluge is publiſhed by Mr Coetlogon in his Univerſal Hiſtory of Arts and Sciences, under the article *Antediluvians*. This appears to have been formed with a deſign to accommodate the belief of a deluge to the opinions of the free-thinkers who deny the truth of the Moſaic accounts, as he tells us that they are willing to allow it. According to this author, the firſt inhabitants of the earth being placed at the confluence of two great rivers, the Euphrates and Tigris, thoſe rivers may have overflowed their banks all of a ſudden, and ſurpriſed the neighbouring inhabitants not yet accuſtomed to ſuch ſorts of viſits, and drowned part of them (and if really deſigned as a puniſhment), ſuch as were more guilty. That ſome of the animals, particularly the more ſlothful, and conſequently not ſo apprehenſive of danger or ſo ready to take to flight to avoid it, might have been involved in the ſame calamity, as well as ſome of the *volatiles*, which being deprived of food by the earth's being covered with water, might have periſhed; particularly thoſe who, by the too great weakneſs of their wings to ſupport their bodies, were not proper for a long flight. As for others who had theſe advantages above the reſt, they would no doubt take care of their own preſervation by flying to thoſe parts of the earth which their natural inſtinct could ſhow them free from the inundation.

32 Biſhop Stillingfleet's ſcheme.

A third ſcheme of a partial deluge is given by the learned biſhop Stillingfleet in his *Origines Sacræ*. "I cannot (ſays he) ſee any urgent neceſſity from the ſcripture to aſſert, that the flood did ſpread itſelf all over the ſurface of the earth. That all mankind (thoſe in the ark excepted) were deſtroyed by it, is moſt certain according to the ſcriptures. When the Lord ſaid, that he would deſtroy man from the face of the earth, it could not be any particular deluge of ſo ſmall a country as Paleſtine, as ſome have ridiculouſly imagined; for we find an univerſal corruption in the earth mentioned as the cauſe; an univerſal threatening upon all men for this cauſe; and afterwards an univerſal deſtruction expreſſed as the effect of this flood. So then it is evident, that the flood was univerſal with regard to mankind; but from thence follows no neceſſity at all of aſſerting the univerſality of it as to the globe of the earth, unleſs it be ſufficiently proved that the whole earth was peopled before the flood, which I deſpair of ever ſeeing proved:

and what reaſon can there be to extend the flood beyond the occaſion of it, which was the corruption of mankind?—The only probability then of aſſerting the univerſality of the flood, as to the globe of the earth, is from the deſtruction of all living creatures, together with man. Now though men might not have ſpread themſelves over the whole ſurface of the earth, yet beaſts and creeping things might, which were all deſtroyed with the flood; for it is ſaid, 'that all fleſh died that moved upon the earth, both of fowl and of cattle, and of every creeping thing that creepeth upon the earth, and every man.' To what end ſhould there be not only a note of univerſality added, but ſuch a particular enumeration of the ſeveral kinds of beaſts, creeping things and fowls, if they were not all deſtroyed? To this I anſwer; I grant that, as far as the flood extended, all theſe were deſtroyed: but I ſee no reaſon to extend the deſtruction of theſe beyond that compaſs and ſpace of the earth where men inhabited, becauſe the puniſhment upon the beaſts was occaſioned by, and could not but be concomitant with, the deſtruction of man, but (the occaſion of the deluge being the ſin of man, who was puniſhed in the beaſts that were deſtroyed for his ſake, as well as in himſelf) where the occaſion was not, as where there were animals and no men, there ſeems no neceſſity of extending the flood thither.—But to what end, will it therefore be replied; did God command Noah, with ſo much care, to take all kinds of birds, beaſts, and creeping things, into the ark with him, if all thoſe living creatures were not deſtroyed by the flood? I anſwer, becauſe all thoſe things were deſtroyed wherever the flood was. Suppoſe then the whole continent of Aſia was peopled before the flood, which is as much as in reaſon we may ſuppoſe: I ſay, all the living creatures in that continent were deſtroyed; or if we may ſuppoſe it to have extended over our whole continent of the ancient known world, what reaſon would there be, that in the oppoſite part of the globe, which we ſuppoſe to be unpeopled then, all the living creatures ſhould there be deſtroyed, becauſe men had ſinned in this? and would there not have been on this ſuppoſition a ſufficient reaſon to preſerve living creatures in the ark for future propagation," &c.

33
A partial deluge proved to be impoſſible.

Thus we have the ſtrength of all the arguments that have been offered in ſupport of a partial deluge, and which may all be ſummed up in the three following articles, 1. The impoſſibility, in a natural way, of accounting for the quantity of water neceſſary to overflow the whole world; 2. The ſmall number of mankind ſuppoſed at that time to have exiſted on the earth; and, 3. The inutility of an univerſal deluge, when the divine purpoſes could have been equally well anſwered by a partial one. But to all this we may make one general anſwer, that a partial deluge is in the nature of things impoſſible. We cannot imagine that the waters could accumulate upon any country without going off to the ſea, while the latter retained its uſual level; neither can we ſuppoſe any part of the ſea to remain above the level of the reſt. On the ſuppoſition of biſhop Stillingfleet therefore, that the deluge extended over the whole continent of Aſia, we know that it muſt have covered the high mountains of Ararat, on which the ark reſted; Caucaſus, Taurus, &c. The height of Ararat is indetermined, as no traveller of any credit pretends to have aſcended to its top; but from the diſtance at which it is ſeen, we can ſcarce look upon it to be inferior to the moſt celebrated mountains of the old continent*. Sir John Chardin thinks that ſome part of Caucaſus is higher; and ſuppoſing each of theſe to be only a mile and an half in height, the ſea all round the globe muſt have been raiſed to the ſame height; and therefore all that could remain of dry ground as a ſhelter to animals of any kind, muſt have been the uninhabitable tops of ſome high mountains ſcattered at immenſe diſtances from one another. We may therefore with equal reaſon ſuppoſe, that theſe were in like manner covered, and that no living creature whatever could find ſhelter even for a moment: and it is certainly more agreeable to the character of the Deity to believe, that he would at once deſtroy animal life by ſuffocation in water, rather than allow numbers of them to collect themſelves on the tops of mountains to periſh with hunger and cold. It is beſides very improbable, that any creature, whether bird or beaſt, could ſuſtain a continued rain of 40 days and 40 nights, even without ſuppoſing them to have been abſolutely immerſed in water.

This conſideration alone is ſufficient to ſhow, that if there was a deluge at all, it muſt have been univerſal with regard to the world as well as the human race; and the poſſibility of ſuch a deluge by natural means has already been evinced. Under the article ANTEDILUVIANS it is ſhown, that, according to the moſt moderate computations, the world muſt have been vaſtly more full of people than at preſent. The leaſt calculation there made indeed ſeems incredible; ſince, according to it, the world muſt have contained upwards of 68,719 times as many inhabitants as are at preſent to be met with in the empire of China, the moſt populous country in the world: but China bears a much larger proportion to the habitable part of the world than this. The violences exerciſed by mankind upon one another, have always been the means of thinning their numbers, and preventing the earth from being overſtocked with inhabitants; and the ſtrong expreſſion in Scripture, that the "earth was filled with violence," ſhows that it muſt have gone to an extraordinary height. But though this violence muſt have undoubtedly thinned the old world of its inhabitants, it muſt likewiſe have diſperſed ſome of them into diſtant regions. There is therefore no reaſon for ſuppoſing, that before the flood the human race were not driven into the remoteſt regions of the habitable world, or that America was deſtitute of inhabitants then more than it is at preſent. At any rate, the ſchemes of Voſſius and Coetlogon, who would confine the whole race of mankind to a ſmall part of Aſia, muſt appear evidently futile and erroneous in the higheſt degree.

34
Objections from ſome ſpecies of animals being peculiar to certain countries.

Some objections have been made to the doctrine of an univerſal deluge from the ſtate of the continent of America, and the number of animals peculiar to that and other countries, which could not be ſuppoſed to travel to ſuch a diſtance either to or from the ark of Noah. On this ſubject Biſhop Stillingfleet obſerves, that the ſuppoſition of animals being propagated much farther in the world than mankind before the flood, ſeems very probable, "becauſe the production of animals is parallel in Geneſis with that of fiſhes, and both

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* See *Ararat*.

of them different from man. For God ſaith, Let the waters bring forth every moving creature that hath life, *viz.* fiſh and fowl: And accordingly it is ſaid, that the waters brought forth abundantly every living creature after their kind, and every fowl after his kind. Accordingly, in the production of beaſts, we read, 'Let the earth bring forth the living creature after his kind, cattle, and every creeping thing, and beaſt of the earth, after his kind: and it was ſo.' But in the production of man it is ſaid, 'Let us make man in our image, after our own likeneſs.' From hence I obſerve this difference between the formation of animals and of man, that in one God gave a prolific power to the earth and waters for the production of the ſeveral living creatures which came from them, ſo that the ſeminal principles of them were contained in the matter out of which they were produced; which was otherwiſe in man, who was made by a peculiar hand of the great Creator himſelf, who thence is ſaid to have formed man out of the duſt of the ground.

"If now this ſuppoſition be embraced, by it we preſently clear ourſelves of many difficulties concerning the propagation of animals in the world, and their conſervation in the ark; as how the unknown kind of ſerpents in Brazil, the ſlow-bellied creature in the Indies, and all thoſe ſtrange ſpecies of animals ſeen in the Weſt Indies, ſhould either come into the ark of Noah, or be conveyed out of it into thoſe countries which are divided by ſo vaſt an ocean on one ſide, and at leaſt ſo large a tract of land on the other. Beſides, ſome kind of animals cannot live out of the climate wherein they are; and there are many ſorts of animals diſcovered in America and the adjoining iſlands, which have left no remainders of themſelves in theſe parts of the world. And it ſeems very ſtrange that theſe ſhould propagate into thoſe parts of the world from the place of the flood, and leave none at all of their number behind them in theſe parts whence they were propagated."

35
Replies by Mr Cockburn.

To this Mr Cockburn, in his treatiſe on the deluge, replies, 1. That as it pleaſed God to create only one man and one woman at the beginning, and their poſterity were ſufficient to overſpread the earth, it might well be ſuppoſed to be furniſhed with animals from an original pair of each. 2. On the ſuppoſition of many pairs of brute animals having been created originally, they muſt when the human race were few in number, have multiplied to ſuch a degree as to render the world uninhabitable. In confirmation of this, he informs us from the accounts of the Indian miſſionaries, that in the kingdom of Champua in the Indies, the river called by the natives *Tinacoreu*, but by the Portugueſe *Varella*, goes up 80 leagues into the country to a mountain called *Moncalor*, above which it is much broader, but not ſo deep by far; there being banks of ſand in ſome places, and lands overflowed with water, where there are an infinite number of fowls that cover all the country; inſomuch, that by reaſon of them the whole kingdom of Chintalcuhos had for 40 years been deſolate, though it was eight days journey in length; which, at 30 miles a-day, made it 240 miles long. After paſſing this country, another was met with more wild, and full of great rocks; where there were a vaſt number of animals yet worſe than the fowls, as elephants, rhinoceroſes, lions, bears, buffaloes, and other beaſts in ſuch multitudes, that whatever men cultivated for the ſupport of life was ſpoiled or deſtroyed by them, nor was it poſſible for the inhabitants to prevent it.

36
Countries rendered uninhabitable by the abundance of brute creatures.

The Iſle of France may be ſaid to be the kingdom of rats. They come down from the mountains like an army, creep up the ſteepeſt rocks, march into the flat country, aſſemble in the marſhy grounds, and bring deſolation every where, eſpecially in the night. Men can ſcarce ſleep for them, and are obliged to roll themſelves in ſuch things as may beſt ſecure them from their bitings. It was the ſame in the Iſle of Bourbon, which was as much infeſted with them at firſt, till it became more fully peopled. "We have good reaſon therefore (ſays Mr Cockburn) to conclude, that there was but one pair of animals created at firſt, that they might not increaſe too faſt for mankind; and though they would multiply much more, and increaſe faſter than men could do, they had room to ſpread themſelves for a long time without much annoyance to man; and as men increaſed in number and extended their habitations, they would be able to drive them further off, or defend themſelves from their depredations." The ſame mode of reaſoning is by our author made uſe of with regard to aquatic animals. The multitude of theſe indeed, however great, could be no detriment to man who lived on land; but if we conſider how large and numerous a ſpawn fiſhes caſt at once, and in how ſhort a time they multiply to immenſe numbers, he thinks it reaſonable to conclude, that only one pair was created at once; and that the command to the waters to bring forth abundantly both fiſh and fowl, related only to the variety of ſpecies, not to a number of each.

37
Vaſt increaſe of the animal creation.

3. Though at the reſtoration of the world it was to be repeopled by ſix perſons inſtead of two, and though at the ſame time animal food was given to man, yet Noah was commanded only to take a ſingle pair of each of the animals, clean beaſts, which are but a few in number, only excepted. It is further obſervable, that notwithſtanding this ſcanty ſupply of animals, they had increaſed ſo much by the time of Nimrod, that it then became neceſſary to hunt and deſtroy them; and Nimrod was celebrated for his courage and ſkill in that neceſſary employment. "So numerous (adds he) were the animals before the flood, though but two of a kind were created, that Dr Woodward, from the remains of that earth, as well the animal as vegetable productions of it ſtill preſerved, concludes, that 'at the time the deluge came, the earth was ſo loaded with herbage, and ſo thronged with animals, that ſuch an expedient was even wanting to eaſe it of the burden, and to make room for a new ſucceſſion of its productions.'"

38
Of the peopling of America, and migration of animals to it.

4. Mr Cockburn is of opinion, that America muſt have been peopled before the flood, as the old continent could not be ſuppoſed able to hold the number of inhabitants.

5. With regard to the main difficulty, *viz.* how the animals peculiar to different countries could travel to ſuch diſtances to and from the ark, Mr Cockburn replies, that America, which Biſhop Stillingfleet chiefly inſiſts upon, has nothing peculiar to it, but what may equally well be urged both with reſpect to Aſia and Africa; each of them having animals peculiar to themſelves. It is alſo poſſible, that there might formerly be a more eaſy communication between the

Aſiatic and American continents than there is now. See the article America, nº 101—113.

Our author likewiſe obſerves, that though the ark reſted on mount Ararat, yet we are not told where it was built, which might be far enough from the place where it is commonly ſuppoſed; ſo that thoſe animals which are peculiar to America might not have ſo far to travel to the ark as is commonly imagined. This argument, however, ſeems to be very inconcluſive; for though we ſhould ſuppoſe the ark to have been conſtructed in America itſelf, the animals of Meſopotamia would have had as far to travel from thence to America, as the American animals from their own country to Meſopotamia, according to the common opinion. But in whatever part of the earth Noah lived and the ark was built, it was at God's command that the ſeveral kinds of animals came thither in order to their preſervation; and his command could bring them from the fartheſt parts of the earth during the 120 years that the world lay under condemnation. Though after all, none of the animals might have very far to travel to the ark; for if only one pair of each kind was created at firſt, and all of theſe in or near one place, ſince they were all brought before Adam, and received names from him, there is no abſurdity in ſuppoſing that ſome of every kind might remain in the country where they were firſt produced, from whence Noah's habitation might not be very diſtant. Neither can any objection be brought from the extinction of ſome ſpecies of animals in certain countries of the world, ſince they might have been hunted and deſtroyed either by the human race or by other creatures. Thus it is ſaid, that there are now few or no deer in Switzerland, though formerly there were a great many when it was full of woods. In Britain alſo there are no wolves now to be found, though the iſland was infeſted with them in former times.

39
Of the ſubſiſtence of carnivorous animals in the ark.

In conſidering the ſubject of the deluge, among other queſtions which occur, one is, by what means were the ravenous animals, which feed only upon fleſh, ſupported in the ark? For this ſome authors have ſuppoſed, that Noah, beſides thoſe animals whom he took into the ark for preſervation, took likewiſe a great number for ſlaughter. For this purpoſe biſhop Wilkins has allowed no fewer than 1825 ſheep, though he was of opinion, that there were no carnivorous animals before the flood; and this latter opinion is adopted by Mr Cockburn. The idea indeed of ſlaughtering a number of harmleſs animals to ſatiſfy a few vile rapacious ones, and that too in a place deſigned for the common aſylum of the animal creation, ſeems inconſiſtent with that ſcheme of mercy diſplayed in the whole tranſaction. It is by much the more probable ſuppoſition then, that though ſome animals had been accuſtomed to live on fleſh in their natural ſtate, they could nevertheleſs ſubſiſt upon vegetable food. This ſeems the more probable, as ſome animals naturally carnivorous, particularly dogs and cats, may be ſupported in their domeſtic ſtate by vegetable food alone. If we extend this to the whole canine and feline genera, we ſhall take in the moſt of the beaſts of prey; as lions, tygers, leopards, panthers, wolves, foxes, hyenas, &c. Bears are well known ſometimes to feed on berries; ſnakes will eat bread and milk; and there is no reaſon to ſuppoſe that even the moſt carnivorous birds could not be kept alive by grain or other vegetable food. By thus excluding ſuch a number of uſeleſs animals, a very conſiderable ſpace will be allowed for the circulation of air in the ark, the want of which ſeems to be the moſt inexplicable difficulty, if we may judge from the preſent conſtitution of things.

40
Want of a proper circulation of air the greateſt difficulty.

It ſeems indeed to be certain, that no equal number of animals could ſubſiſt for a twelvemonth in an equal ſpace ſo cloſely ſhut up as they were. The ark, it is true, contained near two millions of cubic feet; but conſidering the number of its inhabitants, the great ſpace neceſſary for the food with which they were to be ſupplied, and the continual pollution of the air by their dung and filth, as well as the effluvia from their bodies, there ſeems little probability that even ſuch a vaſt bulk of air could ſuffice for any length of time. This difficulty will appear the greater, when we conſider that any ventilation was impoſſible, as this could not have been done without opening both the door and window; and the former, we are certain, was not opened until the time that the command was given to come forth out of the ark. Neither is there the ſmalleſt probability, that the opening of a ſingle window could renew the air in ſuch a manner as to make it fit for breathing throughout the whole extent of the ark. In this particular therefore, we muſt have recourſe to the immediate interpoſition of Divine power, and ſuppoſe that the air was miraculouſly preſerved of a ſufficient degree of purity, as the garments of the Iſraelites were preſerved from turning old, and their feet from being affected by the journey through the deſert in which they wandered ſo long.—Many other queſtions concerning the economy of the ark might be propoſed; as, how they ſupplied themſelves with water? in what manner they could uſe fire for the dreſſing of their victuals? &c. But as every anſwer to theſe muſt be founded wholly upon conjecture, and none can pretend that there was a natural impoſſibility of effecting any of theſe things, we forbear to inſiſt farther upon them. The caſe, however, it is very different with reſpect to the air neceſſary for ſuſtaining animal life: for here their is a plain impoſſibility in a natural way; nay, we may even doubt whether the general maſs of atmoſphere, after being deprived of its electric matter, or otherwiſe altered in ſuch a manner as to let fall ſuch a quantity of the water it contained, was fit for the ſupport of animal life; ſo that a miracle would have been neceſſary at any rate. To this indeed it may be replied, that on ſuch a ſuppoſition, men and other animals would have been deſtroyed, not by the flood, but by the vitiated air they breathed. But, as has been already hinted, it is improbable that any living creature could reſiſt the violent rain which took place, and which would ſoon drive the birds from their ſhelter, as the waters beginning to overflow the ground would ſoon expel the human race from their houſes; and it would not be till the end of the 40 days and 40 nights that the air could be at its worſt ſtate, long before which time all animal life would be extinct.

41
Changes which have taken place in conſequence of the deluge.

We ſhall conclude this article with conſidering ſome of the alterations which are ſuppoſed to have taken place in the world in conſequence of the deluge. One of theſe is the much greater quantity of water on the preſent than on the old world. Dr Keil has indeed endeavoured to prove, that the preſent extent of the ſurface of the waters is neceſſary to raiſe ſuch a quantity of vapours as may ſupply the ſurface of the earth with rain and with ſprings. In anſwer to this, it is ſaid, that it may juſtly be queſtioned whether all ſprings are derived from the vapours raiſed by the ſun's heat? and, 2. Whether the primitive earth ſtood in need of ſuch a quantity of rain to render it fertile as the preſent? Dr Woodward gives the following reaſon for ſuppoſing the antediluvian ſeas to have been nearly of the ſame extent with thoſe at preſent, viz. that "the ſpoils of the ſea, the ſhells and other marine bodies, are left in ſuch prodigious numbers, and in heaps upon heaps in the earth, beſides thoſe which have long ſince periſhed, that they could not have been left in ſuch quantities had not the ſeas occupied much the ſame ſpace as they do now." This argument, however, is thought by Mr Cockburn to be alſo inconcluſive: "For (ſays he) 1. Animal food, whether fiſh or fleſh, was not uſed by mankind before the deluge: but, 2. Suppoſe it had, yet for the firſt 500 years the number of mankind was but ſmall, and likely at a great diſtance from the ſea; ſo that the increaſe of all kinds of fiſh during ſo long a time muſt have been prodigious. We need not be ſurpriſed, then, at the immenſe quantities of the exuviæ of marine animals left on the earth by the deluge. But the reaſon he brings to prove that the ſeveral continents of the world were encompaſſed by ſeas as they are now, viz. that as there are different ſorts of fiſhes in the different ſeas of the world, ſo the exuviæ of the ſame kind are generally found upon contiguous lands, does not always hold, ſince there are ſome ſhells found in the continent which are ſtrangers to the parts of the ſea conterminous to theſe continents. That the ſeas in the preſent earth are vaſtly more extended, and conſequently the dry land ſo much leſs in proportion, may likewiſe be inferred from the great multitude of iſlands that lie near the ſhores of the greater continents, if it be true what ſome allege, that they are parts broken off by the deluge from the main land, which before that reached to and beyond them. And though iſlands are thought to be rarely found in the great ocean, yet there have of late been found in the midſt of the Indian ocean vaſt cluſters of iſlands, &c.

To all this it may be replied, That the Moſaic account ſays nothing of the extent of the ſeas either before or after the flood; but ſimply tells us, that the waters were poured out upon the ſurface of the earth from the windows of heaven and the fountains of the deep, and that as the flood decreaſed the waters *returned* from off the face of the earth. If part of them returned, we have not the leaſt reaſon to ſuppoſe that the whole did not do ſo likewiſe. That the fiſh, as well as land animals, were more numerous in the antediluvian world than now when ſuch quantities are deſtroyed by mankind, is very probable, as we ſee they abound to this day in uninhabited places. This may account for the aſtoniſhing quantities of their exuviæ to be met with in many different parts of the earth; but from the formation of iſlands nothing can be concluded concerning the antediluvian world. The late diſcoveries have ſhown that many iſlands have a volcanic origin; others are formed by the growth of coral; ſome by an accumulation of ſea-weeds and other matters floating upon the ſurface of the ocean, and detained upon ſand banks or ſunk rocks; while not a few of thoſe near the great continents owe their origin to the quantities of mud brought down by the great rivers which empty themſelves into the ocean. Authentic hiſtory ſcarce affords an inſtance of an iſland formed by the breaking off a piece from the continent, though it does many of iſlands being joined to continents by ſome one or other of the cauſes juſt mentioned.

The inferior fertility of the earth after the deluge is much inſiſted upon by the ſame author, for the following reaſons: "1. The grant of animal food to Noah and his poſterity; which he thinks is an indication of greater barrenneſs in the ground than formerly. 2. Our Saviour compares the days of Noah with thoſe of Lot; and as the country about Sodom is ſaid to have been exceedingly fertile like *the garden of the Lord*, he is of opinion that the antediluvian world muſt have been very fertile alſo. 3. As (according to Dr Woodward) the firſt earth brought forth all manner of plants of itſelf without any labour or culture of man, and even before there was a man to till the ground, we may reaſonably ſuppoſe that the exterior ſtratum or ſurface of the earth conſiſted of ſuch terreſtrial matter as was fit for theſe productions; that is, of a rich light mould, affording plentifully matter for vegetation. Now, though God was pleaſed, upon man's tranſgreſſion, to withdraw in part his benediction from the earth; yet the earth itſelf was untouched till the deluge, the ſame ſurface of rich mould was ſtill upon it, and brought forth plentifully, eſpecially when man's culture for corn was added. But the inundation of waters at the deluge greatly altered the conſtitution of the earth itſelf: it mixed and confounded this upper ſtratum of vegetative earth with other terreſtrial matter not fit for vegetation, with ſand, gravel, ſtones, and all kinds of mineral matter, which muſt needs render the earth in general much leſs fertile than before, and which made the plough neceſſary to dig up the proper vegetative mould and bring it to the ſurface, and alſo manure or compoſt to increaſe and enrich; neither of which before the flood it needed. 4. There is a moral reaſon why the earth after the flood ſhould be leſs fertile than before. The luxuriant productions of the firſt earth, after man's nature became corrupted, and to deviate more and more from righteouſneſs, ſerved only to excite and foment his luſts, and to miniſter plentiful fuel to his vices and luxury. To cut off, therefore, ſuch occaſion of ſin and wickedneſs, God, in great mercy to men, retrenched the earth in its former fertility, thereby obliging them to labour and diligence, and employing moſt of their time to procure their neceſſary ſubſiſtence, which the earth by diligent culture will ſtill afford, but not that luxuriant abundance it did before the flood. If we take a ſurvey of the different regions and countries of the world, we ſhall find this to be the truth of the caſe. Some places, both in Aſia and America, are as it were a paradiſe in reſpect of the reſt, to ſhow us perhaps what was and would have been the ſtate of the earth had not men ſinned; but far the greateſt part is nothing to be compared to theſe, and evidently ſhows that effect which the ſins of men had upon the earth itſelf. In a word, if we take a ſurvey of the whole, it cannot be thought that the firſt bleſſing was reſtored to the earth after the flood, or that it came out of the hands of its maker in the ſtate it is at preſent, ſince ſo great a part of it bears ſtill the marks of the curſe laid upon it."

Notwithſtanding all that is here alleged, the extraordinary fertility of the ancient earth muſt ſtill appear very problematical, if we conſider all circumſtances. For,

1. Even at the creation, when the earth was at its utmoſt perfection, we cannot ſuppoſe that every part of it produced ſpontaneouſly like the garden of Eden. On the contrary, we are told that this garden was *planted* by the *Lord God,* and that Adam was put into it to *dreſs it* and to *keep it.* It appears, therefore, that even in the Paradiſaical ſtate the earth would not have produced food for man without culture; for as God *planted* the firſt garden, there can be no doubt that had man continued in his ſtate of innocence and multiplied, he muſt have *planted* other gardens when it became neceſſary. After the fall, the fertility of the earth was expreſsly removed, and that not in a ſlight degree; but if we can judge from the preſent ſtate of things, it muſt have become extremely wild and barren. Thus, when it is ſaid, "Thorns alſo and thiſtles ſhall it bring forth to thee;" we may judge of the ſtate of the ſoil from that which we ſee bringing forth thorns and thiſtles at this day. Every one knows that an abundant crop of theſe weeds indicates poor ground, which will require a great deal of cultivation to bring it into order. Nay, that we may be ſure that the cultivation of the earth was at this time no eaſy matter, it is likewiſe ſaid, "In ſorrow ſhalt thou eat of it all the days of thy life." Hence it would appear, that the antediluvian earth, inſtead of being more fertile, was much more barren than at preſent. That the labour of cultivating the ground at that time was alſo ſo great as to be almoſt intolerable, is evident from the ſpeech of Lamech on the birth of Noah: "This ſame (ſays he) ſhall comfort us concerning our work and toil of our hands, concerning the ground which the Lord hath curſed."

2. There is a very evident natural reaſon why the antediluvian world ſhould have been more barren than the preſent, and why the deluge ſhould have removed that barrenneſs. Under the article ANTEDILUVIANS, n° 19, it is hinted, that the purity of the air at that time was a principal cauſe of the longevity of the human race. If this was really the caſe, which is very probable, we muſt ſuppoſe the atmoſphere to have then contained a greater quantity of *dephlogiſticated air* than it does at preſent; for late experiments have put it beyond doubt, that from this the ſupport of animal life is immediately derived. But this kind of air, however favourable to animal life, is found to be very unſavourable to vegetation; and therefore, in proportion to its abundance in the antediluvian atmoſphere, the animals would be healthy, and the vegetables weak, puny, and ſickly. But the deluge, by overflowing the earth for a whole year, deſtroyed every animal and vegetable, and conſequently induced a vaſt putrefaction all over the globe; the conſequence of which was the production of an immenſe quantity of what is called *phlogiſticated air.* This mixing with the pure atmoſphere, vitiated it to ſuch a degree as to make it leſs friendly to animal life, but more ſo to vegetation. Hence the preſent world muſt naturally be more fertile than the former; and not only on this account, but by reaſon of its being manured by the ſtagnation of the waters upon its ſurface for a twelvemonth, and the immenſe quantity of animal matter left by them, the ground, inſtead of being leſſened in its fertility as Dr Woodward ſuppoſes, muſt have been reſtored, as far as we can judge, to the very ſtate it was in at its original formation.

3. That this was really the caſe appears probable from what the Deity ſaid to Noah after offering up his ſacrifice. "I will not (ſays he) curſe the ground any more for man's ſake." Now this was plainly intimating that the earth was reſtored to its primitive fertility, and that he would no more take it away; for when he did ſo to the primitive world it was in theſe words, "Curſed is the ground for thy ſake." That the curſe here alluded to was really the depriving the earth of its fertility, and not the overflowing the earth with water, is evident; becauſe, after declaring that he would no more curſe the ground for man's ſake, he adds, "Neither will I again ſmite every living thing as I have done."

4. The moral reaſons aſſigned why the preſent world ſhould be leſs fertile than the former, ſeem to be inconcluſive. However barren we may reckon the earth juſt now, it is certain that it produces, or might produce, much more than would ſuffice for all its inhabitants. The difficulties which mankind undergo are not at all owing to the barrenneſs of the earth; but to their own conduct, or their oppreſſion of one another. Neither does it clearly appear that animal food is really in any degree cheaper than vegetable, but rather the contrary; ſo that whatever was the reaſon of this grant after the flood, we cannot fairly aſcribe it to a foreſight of the future barrenneſs of the earth.

Another queſtion which naturally occurs on the ſubject of the deluge is, Whether there was any rain before it or not? The argument againſt the exiſtence of rain before the flood is obviouſly derived from the rainbow being made a ſymbol of the divine favour immediately after. It is certain, indeed, that unleſs we ſuppoſe the nature of light or of water to have been different before this event from what it was afterwards, there is a natural impoſſibility of the refraction of the ſun's light being prevented from ſhowing the appearance of a rainbow whenever the ſun and cloud were in a certain poſition with regard to one another. It appears improbable, to thoſe who take this ſide of the queſtion, that the Deity ſhould inſtitute any thing as an emblem of his diſpleaſure being turned away, when the ſame emblem had been ſeen perhaps a very ſhort time before the cataſtrophe happened. On the other hand it is replied, that there is no abſurdity in ſuppoſing this to have been the caſe: for though the rainbow exiſted before the deluge, yet it never was appointed to be the ſymbol of this particular event, viz. the reconciliation of the Deity; and the impoſſibility of vegetables being ſupplied with a ſufficient quantity of moiſture without rain is likewiſe urged as a deciſive argument. Still, however, it appears, that even vegetation may ſubſiſt, and that in its utmoſt perfection,

fection, without rain: for we are informed, that by means of a miſt the ground was originally watered, and vegetables ſupplied with moiſture, before there was any rain; and if this was the caſe at one time, it might have been at any other, or at any number of times we can ſuppoſe. Indeed, as matters ſtand at preſent, this would undoubtedly be a very ſcanty ſupply; and perhaps ſo it was in the antediluvian world: and thus the want of rain might have been one cauſe of that barrenneſs in the antediluvian world which we have already mentioned as probable, and which Mr Bryant mentions as the opinion of all the ancient mythologiſts.

For particular deluges, or overflowings of various parts of the earth by water, ſee the article INUNDATION.

DEMADES, a famous Athenian, who, from being a mariner, became a great orator, and appeaſed Philip by his eloquence, after the famous victory over the Athenians at Cheronea, in the 338th year B. C.

DEMAIN, or DEMESNE, in its common acceptation, is uſed for the lands round a manor-houſe, occupied by the lord.

DEMAIN, or *Demeſne*, in law, is commonly underſtood to be the lord's chief manor-place, with the lands thereto belonging, which he and his anceſtors have, time out of mind, kept in their own manual occupation.

DEMAND, in its popular ſenſe, denotes a calling for or requiring one's due.

DEMAND, in law, has a more ſpecial ſignification, as contradiſtinguiſhed from *plaint*: for all civil actions are purſued either by demands or plaints; according to which the purſuer is called either *demandant* or *plaintiff*: viz. in real actions, *demandant*; and in perſonal actions, *plaintiff*. See PLAINTIFF.

There are two kinds of demands: the one in *deed, de facto*, as in every precipe: the other in *law, de jure*; ſuch is entry in land, diſtreſs for rent, &c.

DEMEMBRATION, in Scots law. See LAW, N° clxxxvi. 17.

DEMEMBRE, in heraldry, is ſaid of diſmembered animals, or thoſe with their limbs cut off.

DEMENSE. See DEMAIN.

DEMESNE LANDS. See REVENUE, n° 5.

DEMETÆ (anc. geog.), a people of Britain, conſidered as a branch of the Silures, occupying that inner corner formed by the Briſtol Channel and the Iriſh Sea.

DEMETRIA, a feſtival in honour of Ceres, called by the Greeks *Demeter*. It was then cuſtomary for the votaries of the goddeſs to laſh themſelves with whips made with the bark of trees. The Athenians had a ſolemnity of the ſame name in honour of Demetrius Poliorcetes.

DEMETRIOWITZ, a city of the duchy of Smolenſko, in the Ruſſian empire, ſituated upon the river Ugra, in E. Long. 37. 0. N. Lat. 53. 20.

DEMETRIUS, a ſon of Antigonus and Stratonice, ſurnamed *Poliorcetes*, "Deſtroyer of towns." At the age of 22, he was ſent by his father againſt Ptolemy, who invaded Syria. He was defeated near Gaza; but he ſoon repaired his loſs by a victory over one of the generals of the enemy. He afterwards ſailed with a fleet of 250 ſhips to Athens, and reſtored the Athenians to liberty, by freeing them from the power of Caſſander and Ptolemy, and expelling the garriſon, which was ſtationed there under Demetrius Phalereus. After this ſucceſsful expedition, he beſieged and took Munychia, and defeated Caſſander at Thermopylæ. His reception at Athens after theſe victories was attended with the greateſt ſervility, and the Athenians were not aſhamed to raiſe altars to him as to a god, and conſult his oracles. This uncommon ſucceſs raiſed the jealouſy of the ſucceſſors of Alexander, and Seleucus, Caſſander, and Lyſimachus united to deſtroy Antigonus and his ſon. Their hoſtile armies met at Ipſus, 299 years before the Auguſtan age. Antigonus was killed in the battle; and Demetrius, after a ſevere loſs, retired to Epheſus. His ill ſucceſs raiſed him many enemies; and the Athenians, who had lately adored him as a god, refuſed to admit him into their city. He ſoon after ravaged the territory of Lyſimachus, and reconciled himſelf to Seleucus, to whom he gave his daughter Stratonice in marriage. Athens now laboured under tyranny, and Demetrius relieved it and pardoned the inhabitants. The loſs of his poſſeſſions in Aſia recalled him from Greece, and he eſtabliſhed himſelf on the throne of Macedonia by the murder of Alexander the ſon of Caſſander. Here he was continually at war with the neighbouring ſtates, and the ſuperior power of his adverſaries obliged him to leave Macedonia, after he had ſat on the throne for ſeven years. He paſſed into Aſia, and attacked ſome of the provinces of Lyſimachus with various ſucceſs; but famine and peſtilence deſtroyed the greateſt part of his army, and he retired to the court of Seleucus for ſupport and aſſiſtance. He met with a kind reception: but hoſtilities were ſoon begun; and after he had gained ſome advantages over his ſon-in-law, Demetrius, was totally forſaken by his troops in the field of battle, and became an eaſy prey to the enemy. Though he was kept in confinement by his ſon-in-law, yet he maintained himſelf like a prince, and paſſed his time in hunting and in every laborious exerciſe. His ſon Antigonus offered Seleucus all his poſſeſſions, and even his perſon, to procure his father's liberty; but all proved unavailing, and Demetrius died in the 54th year of his age, after a confinement of three years, 286 years before Chriſt. His remains were given to Antigonus, and honoured with a ſplendid funeral pomp at Corinth, and thence conveyed to Demetrias. His poſterity remained in poſſeſſion of the Macedonian throne till the age of Perſeus, who was conquered by the Romans. Demetrius has rendered himſelf famous for his fondneſs of diſſipation when among the diſſolute, and for his love of virtue and military glory in the field of battle. He has been commended as a great warrior; and his ingenious inventions, his warlike engines, and ſtupendous machines in his war with the Rhodians, juſtify his claims to that character. He has been blamed for his voluptuous indulgences; and his biographer obſerves that no Grecian prince had more wives and concubines than Poliorcetes. His obedience and reverence to his father has been juſtly admired; and it has been obſerved, that Antigonus ordered the ambaſſadors of a foreign prince, particularly to remark the cordiality ty and friendſhip which ſubſiſted between him and his ſon.

Demetrius, ſurnamed *Gonatas*, ſucceeded his father Antigonus on the throne of Macedonia. He reigned 12 years, and was ſucceeded by his ſon Philip.

Demetrius, a ſon of Philip, king of Macedonia, delivered as an hoſtage to the Romans. His modeſty delivered his father from a heavy accuſation laid before the Roman ſenate. When he returned to Macedonia, he was falſely accuſed by his brother Perſeus, who was jealous of his popularity, and his father too credulouſly conſented to his death.

Demetrius I. ſurnamed *Soter* or *Savior*, was ſon of Seleucus Philopator the ſon of Antiochus the Great, king of Syria. His father gave him as a hoſtage to the Romans. After the death of Seleucus, Antiochus Epiphanes, the deceaſed monarch's brother, uſurped the kingdom of Syria, and ſucceeded by his ſon Antiochus Eupator. This uſurpation diſpleaſed Demetrius, who was detained at Rome. He procured his liberty on pretence of going to hunt, and fled to Syria, where the troops received him as their lawful ſovereign. He put to death Eupator and Lyſias, and eſtabliſhed himſelf on his throne by cruelty and oppreſſion. Alexander Bala, the ſon of Antiochus Epiphanes, laid claims upon the crown of Syria, and defeated Demetrius in a battle, 250 years before Chriſt.

Demetrius II. ſurnamed *Nicanor*, or *Conqueror*, was ſon of Soter, to whom he ſucceeded by the aſſiſtance of Ptolemy Philometer. He married Cleopatra, the daughter of Ptolemy, who was before the wife of the expelled monarch Alexander Bala. Demetrius gave himſelf up to luxury and voluptuouſneſs, and ſuffered his kingdom to be governed by his favourites. At that time a pretended ſon of Bala, called *Diodorus Tryphon*, ſeized a part of Syria; and Demetrius, to oppoſe his antagoniſt, made an alliance with the Jews, and marched into the eaſt, where he was taken by the Parthians. Phraates king of Parthia gave him his daughter Rhodogyne in marriage; and Cleopatra was ſo incenſed at this new connection, that ſhe gave herſelf up to Antiochus Sidetes her brother-in-law, and married him. Sidetes was killed in a battle againſt the Parthians, and Demetrius regained the poſſeſſion of the kingdom. His pride and oppreſſion rendered him odious; and his ſubjects aſked a king of the houſe of Seleucus from Ptolemy Phyſcon king of Egypt: and Demetrius, unable to reſiſt the power of his enemies, fled to Ptolemais, which was then in the hands of his wife Cleopatra. The gates were ſhut up againſt his approach by Cleopatra; and he was killed by order of the governor of Tyre, whither he had fled for protection, A. U. C. 627. He was ſucceeded by Alexander Zebina, whom Ptolemy had raiſed to the throne.

Demetrius Phalereus, a celebrated orator and peripatetic philoſopher, was the ſcholar of Theophraſtus. He acquired ſo much authority at Athens, that he governed the city for ten years; and ruled with ſo much wiſdom and virtue, that they ſet up 36 ſtatues in honour of him. By the ſlanders of ſome malicious perſons in his abſence, he was, however, condemned to die; and his images were pulled down: which when Demetrius heard, he ſaid, they could not pull down that virtue for which thoſe images were ſet up. He eſcaped into Egypt, and was protected by Ptolemy Lagus. This king, it is ſaid, aſked his advice concerning the ſucceſſion of his children to the throne; *viz.* whether he ought to prefer thoſe he had by Euridice to Ptolemy Philadelphus whom he had by Berenice? and Demetrius adviſed him to leave his crown to the former. This diſpleaſed Philadelphus ſo much, that, his father being dead, he baniſhed Demetrius; who was afterwards killed by the bite of an aſp. Demetrius compoſed more works in proſe and verſe than any other peripatetic of his time; and his writings conſiſted of poetry, hiſtory, politics, rhetoric, harangues, and embaſſies. None of them are extant except his rhetoric, which is uſually printed among the *Rhetores Selecti*.

Demetrius, a cynic philoſopher, diſciple of Apollonius Thyaneus, in the age of Caligula. The emperor wiſhed to gain the philoſopher to his intereſt by a large preſent; but Demetrius refuſed it with indignation, and ſaid, If Caligula wiſhes to bribe me, let him ſend me his crown. Veſpaſian was diſpleaſed with his inſolence, and baniſhed him to an iſland. The cynic derided the puniſhment, and bitterly inveighed againſt the emperor. He died in a great old age; and Seneca obſerves, that "nature had brought him forth to ſhow mankind that an exalted genius can live ſecurely without being corrupted by the vice of the ſurrounding world."

DEMI (formed from *dimidium*), a word uſed in compoſition with other words to ſignify *half*.

Demi-Attici, boroughs or larger villages of Attica. The Athenian tribes were diſtributed into Demi. Homer, in his catalogue, diſtinguiſhes the Athenians by the appellation *Demos*. And when Theſeus prevailed on them to quit the country and ſettle at Athens, they ſtill continued to frequent the Demi, and to perform their ſeveral religious ceremonies there (Pauſanias, Livy).

Demi-Culverin, a piece of ordnance uſually $4\frac{1}{2}$ inches bore, 2700 pound weight, 10 feet long, and carrying point blank 175 paces.

Demi-Culverin of the leaſt ſize, is $4\frac{1}{4}$ inches bore, 10 feet long, and 2000 pound weight. It carries a ball of 4 inches diameter and of 9 pounds weight, and its level range is 174 paces.

Demi-Culverin of the largeſt ſort, is $4\frac{3}{4}$ inches bore, $10\frac{1}{3}$ feet long, and weighs 3000 pounds weight. It carries a ball $4\frac{1}{2}$ inches diameter, weighing 12 pounds 11 ounces, point blank 178 paces.

Demi-God. See Hero.

Demi-Gorge, in fortification, is that part of the polygon which remains after the flank is raiſed, and goes from the curtin to the angle of the polygon. It is half of the vacant ſpace or entrance into a baſtion.

Demi-Quaver, a note in muſic, two of which are equal to a quaver.

Demi-Semi-Quaver, in muſic, the ſhorteſt note, two of them being equal to a ſemi-quaver.

DEMISE, in law, is applied to an eſtate either in fee-ſimple, fee-tail, or for term of life or years; and ſo it is commonly taken in many writs. The king's death is in law termed the demiſe of the king.

Demise, and Redemise, denote a conveyance where there are mutual leaſes made from one to another of the ſame land, or ſomething out of it.

DEMIURGE (from δημιος, which denotes *a public ſervant*,

Democracy
Democritus.

ſervant, and εργον *work*), in the mythology of the eaſtern philoſophers, was one of the ÆONS employed by the ſupreme Deity in the creation of the world. The character they give him is a compound of ſhining qualities and inſupportable arrogance; and his exceſſive luſt of empire effaces his talents and virtues. He is repreſented as claiming dominion over the new world he has formed, as his ſovereign right; and excluding totally the ſupreme Deity from all concernment in it, he demands from mankind, for himſelf and his aſſociates, divine honours.

DEMOCRACY, from δημος *people*, and κρατειν *to command* or *govern*; the ſame with a popular government, wherein the ſupreme power is lodged in the hands of the people: ſuch were Rome and Athens of old; but as to the modern European republics, Baſil only excepted, their government comes nearer to ariſtocracy than democracy. See LAW, no 15.

DEMOCRITUS, one of the greateſt philoſophers of antiquity, was born at Abdera, a town of Thrace, about the 80th Olympiad; that is, about 460 years before Chriſt. His father, ſays Valerius Maximus, was able to entertain the army of Xerxes; and Diogenes Laertius adds, upon the teſtimony of Herodotus, that the king, in requital, preſented him with ſome Magi and Chaldeans. From theſe Magi and Chaldeans Democritus received the firſt part of his education; and from them, whilſt yet a boy, he learned theology and aſtronomy. He next applied to Leucippus, and learned from him the ſyſtem of atoms and a vacuum. His father dying, the three ſons, for ſo many there were, divided the eſtate. Democritus made choice of that part which conſiſted in money, as being, though the leaſt ſhare, the moſt convenient for travelling; and it is ſaid, that his portion amounted to above 100 talents, which is near 20,000l. Sterling. His extraordinary inclination for the ſciences and for knowledge, induced him to travel into all parts of the world where he hoped to find learned men. He went to viſit the prieſts of Egypt, from whom he learned geometry; he conſulted the Chaldeans and the Perſian philoſophers; and it is ſaid, that he penetrated even into India and Ethiopia, to confer with the Gymnoſophiſts. In theſe travels he waſted his ſubſtance; after which, at his return, he was obliged to be maintained by his brother; and if he had not given proofs of the greateſt underſtanding, and thereby procured to himſelf the higheſt honours, and the ſtrongeſt intereſt of his country, he would have incurred the penalty of that law which denied the interment in the family-ſepulchre to thoſe who had ſpent their patrimony. After his return from travelling, he lived at Abdera, and governed there in a moſt abſolute manner, by virtue of his conſummate wiſdom. The magiſtrates of that city made him a preſent of 500 talents, and erected ſtatues to him even in his lifetime: but being naturally more inclined to contemplation than delighted with public honours and employments, he withdrew into ſolitude and retirement. Democritus inceſſantly laughed at human life, as a continued farce, which made the inhabitants of Abdera think he was mad; on which they ſent for Hippocrates to cure him: but that celebrated phyſician having diſcourſed with the philoſopher, told the Abderians, that he had a great veneration for Democritus; and that, in his opinion, thoſe who eſteemed themſelves the moſt healthy were the moſt diſtempered. Democritus died, according to Diogenes Laertius, in the 361ſt year before the Chriſtian era, aged 109. It is ſaid that he put out his eyes, in order that he might meditate more profoundly on philoſophical ſubjects; but this has little probability. He was the author of many books, which are loſt; and from theſe Epicurus borrowed his philoſophy.

Demonſtrable
Demoſthenes.

DEMONSTRABLE, a term uſed in the ſchools to ſignify that a thing may be clearly proved. Thus, it is demonſtrable, that the three angles of a triangle are equal to two right ones.

DEMONSTRATION, in logic, a ſeries of ſyllogiſms, all whoſe premiſſes are either definitions, ſelf-evident truths, or propoſitions already eſtabliſhed. See LOGIC.

DEMONSTRATIVE, in grammar, a term given to ſuch pronouns as ſerve to indicate or point out a thing. Of this number are *hic, hæc, hoc,* among the Latins; and *this, that, theſe thoſe,* in Engliſh.

DEMONSTHENES, the famous Athenian orator, was born at Athens 381 B. C. He loſt his father at ſeven years of age; and was placed under the conduct of guardians, who robbed him of his ſubſtance, and neglected his education. Demoſthenes repaired this loſs by his love of eloquence and his extraordinary abilities. He became the diſciple of Iſæus and Plato, and applied himſelf to ſtudy the orations of Iſocrates. At the age of 17 he gave an early proof of his eloquence and abilities againſt his guardians, from whom he obtained the retribution of the greateſt part of his eſtate. His riſing talents were, however, impeded by various natural deffects. But theſe were at laſt conquered by dint of reſolution and unwearied attention. He declaimed by the ſea-ſhore, that he might be uſed to the noiſe of a tumultuous aſſembly; and with the pebbles in his mouth, that he might correct a defect in his ſpeech. He practiſed at home with a naked ſword hanging over his ſhoulder, that he might check an ungraceful motion to which he was ſubject. He alſo confined himſelf in a ſubterraneous cave, to devote himſelf more cloſely to ſtudious purſuits; and to eradicate all curioſity of appearing in public, he ſhaved one half of his head. In this ſolitary retirement, by the help of a glimmering lamp, he compoſed the greateſt part of his orations, which have ever been the admiration of every age; though his contemporaries and rivals inveighed againſt them, and obſerved that they ſmelt of oil. His abilities as an orator raiſed him to conſequence at Athens, and he was ſoon placed at the head of government. In this public capacity he rouſed his countrymen from their indolence, and animated them againſt the encroachment of Philip of Macedonia. In the battle of Cheronnæa, Demoſthenes betrayed his puſillanimity, and ſaved his life by flight. After the death of Philip, he declared himſelf warmly againſt his ſon and ſucceſſor Alexander; and when the Macedonians demanded of the Athenians their orators, Demoſthenes reminded his countrymen of the fable of the ſheep which delivered their dogs to the wolves. By the prevalence of party, however, he was forced to retire from Athens; and in his baniſhment, which he paſſed at Trœzen and Ægina, he lived with more effeminacy than true heroiſm. When Antipater made war againſt Greece after the death of Alexander, Demoſthenes.

Demoſthenes Dempſter.

henes was publicly recalled from his exile, and a galley was ſent to fetch him from Ægina. His return was attended with much ſplendor, and all the citizens crowded at the Piræus to ſee him land. His triumph and popularity were ſhort. Antipater and Craterus were near Athens, and demanded all the orators to be delivered up into their hands. Demoſthenes fled to the temple of Neptune in Calauria; and when he ſaw that all hopes of ſafety were vaniſhed, he took a doſe of poiſon, which he always carried in a quill, and expired on the day that the Theſmophoria were celebrated, 322 years before Chriſt. The Athenians raiſed a brazen ſtatue to his honour, with an inſcription tranſlated into this diſtich:

Si tibi par menti robur, Vir magne, fuiſſet,
Græcia non Macedo ſuccubuiſſet hero.

Demoſthenes has been deſervedly called *the prince of orators*. Indeed no orator had ever a finer field than Demoſthenes in his Olynthiacs and Philippics, which are his capital orations; and undoubtedly to the greatneſs of the ſubject, and to that integrity and public ſpirit which breathe in them, they owe a large portion of their merit. The ſubject is, to excite the indignation of his countrymen againſt Philip of Macedon, the public enemy of the liberties of Greece; and to guard them againſt the treacherous meaſures by which that crafty tyrant endeavoured to lull them into a neglect of their danger. To attain this end, we ſee him uſe every proper means to animate a people diſtinguiſhed by juſtice, humanity, and valour; but in many inſtances become corrupt and degenerate. He boldly accuſes them of venality, indolence, and indifference to the public good: while, at the ſame time, he reminds them of their former glory, and of their preſent reſources. His contemporary orators, who were bribed by Philip, and who perſuaded the people to peace, he openly reproaches as traitors to their country. He not only prompts to vigorous meaſures, but teaches how they are to be carried into execution. His orations are ſtrongly animated, and full of the impetuoſity and ardour of public ſpirit. His compoſition is not diſtinguiſhed by ornament and ſplendor. It is an energy of thought, peculiarly his own, which forms his character, and raiſes him above his ſpecies. He ſeems not to attend to words, but to things. We forget the orator, and think of the ſubject. He has no parade and oſtentation, no ſtudied introductions: but is like a man full of his ſubject; who, after preparing his audience by a ſentence or two for the reception of plain truths, enters directly on buſineſs.

The ſtyle of Demoſthenes is ſtrong and conciſe; though ſometimes, it muſt be confeſſed, harſh and abrupt. His words are highly expreſſive, and his arrangement firm and manly. Negligent of leſſer graces, he ſeems to have aimed at the ſublime which lies in ſentiment. His action and pronunciation are ſaid to have been uncommonly vehement and ardent; which, from the manner of his writings, we ſhould readily believe. His character appears to have been of the auſtere rather than of the gentle kind. He is always grave, ſerious, paſſionate; never degrading himſelf, nor attempting any thing like pleaſantry. If his admirable eloquence be in any reſpect faulty, it is that he ſometimes borders on the bard and dry. He may be thought to want ſmoothneſs and grace: which is attributed to his imitating too cloſely the manner of Thucydides, who was his great model for ſtyle, and whoſe hiſtory he is ſaid to have tranſcribed eight times with his own hand. But theſe defects are more than atoned for by that maſterly force of maſculine eloquence, which, as it overpowered all who heard it, cannot in the preſent day be read without emotion.

Cicero calls him a perfect model, and ſuch as he himſelf wiſhed to be. Theſe two great princes of eloquence have been often compared together; but the judgment heſitates to which to give the preference. The Archbiſhop of Cambray, however, ſeems to have ſtated their merits with great juſtice and perſpicuity in his Reflections on Rhetoric and Poetry. The paſſage, tranſlated, is as follows. "I do not heſitate to declare, that I think Demoſthenes ſuperior to Cicero. I am perſuaded no one can admire Cicero more than I do. He adorns whatever he attempts. He does honour to language. He diſpoſes of words in a manner peculiar to himſelf. His ſtyle has great variety of character. Whenever he pleaſes, he is even conciſe and vehement; for inſtance, againſt Cataline, againſt Verres, againſt Antony. But ornament is too viſible in his writings. His art is wonderful, but it is perceived. When the orator is providing for the ſafety of the republic, he forgets not himſelf, nor permits others to forget him. Demoſthenes ſeems to eſcape from himſelf, and to ſee nothing but his country. He ſeeks not elegance of expreſſion; unſought for he poſſeſſes it. He is ſuperior to admiration. He makes uſe of language, as a modeſt man does of dreſs, only to cover him. He thunders, he lightens. He is a torrent which carries every thing before it. We cannot criticiſe, becauſe we are not ourſelves. His ſubject enchains our attention, and makes us forget his language. We loſe him from our ſight: Philip alone occupies our minds. I am delighted with both theſe orators; but I confeſs that I am leſs affected by the infinite art and magnificent eloquence of Cicero, than by the rapid ſimplicity of Demoſthenes."

DEMPSTER (Thomas), a very learned man, but of a ſingular character. He was born in Scotland, but we do not find in what year. He went over to France for the ſake of embracing the catholic religion, and taught claſſical learning at Paris about the beginning of the 17th century. Tho' his buſineſs was to teach ſchool; yet he was as ready to draw his ſword, and as quarrelſome as if he had been a duelliſt by profeſſion: and it is ſaid, that there ſcarce paſſed a day but he had ſomething or other of this kind upon his hands. This ſpirit and turn of temper drew him into many ſcrapes; and one in particular, which obliged him to quit the country. Grangier, principal of the college of Beauvais at Paris, being obliged to take a journey, appointed Dempſter his ſubſtitute. Dempſter cauſed whip a ſcholar, in full ſchool, for challenging one of his fellows to fight a duel. The ſcholar, to revenge this affront, brought three gentlemen of his relations, who were of the king's life-guards, into the college. Dempſter made the whole college take arms; hamſtrung the three life-guard-mens horſes before the college gate; and put himſelf into ſuch a poſture of defence, that the three ſparks were forced to aſk for quarter. He gave them their lives; but impriſoned them, and did not releaſe them for ſome days. They ſought another way to revenge themſelves: they cauſed an information to be made of the life and moral behaviour of Dempſter, and got ſome witneſſes to be heard againſt him. Upon this he went over to England, where he found refuge; but did not make any long ſtay. He went abroad again, and read lectures upon polite learning in ſeveral univerſities; in that of Niſmes particularly, where he diſputed for a profeſſor's chair, and obtained it. He went to Bologna, and was profeſſor there for the remainder of his life; and was then alſo admitted a member of the Academy della Rotte. He died there in September 1625, leaving behind him ſeveral learned works; as Commentaries on *Roſinus de Antiquitatibus Romanorum*, and upon Claudian, &c.; four books of Epiſtles; ſeveral dramatic pieces, and other poems; ſome books of law; an Apparatus to the Hiſtory of Scotland; a Martyrology of Scotland; and a Liſt of the Scottiſh Writers.

Dempster of Court, the name formerly given in Scotland to the common executioner or hangman.

DEMSTER, or Deemster. See Deemster.

DEMULCENTS, among phyſicians, medicines good againſt acrimonious humours. Such are the roots of marſh-mallows, of white lilies, of liquorice, and of viper-graſs, the five emollient herbs, &c.

DEMURRAGE, in commerce, an allowance made to the maſter of a ſhip by the merchants, for ſtaying in a port longer than the time firſt appointed for his departure.

DEMURRER, in law, a ſtop put to any action upon ſome point of difficulty which muſt be determined by the court, before any further proceedings can be had in the ſuit.

DEN, a ſyllable which, added to the names of places, ſhows them to be ſituated in valleys or near woods; as Tenterden.

DENARIUS, in Roman antiquity, the chief ſilver coin among the Romans, worth in Sterling money about ſevenpence three farthings As a weight, it was the ſeventh part of a Roman ounce.

Denarius is alſo uſed in law-books for an Engliſh penny.

DENBIGHSHIRE, a county of Wales, bounded on the ſouth by Merioneth and Montgomery ſhires, on the north by Flintſhire and the Iriſh Sea, on the weſt by Caernarvon and part of Merionethſhire. It is about 40 miles long and 21 broad. The air is wholeſome, but ſharp; the county being pretty hilly, and the ſnow lying long on the tops of the mountains. The ſoil in general is barren; but the vale of Clwyd, ſo called from its being watered by that river, is a very fertile pleaſant ſpot, of great extent, and well inhabited. The chief commodities are black cattle, ſheep, and goats, rye, called here *amelcorn*, and lead-ore. The county ſends two members to parliament, *viz.* knight for the ſhire, and a burgeſs for Denbigh the capital.

Denbigh, the capital town of Denbighſhire in N. Wales. It is ſeated on the ſide of a rocky hill, on a branch of the river Clwyd, and was formerly a place of great ſtrength, with an impregnable caſtle, now demoliſhed. It is pretty large, well built, and inhabited by tanners and glovers, and gives the title of Earl to the noble family of Fielding. W. Long. 3. 30. N. Lat 53. 15.

DENDERMOND, a handſome and ſtrong town of the Auſtrian Netherlands, in Flanders, with a ſtrong citadel. It was taken by the allies in 1706, and by the French in 1745. It is ſurrounded by marſhes and fine meadows, which the inhabitants can lay under water when they pleaſe. It is ſeated at the confluence of the rivers Dender and Schelde. E. Long. 4. 3. N. Lat. 51. 3.

DENDRACHATES, in natural hiſtory, the name uſed by the ancients for an extremely elegant and beautiful ſpecies of agate, the ground of which is whitiſh, variegated with veins of a brighter white. Theſe veins are beautifully diſpoſed in a number of various figures; but generally in many concentric irregular circles, drawn round one or more points. It is common alſo, in various parts of this ſtone, to find very beautiful delineations of trees, moſſes, ſea-plants, and the like, ſo elegantly expreſſed, that many have erroneouſly taken them for real plants included in the ſubſtance of the ſtone; whence the name *dendrachates*.

DENDRANATOMY, a term uſed by ſome for a deſcription of the various parts of trees; as root, trunk, branch, bark, wood, pith, flower, fruit, &c. See Plants, Vegetation, &c.

Plate CLXV.

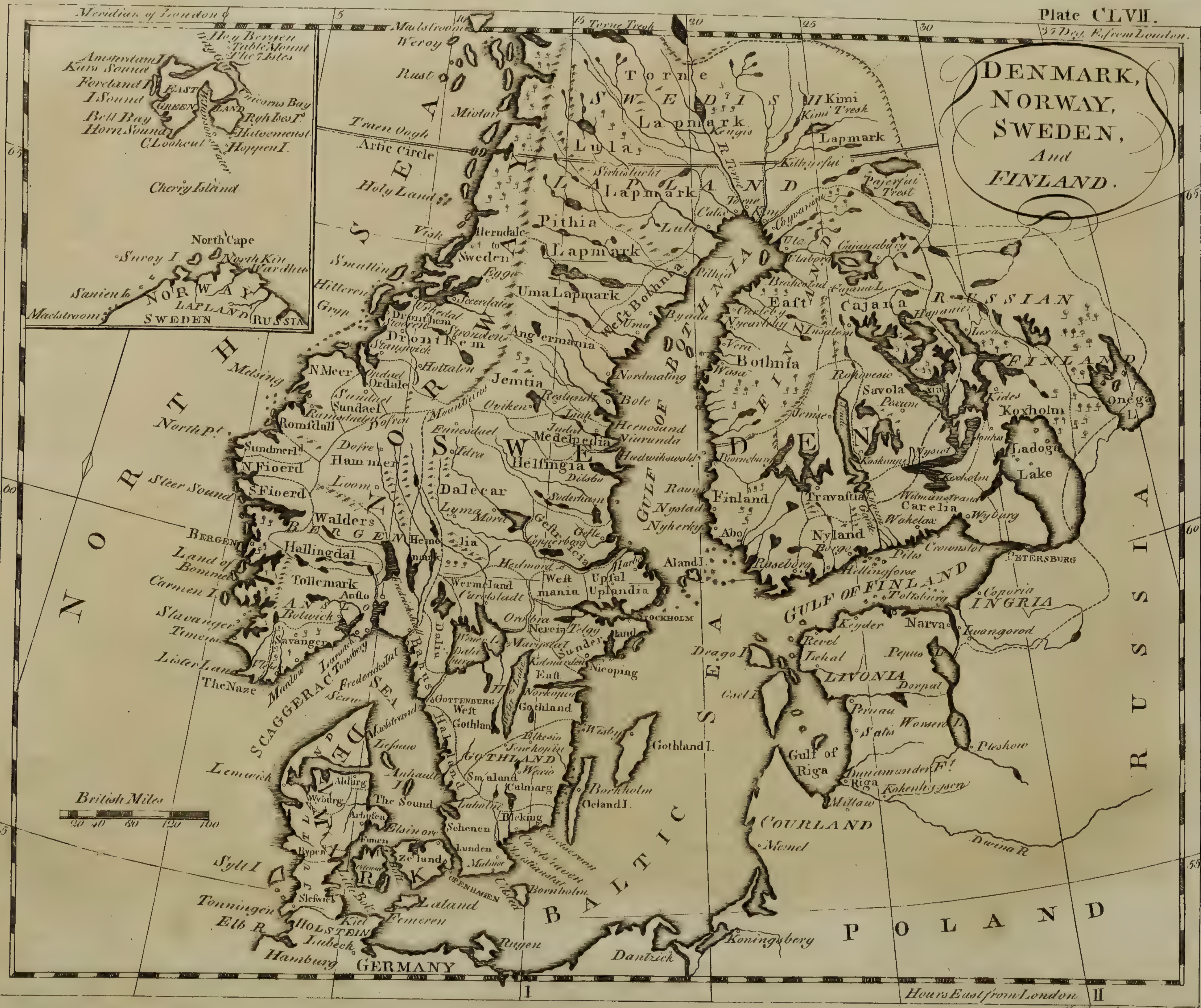
DENDROMETER (from δενδρον *a tree* and μετρεω *I meaſure*), an inſtrument lately invented by Meſſrs Duncombe and Whittel, for which they obtained a patent, ſo called from its uſe in meaſuring trees. This inſtrument conſiſts of a ſemicircle A, divided into two quadrants, and graduated from the middle; upon the diameter B there hangs a plummet L for fixing the inſtrument in a vertical poſition; there is alſo a chord D parallel to the diameter, and a radius E, paſſing at right angles through the diameter and chord. From a point on the radius hangs an altimeter C, between the chord and diameter, to which is fixed a ſmall ſemicircle G, and a ſcrew to confine it in any poſition. The altimeter, which is contrived to form the ſame angle with the radius of the inſtrument as the tree forms with the horizon, is divided from its centre both ways into forty equal parts; and theſe parts are again ſubdivided into halves and quarters. Upon the ſmall ſemicircle G, on which is accounted the quantity of the angle made by the altimeter and radius, are expreſſed degrees from 60 to 120, being 30 on each quadrant. The radius is numbered with the ſame ſcale of diviſions as the altimeter. There is alſo a nonius to the ſmall ſemicircle, which ſhows the quantity of an angle to every five minutes. On the back of the inſtrument the ſtock M of the ſliding piece is confined to the axis N, which moves concentrically parallel to the elevation index F on the oppoſite ſide, to which it is fixed. This index is numbered by a ſcale of equal diviſions with the altimeter and radius: at the end of the index is a nonius, by which the angles of elevation above, or of depreſſion below, the horizon, meaſured upon the ſemicircle of the inſtrument, are determined to every five minutes. There is alſo a groove in the radius, that ſlides acroſs the axis by means of a ſcrew I, working between the chord and ſemicircle of the inſtrument; and this ſcrew is turned by the key O. Upon the ſtock M is a ſliding piece, P that always acts at right angles with the altimeter, by means of a groove in the latter. To the ſhank of the ſliding piece is afixed a moveable limb Q, which forms the ſame angle with the altimeter as the bough forms with the body or trunk of the tree. This limb may be of any convenient length, divided into equal parts of the ſame ſcale with all the foregoing diviſions. At the extremity of the fixed axis, on a centre, an index R, with teleſcopic ſights, works horizontally upon the moveable limb of the ſliding piece. Upon this horizontal index R may be fixed a ſmall quadrant T, deſcribed with any convenient radius from the centre on which the index moves, and divided into 90 degrees, beginning at a right line drawn from the centre at right angles with the fiducial edge of the ſaid index; and upon the extremity of the axis is a nonius, whereby to determine the quantity of an angle upon the quadrant every five minutes. There are alſo two ſmall circular arches S, S, ſerving to keep the ſights in a parallel poſition, each containing an equal number of degrees. Upon theſe arches is meaſured the angle, ſubtending a ſide equal to the difference of the altitudes of the obſerved objects above the plane of the horizon, and whoſe baſe is the neareſt diſtance between the perpendiculars in which theſe objects are ſituated. The dendrometer is fitted to a theodolite, and may be uſed either with or without it as occaſion requires.

The principal uſe of this inſtrument is for meaſuring the length and diameter of any tree, perpendicular or oblique, to an horizontal plane, or in any ſituation of the plane on which it reſts, or of any figure, whether regular or irregular, and alſo the length and diameter of the boughs, by mere inſpection; and the inventors of it have calculated tables, annexed to their account of the inſtrument itſelf, by the help of which the quantity of timber in a tree is obtained without calculation, or the uſe of a ſliding rule. The inſtrument is rectified by ſetting it in a perpendicular poſition, by means of the plummet, and ſcrewing it to the ſtaff; then the altimeter is placed in the exact poſition of the tree, whether perpendicular, reclining, or inclining, and ſcrewed faſt. If the tree ſtands on level ground, the horizontal diſtance from the tree to the axis of the inſtrument is meaſured with a tape-line, and the radius is moved with the key till that diſtance be cut upon it by the inſide of the diameter: but if the ground be ſlanting, the diſtance from the tree to the inſtrument is meaſured, and the elevation index is moved till the point of the tree from which the diſtance was meaſured is ſeen through the ſights, and there ſcrewed faſt; and the radius is moved backwards or forwards with the key till this diſtance is cut upon the elevation index by the perpendicular line of the altimeter; and the horizontal line will be marked upon the radius by the inſide of the diameter. In order to obtain the length of the tree, the elevation index is firſt moved downwards, till the bottom of the tree cut by the horizontal wires is obſerved through the lights, and the feet and inches marked by the index upon the altimeter below the point of ſight or horizontal line are noted down; then the index is moved upwards till the part to which you would meaſure, cut by the horizontal wires, is ſeen, and the feet and inches marked on the altimeter above the point of ſight are noted: theſe two quantities added together give the exact length of the tree, which is inſerted in a field-book. For the girth of the tree, the circumference in that part where the horizonal diſtance was taken, is meaſured with the tape-line; and a ſixth part of this circumference is added to the diſtance on the radius, which was before cut by the inſide of a diameter, becauſe the tape-line, in taking, the diſtance, cannot be applied to the centre of the body of the tree; then the elevation index is lowered to that part of the tree, of which the diameter is to be taken and ſcrewed faſt. Set the moveable limb of the ſliding piece quite ſtraight, and the edge of the horizontal index upon the firſt diviſion of it. Turn the whole inſtrument about to the left hand till you ſee through the ſights the left ſide of the tree cut exactly by the perpendicular wires; then the inſtrument being fixed, move the ſights only upon the ſliding piece, till you ſee the right ſide of the tree cut alſo by the perpendicular wires; and you will find the true diameter marked by the horizontal index upon the ſliding piece, which is to be entered in a diſtinct column of the field-book.

For the boughs: let the diſtance on the radius be now reduced to its former quantity, and the elevation index moved upwards till the bough is ſeen through the ſights and ſcrewed faſt. Set the moveable part of the ſliding piece in a poſition parallel to the bough, and the edge of the horizontal index on the firſt diviſion of it. Turn the whole inſtrument about till you ſee through the ſights the ſhoot of the bough cloſe to the trunk cut by the perpendicular wires; then move the ſights till you ſee the other end of the bough cut by the ſaid wires, and note the feet and inches marked by the horizontal index on the moveable limb of the ſliding piece, which will give the true length of the bough to be inſerted in the field-book. And the girth of the bough may be obtained by directing the ſights of that part of it whoſe girth is deſired; then by moving the elevation index downwards till you ſee the under ſide of the bough cut by the horizontal wires, and there noting the feet and inches marked by the ſaid index on the altimeter; after which, let the elevation index be moved upwards till the upper ſide of the bough cut by the horizontal wires is ſeen; the feet and inches marked upon the altimeter are to be noted as before. The former quantity ſubtracted from the latter will give the true diameter of the bough, which is entered in the field-bood. The true ſolidity both of the body of the tree and of the boughs may be found from the diameter and lengths in tables calculated for this purpoſe.

The dendrometer, fitted to a theodolite, may be applied to meaſuring the heights and diſtances of objects, acceſſible or inacceſſible, whether ſituated in planes parallel or oblique to the plane in which the inſtrument is placed. It may be alſo uſed for taking all angles, whether vertical, horizontal, or oblique, in any poſition of the planes in which they are formed; and thus for facilitating the practical operations of engineering, land ſurveying, levelling, mining, &c. and for performing the various caſes of plane trigonometry without calculation; of which the inventors have ſubjoined to their account of this inſtrument many examples.

DENDROPHORIA, in antiquity, the carrying of boughs or branches of trees; a religious ceremony ſo called, becauſe certain prieſts called from thence *dendrophori*, Plate CLVII.



J. Smither Sculp.

dendrophori, tree-bearers marched in proceſſion, carrying the branches of trees in their hands in honour of ſome god, as Bacchus, Cybele, Sylvanus, &c. The college of the dendrophori is often mentioned in ancient marbles; and we frequently ſee in baſſo relievos the bacchanals repreſented as men carrying little ſhrubs or branches of trees.

DENEB, an Arabic term ſignifying *tail*, uſed by aſtronomers to denote ſeveral fixed ſtars. Thus, *deneb eleet*, ſignifies the bright ſtar in the lion's tail. *Deneb adigege*, that in the ſwan's tail, &c.

DENHAM (Sir John), an eminent Engliſh poet, the only ſon of Sir John Denham, chief baron of the exchequer in Ireland, and one of the lords commiſſioners there, was born in Dublin in 1615; but his father, in 1617, being made a baron of the exchequer in England, he received his education in that country. In his youth he followed gaming more than any thing elſe; but, in 1641, publiſhed a tragedy called the *Sophy*, which was much admired by the beſt judges; and, in 1643, wrote his famous poem called *Cooper's Hill*; which Mr Dryden pronounces will ever be the ſtandard of good writing for majeſty of ſtyle. Denham was ſent ambaſſador from Charles II. to the king of Poland; and at the Reſtoration was made ſurveyor-general of his majeſty's buildings, and created knight of the Bath. On obtaining this poſt, he is ſaid to have renounced his poetry for more important ſtudies; though he afterwards wrote a fine copy of verſes on the death of Cowley. He died at his office in Whitehall in 1668; and his works have been often ſince printed.

DENIER, a ſmall French copper-coin, of which twelve make a ſol.

There were two kinds of deniers, the one tournois, the other pariſis, whereof the latter was worth a fourth part more than the former.

DENIZEN, in Engliſh law, an alien made a ſubject by the king's letters-patent; otherwiſe called *donaiſon*, becauſe "his legitimation proceeds *ex donatione regis*, from the king's gift."

A denizen in Britain is in a kind of middle ſtate between an alien and a natural born ſubject, and partakes of both of them. He may take lands by purchaſe or deviſe, which an alien may not; but cannot take by inheritance; for his parent, through whom he muſt claim, being an alien, had no inheritable blood, and therefore could convey none to the ſon; and, upon a like defect of blood, the iſſue of a denizen born before denization, cannot inherit to him; but his iſſue born after may. A denizen is not excuſed from paying the alien's duty, and ſome other mercantile burdens. And no denizen can be of the privy council; or either houſe of parliament, or have any office of truſt civil or military, or be capable of any grant of lands, &c. from the crown.

DENMARK, one of the moſt ancient monarchies in Europe, comprehending the peninſula of Jutland, and the iſlands of Zealand, Tunen, &c. But Denmark, properly ſo called, is only that part of Scandinavia which formerly went by the name of *Cimbrica Cherſoneſus*, and now is called *Jutland*. Including Holſtein, it is bounded by the ſea called the *Categate* on the north; by the Baltic on the eaſt; by the river Elbe, which ſeparates it from Bremen, on the ſouth; and by the duchy of Saxe-Lawenburg towards the ſouth-eaſt, extending from 54. 40. to 58. 20. N. Lat.

1 Name whence derived.

The origin of the name *Denmark* is very uncertain. The moſt probable conjecture concerning it is that of *Saxo-Grammaticus*, the moſt ancient and beſt Daniſh hiſtorian. He derives it from *Dan* the ſon of *Humble*, the firſt king, and *Mark* or *Marc*, ſignifying a country in ſeveral dialects of the Teutonic; according to which etymology, the word *Denmark* ſignifies the land, or country, of *Dan*.—This Dan is thought to have lived about 1038 years before the Chriſtian era. Almoſt all hiſtorians agree that he was the ſon of *Humble*, a native of Zealand. His poſſeſſions and influence were very conſiderable, not only in Zealand, but in the iſlands of Langland and Molna. It was his courage, however, and ſkill in the art of war, that induced the inhabitants of Denmark to chooſe him for their king. He was called to the aſſiſtance of the Jutlanders upon an irruption of the Saxons into their territories, and promiſed the ſovereignty of the country if he drove out the enemy. On this he immediately raiſed an army, gained a complete victory over the Saxons, and obliged them to leave the country; and he was accordingly elected king.

2 Dan the firſt king

3 Hiſtory of this country fabulous for many ages.

In ſuch early ages as theſe, we are not to look for any authentic hiſtory either of this or any other kingdom. The hiſtory of Denmark, for a great number of ages after the reign of *Dan*, is filled with fabulous exploits of heroes, encounters with giants, dragons, &c. One of their kings named *Frotho*, who reigned about 761 years before Chriſt, is ſaid to have conquered all Britain, Sleſwick, Ruſſia, Pomerania, Holſtein, &c. an aſſertion which cannot eaſily be credited, conſidering the difficulty which ſucceeding warriors, even the greateſt in the world, found to ſubdue the inhabitants of thoſe countries.—It is certain, however, that anciently the kingdom of Denmark made a much more conſpicuous figure than it does at preſent. The Danes appear to have had a very conſiderable naval force almoſt from the foundation of their empire; and the conqueſts they undoubtedly made in Britain are certain proofs of their valour.

The natural enemies of the Danes were the Swedes, Norwegians, and Saxons; eſpecially the firſt. With one or other of theſe nations almoſt perpetual war was carried on. The kingdom was alſo often rent by civil diſſentions; which the neighbouring monarchs did not fail to take advantage of, in order to reduce the kingdom of Denmark under their ſubjection. As neither party, however, generally came off with advantage, the hiſtory of theſe wars affords nothing intereſting or entertaining.—One of the greateſt of the Daniſh monarchs was *Valdemar I.* who obtained the throne in 1157; having defeated and killed his competitor *Swen*, after a ten years civil war. He maintained a long war with the Vandals, whoſe power he at laſt entirely broke, and reduced under his ſubjection the iſland of Rugen. He alſo proved victorious over the Norwegians, ſo that their king and queen came in perſon to ſubmit to him. In 1165, he alſo laid the foundations of the city of Dantzic: which, though it hath ſince become a place of ſuch conſequence, conſiſted at firſt only of a few poor fiſhermens huts; but the privileges and immunities conferred upon it by this monarch, ſoon proved the means of its becoming a flouriſhing

Valdemar I. a great monarch.

city.—In 1169, he entirely ſubdued the Courlanders; and, ſoon after, was inveſted with the duchy of Holſtein, by the emperor Frederic Barbaroſſa. He is ſaid to have been poiſoned by a quack medicine, given with a deſign to recover him from a diſtemper with which he was ſeized in 1182.

5
Power of Denmark in 1195.

In the year 1195, Canute, Valdemar's ſucceſſor, cauſed a muſter to be made of all the men fit to bear arms in his dominions; and ordered each province to fit out its proportion of ſhipping, every way equipped, and ready for action. The whole force of Denmark, at that time, conſiſted of 670 ſhips of war, beſides the ſquadrons ſupplied by vaſſals, tributary ſtates, and allies. The number of land forces is not mentioned. In the reign of this prince, the Daniſh dominions were enlarged by the entire conqueſt of Stromar; the diſtricts of Lubec and Hamburgh, formerly known by the name of *Nordalbingia*, but now included under the general name of *Holſtein*. He died in 1203, and was ſucceeded by Valdemar II, who proved a very great and warlike prince. In 1121, he founded the city of Stralſund, oppoſite to the Iſle of Rugen. The ſame year his queen died in child-bed; and in memory of her he built the caſtle of *Droningholm*, that name importing the *Queen's-Iſland*. In 1218, he undertook an expedition againſt the Livonians, having received advice that they, aſſiſted by the Lithuanians, Muſcovites, and other barbarous nations, had driven from their habitations all thoſe in their neighbourhood who had embraced Chriſtianity, and taken an oath of allegiance to the crown of Denmark. Fitting out a powerful fleet, therefore, he immediately ſet ſail for that country; but his troops were no ſooner landed, than they were ſeized with a panic at the ſight of ſuch a powerful army of ſavages as were aſſembled to oppoſe them. The king himſelf was diſmayed at the unuſual ſpectacle of a whole army clothed in ſkins, and reſembling beaſts more than human creatures. Encouraged, however, by the biſhops who attended him, he ventured an engagement, and overthrew the barbarians with incredible ſlaughter. This victory was gained near the fortreſs of *Valdemar*, which received its name on that account.

6
Expedition of Valdemar II. againſt the Livonians.

7
Flouriſhing ſtate of the kingdom.

How potent and flouriſhing the kingdom of Denmark was at this time, appears from an eſtimate of the revenues of the tributary provinces, thoſe countries conquered by Valdemar, and the ſtanding forces of the whole kingdom. This account was copied by Pontanus from Witfeld a writer of thoſe days, who had it from a regiſter kept by Valdemar's ſteward. From the provinces were daily ſent in 24 laſts of oats, 24 laſts of rye, and half that quantity of wheat; 13 *talents* of cheeſe and butter, and nine of honey; 24 oxen, 300 ſheep, 200 hogs; and 600 marks of coined money. This was the certain revenue: but to this was added near an equal ſum from adventitious circumſtances; ſuch as fines, forfeitures, taxes on law-ſuits and pleadings, with a variety of other contingencies; the whole amounting to upwards of 100,000 marks a-day, or 23,730,000l. *per annum*; a ſum in thoſe days almoſt incredible.—With this revenue were kept for conſtant ſervice 1400 great and ſmall ſhips for the king's uſe, each of which at a medium carried 121 ſoldiers, making the whole of the ſtanding forces, beſides garriſons, conſiſt of 169,400 fighting men.

8
Valdemar taken priſoner.

9
Releaſed on condition of ceding part of his territories.

In 1223, a very great misfortune befel Valdemar, notwithſtanding all his power. Henry earl of Swerin, otherwiſe called *Henry Palatine*, a German prince, having been deprived of part of his dominions by Valdemar, ſurpriſed and carried off the king himſelf, and kept him cloſe priſoner for three years. The conditions on which he at laſt obtained his liberty were very hard. He was obliged to pay a prodigious ſum of money; to relinquiſh Holſtein, Swerin, Hamburgh, and all his poſſeſſions on the other ſide of the Elbe; and laſtly, ſolemnly to ſwear that he would maintain this compulſive contract, and never take any meaſures to puniſh Henry or his aſſociates. This treaty was ſigned on the 25th of March 1226.

10
He breaks the treaty, but is defeated.

Beſides theſe territories which the Daniſh monarch had been obliged to cede by treaty, many tributary princes, took the opportunity of his captivity to recover their liberty; and among the reſt, the inhabitants of Lubec revolted, and entered into alliance with Albert duke of Saxony againſt Valdemar. The latter, however, was not of a diſpoſition to ſubmit tamely to ſuch treatment. He obtained a diſpenſation from the Pope to break his engagements with Henry, and immediately entered Holſtein at the head of a numerous army. Here he was met by ſeveral German princes, at the head of a very numerous army; and a deſperate engagement enſued. Valdemar at firſt had the advantage; but being wounded in the eye, his troops were at laſt defeated with great ſlaughter. It doth not appear that ever the king of Denmark was able to revenge himſelf of his enemies, or to recover the dominions he had loſt. So far from this, he was obliged, in 1228, to cede Lawenberg to the duke of Saxony, who had already ſeized on Ratzburg and Molna. Soon after this, his eldeſt ſon Valdemar was accidentally killed as he was hunting, and his two other ſons married the daughters of his two greateſt enemies. Abel, the third ſon, married the daughter of Adolphus duke of Holſtein; and Eric, the ſecond, married the duke of Saxony's daughter. Theſe misfortunes are ſuppoſed to have haſtened his death, which happened in the month of April 1242.

11
Civil war between his two ſons.

On the death of Valdemar, the kingdom was divided between the two young princes; and between them a war commenced the very next year. A peace was concluded the year following, and war renewed the year after; but how long it continued, we are not informed. In 1250, Eric paid a viſit to his brother Abel, intreating his mediation between him and the princes of Holſtein, with whom he was then at war. Abel received him, in appearance, with great kindneſs, and promiſed that his utmoſt endeavours to procure a reconciliation ſhould not be wanting; but in the mean time, laid a plan for having him murdered at ſea: this was effected, and Abel became maſter of the whole kingdom.

12
Kingdom divided among a number of petty tyrants.

The new king did not long enjoy the ſovereignty he had ſo wickedly obtained. He was tormented by his own conſcience; eſpecially when he found among his brother's papers, one by which he was left heir to the whole kingdom on the deceaſe of Eric, and many kind expreſſions with regard to himſelf. He was at laſt killed in a battle with his own ſubjects in 1252, on account of ſome taxes he intended to impoſe.

From this time to the year 1333, the kingdom of Denmark gradually declined. Uſurpers eſtabliſhed themſelves in different provinces, while the kings of Sweden did not fail to avail themſelves of the diſtracted ſtate of the Daniſh affairs. In 1333, died Chriſtopher II. who poſſeſſed only the cities of Scanderburg in Jutland and Neeburg in Fionia, with ſome few other inconſiderable places, of all the hereditary dominions of Denmark. Halland, Holbec, Calemburg, and Samſoe, were held by Canute Porſius; Schonen, Lyſtre, and Bleking, by the king of Sweden, to whom they had been lately ſold: John earl of Wagria had the juriſdictions of Zealand, Falſtre, Laaland, and Femerin; Gerhard, of Jutland and Fionia; and Lawrence Jonea, of Lang-land and Arras.

After the death of Chriſtopher, an interregnum of ſeven years enſued.—The firſt attempt for the ſovereignty was made by Otho, ſecond ſon to the late king, who laid a ſcheme for driving Gerhard out of Jutland; but not being able to accompliſh it, he was taken priſoner, and cloſely confined by Gerhard.—The king of Sweden next wrote to Pope Benedict XIII. beſeeching his Holineſs to confirm to him the provinces of Schonen and others which he poſſeſſed; and to allow him to ſubdue the reſt of the kingdom, which was now uſurped and rendered miſerable by a ſet of petty princes, who knew not how to govern. To influence him the more powerfully, he alſo promiſed to hold this kingdom of the Pope; and to pay him the uſual tax collected by the church. This requeſt, however, was refuſed. Valdemar of Sleſwic, nephew to Gerhard, then aſpired to the ſovereignty. He had formerly been elected king; but had given over all thoughts of enjoying the ſovereignty, on account of the ſuperior influence of Chriſtopher: but now reſumed his ambitious views at the inſtigation of his uncle. Several of the nobility alſo caſt their eyes on young Valdemar Chriſtopher's ſon, now at the emperor's court. But while each of theſe princes were laying ſchemes to aggrandiſe themſelves, the unhappy Danes were diſtreſſed by exorbitant taxes, famine, and peſtilence: the two laſt in conſequence of the former. The peaſants neglected to cultivate the lands, which they held on a very precarious tenure; the conſequence of this was poverty and an unwholeſome diet; and this, co-operating with the peculiar diſpoſition of the air, produced a plague, which deſtroyed more than half the inhabitants of the country. The poor dropped down dead on the ſtreets with diſeaſe and hunger, and the gentry themſelves were reduced to a ſtate of wretchedneſs; yet, though the whole kingdom was evidently on the verge of ruin, ambitious projects employed the great, as if every thing had been in the moſt profound tranquillity.

13
Diſtreſſed ſtate of the kingdom.

In the midſt of theſe grievous calamities, Gerhard, ſovereign of Jutland, propoſed to his nephew Valdemar an exchange of territories, which he believed would prove favourable to the deſigns of the latter on the crown. A treaty for this purpoſe was actually drawn up and ſigned; but the inhabitants, notwithſtanding their diſtreſſed ſituation, ſo highly reſented their being diſpoſed of like cattle, from one maſter to another, that they refuſed to pay the uſual taxes. Gerhard reſolved to compel them; and therefore led 10,000 men, whom he had levied in Germany, into the heart of the province. Providence, however, now raiſed up an enemy to this tyrant. One Nicholas Norevi, a man greatly eſteemed for his courage, public ſpirit, and prudence, beheld with ſorrow the condition to which Denmark was reduced. He had long meditated a variety of projects for its relief, and at laſt imagined things were in ſuch a ſituation that the whole depended on his ſingle arm. Young Valdemar, Chriſtopher's ſon, had a number of adherents in the kingdom; his moſt dangerous enemy was Gerhard; and could he be removed, the Jutlanders would at leaſt be free from an oppreſſor, and might chooſe Valdemar, or any other they thought proper, for their ſovereign. Collecting a body of choſen horſe, therefore, he marched in the night to Randerſhuſen, where Gerhard had fixed his head quarters; and having forced open the tyrant's quarters, immediately put him to death. He then fled with the utmoſt expedition; but was purſued and overtaken by a party of the enemy's horſe, through which he forced his way and eſcaped. Gerhard's ſons hearing of his death, retired into Holſtein from whence they had come; leaving the army, compoſed chiefly of Holſteiners, to be cut in pieces by the enraged peaſants, who fell upon them from every quarter.

14
Nicholas Norevi recovers the liberty of Jutland.

Still, however, the Holſteiners kept poſſeſſion of the citadels and fortified places, from whence Nicholas reſolved to diſlodge them. He accordingly raiſed a body of forces; attacked and took Landen, a caſtle ſituated on the river Scherne: After which he laid ſiege to Albeg; but the garriſon making an obſtinate defence, he turned the ſiege into a blockade, by which they were ſoon reduced to great extremity. The governor ſent an expreſs to the ſons of Gerhard, acquainting them with the impoſſibility of his holding out more than a few days, without being relieved. This determined them to march to the relief of ſo important a place. They came up with Nicholas juſt as the governor was ready to ſurrender, but were defeated; though Nicholas was unfortunately killed in the engagement.

15
He is killed.

Jutland having thus regained its liberty, the reſt of the kingdom followed its example. Zealand firſt openly declared itſelf. Here Henry, Gerhard's ſon, maintained ſeveral garriſons; and reſolved to defend his poſſeſſions in ſpite of all the power of the inhabitants. For this purpoſe he drew together an army; but, in the mean time, a tumult aroſe among the peaſants on account of a Daniſh nobleman ſlain by the Holſteiners. By this the people were at laſt ſo irritated, that falling upon the Holſteiners ſword in hand, they killed 300 of them, drove the reſt out of the iſland, and choſe Valdemar, Chriſtopher's ſon, for their ſovereign.

16
Margaret unites the crowns of Denmark, Sweden, and Norway.

The Danes now reſumed their courage; the lands were cultivated, the famine and peſtilence ceaſed, and the kingdom began to flouriſh as formerly. Matters continued in a proſperous way till 1387, when Margaret mounted the throne. She raiſed the kingdom to its higheſt pitch of glory, as partly by her addreſs, and partly by hereditary right, ſhe formed the union of Calmar, by which ſhe was acknowledged ſovereign of Sweden, Denmark, and Norway. She held her dignity with ſuch firmneſs and courage, that ſhe was juſtly ſtyled the *Semiramis of the North*. Her ſucceſſors being deſtitute of her great qualifications, the union of Calmar fell to nothing: but Norway ſtill continued annexed to Denmark. About the year 1448, the crown of Denmark fell to Chriſtian count of Oldenburg, from whom the preſent royal family of Denmark is deſcended; and, in 1536, the proteſtant religion was eſtabliſhed in Denmark by that wiſe and politic prince Chriſtian III.

17
Several provinces ceded to Sweden.

Chriſtian IV. of Denmark, in 1629, was choſen for the head of the Proteſtant league formed againſt the houſe of Auſtria: but, though brave in his own perſon, he was in danger of loſing his dominions; when he was ſucceeded in that command by the famous Guſtavus Adolphus, king of Sweden. The Dutch having obliged Chriſtian, who died in 1648, to lower the duties of the Sound, his ſon Frederic III. conſented to accept of an annuity of 150,000 florins for the whole. The Dutch, after this, perſuaded him to declare war againſt Charles Guſtavus king of Sweden, which had almoſt coſt him his crown in 1657. Charles ſtormed the fortreſs of Fredericſtadt; and in the ſucceeding winter, he marched his army over the ice to the iſland of Funen, where he ſurpriſed the Daniſh troops, took Odenſee and Nyburg, and marched over the Great Belt to beſiege Copenhagen itſelf. Cromwell, the Engliſh uſurper, interpoſed: and Frederic defended his capital with great magnanimity till the peace of Roſchild: by which Frederic ceded the provinces of Halland, Bleking, and Sconia, the iſland of Bornholm, Bahus, and Drontheim, in Norway, to the Swedes. Frederic ſought to elude thoſe ſevere terms; but Charles took Cronenburg, and once more beſieged Copenhagen by ſea and land. The ſteady intrepid conduct of Frederic under theſe misfortunes endeared him to his ſubjects; and the citizens of Copenhagen made an admirable defence, till a Dutch fleet arrived in the Baltic, and beat the Swediſh fleet. The fortune of war was now entirely changed in favour of Frederic, who ſhowed on every occaſion great abilities, both civil and military: and having forced Charles to raiſe the ſiege of Copenhagen, might have carried the war into Sweden, had not the Engliſh fleet, under Montague, appeared in the Baltic. This enabled Charles to beſiege Copenhagen a third time: but France and England offering their mediation, a peace was concluded in that capital; by which the iſland of Bornholm returned to the Danes; but the iſland of Rugen, Bleking, Halland, and Schonen, remained with the Swedes.

18
Remarkable revolution, by which the king is rendered abſolute.

The year 1660 affords us an example of a revolution almoſt unequalled in the annals of hiſtory, viz. that of a free people reſigning their liberty into the hands of their ſovereign, and of their own accord, and without the leaſt compulſion, rendering him deſpotic. This was occaſioned by the great character which Frederic had acquired by his prudent and valiant conduct when Copenhagen was beſieged by the king of Sweden; and at that time he had alſo taken care to ingratiate himſelf with the commonalty, by obliging the nobility to allow them ſome immunities which they did not enjoy before; allowing them alſo, by a ſpecial edict, to poſſeſs lands, and enjoy all the privileges of nobility. After the concluſion of the treaty with Sweden, a diet was ſummoned at Copenhagen, to take into conſideration the ſtate of the kingdom, which was now very much exhauſted, both by reaſon of the debts in which it was involved and by the calamities of war. This diſtreſſed ſtate of affairs was, by the commons, attributed to the nobility; who, on the other hand, took no care to conciliate the affections of the inferior claſſes, but rather increaſed the diſcontents by their arrogance. They had even the imprudence to remonſtrate againſt the immunities abovementioned, which had been granted by the king during the ſiege. In conſequence of this the deputies of the commons and clergy united againſt them; and being joined by the citizens of Copenhagen, formed a very conſiderable party. On bringing forward in the aſſembly the ſums neceſſary for the national exigencies, a general exciſe was propoſed by the nobles on every article of conſumpt; and to which they themſelves were willing to ſubmit, though, by an expreſs law, their order was to be exempted from all taxes. This offer was accompanied with a remonſtrance to the king, in which they endeavoured not only to reclaim many obſolete privileges, but to add freſh immunities, and introduce many other regulations, all of them tending to diminiſh the royal prerogative, and check the riſing influence of the commons and clergy. This propoſal occaſioned great diſputes in the diet; and the two inferior orders inſiſted that they would not admit of any tax which ſhould not be levied equally upon all ranks, without reſerve or reſtriction. The nobles not only refuſed to comply with this propoſal, but even to be ſubject to the tax for more than three years; pretending that all taxes whatever were infringements on their privileges. By way of compenſation, however, they propoſed new duties upon leather and ſtamped paper, and at laſt offered to pay a poll-tax for their peaſants. This exchange ſeemed at firſt to be agreeable to the two inferior eſtates; but they ſuddenly altered their mind, and demanded that the fiefs and domains, which the nobles had hitherto poſſeſſed excluſively, and at a very moderate rent, ſhould be let to the higheſt bidder.

Such a propoſal appeared to the nobles to be to the laſt degree unreaſonable. They ſaid it was an infraction of their deareſt privileges; as, by the 46th article of the coronation oath taken by Frederic, the poſſeſſion of the royal fiefs was guaranteed to their order; but, in the heat of diſpute, one of the chief ſenators having imprudently thrown out ſome reproachful expreſſions againſt the commons, a general ferment enſued, and the aſſembly was broken up in confuſion. This gave occaſion to the interpoſition of the king's friends; and an idea of rendering the crown hereditary, and enlarging the royal prerogative, began to be ſuggeſted as the proper method of humbling the nobility. This was firſt broached by the biſhop of Zealand, at whoſe houſe a numerous meeting was held on the 6th of October 1660, where the ſcheme was fully laid open and approved; an act for rendering the crown hereditary drawn up; and the beſt method of publicly producing it taken into conſideration. All this time the king ſeemed quite inactive, nor could he be prevailed upon to take any part in an affair which ſo nearly concerned him. But this indolence was abundantly compenſated by the alertneſs and diligence of the queen; between whom and the heads of the party matters were ſoon concerted. On the morning of the 8th of October, therefore, the biſhop of Zealand having obtained the conſent and ſignature of the eccleſiaſtical deputies, delivered it to Nauſen burgomaſter of Copenhagen and ſpeaker of the commons. The latter, in a moſt perſuaſive ſpeech, expatiated upon the wretched ſtate of the kingdom, the oppreſſive power of the nobles, and the virtues of the king; concluding with an exhortation to the commons, to ſubſcribe the act as the only means of ſaving their country.

The exhortations of the ſpeaker had ſuch an affect upon the aſſembly, that they ſubſcribed it without a ſingle diſſent; the nobles being all the while in perfect ſucurity, and entirely ignorant of the tranſaction. Next day it was preſented to the king by the biſhop and Nanſen; and as they were returning from the palace, they met the ſenator who had already given offence to the commons. With him they had a violent altercation, and were threatened with impriſonment for preſuming to approach the king without acquainting the order of nobles. This threat was now altogether nugatory. The nobles having got ſome intelligence of what was going forward, had juſt aſſembled in order to conſider of what was to be done, when the deputies of the two other eſtates entered, and informed them of their proceedings, and delivered to them the propoſal for rendering the crown hereditary. By this declaration the nobles were thrown into the utmoſt conſternation; but judging it improper to put a negative on the propoſal at preſent, they endeavoured to gain time, and replied, that though they willingly gave their aſſent to the declaration, yet that, as it was a matter of great conſequence, it deſerved the moſt ſerious diſcuſſion. Nanſen, however, replied, that the other eſtates had already taken their reſolution; that they would loſe no time in debate; and that if the nobles would not concur with them, they would immediately repair to the palace by themſelves, where they had not the leaſt doubt that the king would graciouſly accept their proffer.

In the mean time the nobles had privately diſpatched a meſſenger to the king, intimating, that they were willing to render the crown hereditary in the male line of his iſſue, provided it was done with all the uſual formalities. But this propoſal did not prove agreeable to his majeſty, unleſs they would confirm the right of ſucceſſion to the female line alſo. He added, however, with great appearance of moderation, that he by no means wiſhed to preſcribe rules for their conduct; they were to follow the dictates of their own judgment; but as for his part, he would owe every thing to their free conſent. While the nobles were waiting for this anſwer, the other deputies, perceiving that they wiſhed to keep the matter in ſuſpence, loſt all patience, and repaired in ſolemn proceſſion to the court; where, being admitted into the royal preſence, the matter was opened by the biſhop of Zealand. He addreſſed his majeſty on the reſolution taken by the clergy and commons, offering in their name to render the crown hereditary, and to inveſt him with abſolute authority; adding, that they were ready to ſacrifice their lives in the defence of an eſtabliſhment ſo ſalutary to their country. His majeſty thanked them for their favourable intentions; but mentioned the concurrence of the nobles as a neceſſary condition; though he had no doubt of this when they ſhould have time to accompany the declaration with all the neceſſary formalities; he aſſured them of his protection, promiſed a redreſs of all grievances, and diſmiſſed them with an exhortation to continue their ſittings until they ſhould have brought their deſign to perfection, and he could receive their voluntary ſubmiſſion with all due ſolemnity.

On departure of the commons from the place where they had been conferring with the nobles, the latter had been ſo diſtracted and confuſed, that they broke up without coming to any reſolution, deſigning, however, to decide the matter finally at their meeting on the afternoon of the following day. But while they were thus wavering and irreſolute, the court and the popular party took the neceſſary meaſures to force them to a concurrence. This was effectually done by an order to ſhut the gates; for by this they were ſo much diſpirited that they inſtantly diſpatched deputies to the court, with a meſſage that they were ready to concur with the commons, and ſubſcribe to all the conditions of the royal pleaſure.

Nothing now remained but to ratify the tranſaction with all proper ſolemnity. Accordingly, on the 16th of October, the eſtates annulled, in the moſt ſolemn manner, the capitulation or charter ſigned by the king on his acceſſion to the throne; abſolved him from all his engagements; and cancelled all the limitations impoſed upon his ſovereignty. The whole was concluded by the ceremony of doing homage, taking the new oath with great ceremony; after which a new form of government was promulgated under the title of *The Royal Law of Denmark.*

Frederic was ſucceeded, in 1670, by his ſon Chriſtian V. who obliged the Duke of Holſtein Gottorp to renounce all the advantages he had gained by the treaty of Roſchild. He then recovered a number of places in Schonen; but his army was defeated in the bloody battle of Lunden by Charles XI. of Sweden. This defeat did not put an end to the war; which Chriſtian obſtinately continued, till he was defeated entirely at the battle of Landſcroon; and he had almoſt exhauſted his dominions in his military operations, till he was in a manner abandoned by all his allies, and forced to ſign a treaty on the terms preſcribed by France, in 1679. Chriſtian, however, did not deſiſt from his military attempts; and at laſt he became the ally and ſubſidiary of Louis XIV. who was then threatening Europe with chains. Chriſtian, after a vaſt variety of treating and fighting with the Holſteiners, Hamburghers, and other northern powers, died in 1699. He was ſucceeded by Frederic IV. who, like his predeceſſors, maintained his pretenſions upon Holſtein; and probably muſt have become maſter of that duchy, had not the Engliſh and Dutch fleets raiſed the ſiege of Tonningen; while the young king of Sweden, Charles XII. who was no more than 16 years of age, landed within eight miles of Copenhagen, to aſſiſt his brother-in-law the Duke of Holſtein. Charles probably would have made himſelf maſter of Copenhagen, had not his Daniſh majeſty agreed to the peace of Travendahl, which was entirely in the Duke's favour. By another treaty concluded with the States-General, Frederic obliged himſelf to furniſh a body of troops, who were to be paid by the confederates; and who afterwards did great ſervice againſt the French.

19
Perpetual wars with that kingdom.

Notwithſtanding this peace, Frederic was perpetually engaged in wars with the Swedes; and while Charles was an exile at Bender, he marched through Holſtein in Swediſh Pomerania; and in the year 1712, into Bremen, and took the city of Stade. His troops, however, were totally defeated by the Swedes at Gadeſbaſch, who laid his favourite city of Altena in aſhes. Frederic revenged himſelf, by ſeizing great part of the ducal Holſtein, and forcing the Swediſh general, count Steinbock, to ſurrender himſelf priſoner, with all his troops. In the year 1716, the ſucceſſes of Frederic were ſo great, by taking Tonningen and Stralſund, by driving the Swedes out of Norway, and reducing Wiſmar and Pomerania, that his allies began to ſuſpect he was aiming at the ſovereignty of all Scandinavia. Upon the return of Charles of Sweden from his exile, he renewed the war againſt Denmark with a moſt embittered ſpirit; but on the death of that prince, who was killed at the ſiege of Fredicſhal, Frederic durſt not refuſe the offer of his Britannic majeſty's mediation between him and the crown of Sweden; in conſequence of which a peace was concluded at Stockholm, which left him in poſſeſſion of the duchy of Sleſwic. Frederic died in the year 1730, after having, two years before, ſeen his capital reduced to aſhes by an accidental fire. His ſon and ſucceſſor, Chriſtian Frederic, made no other uſe of his power and the advantages with which he mounted the throne, than to cultivate peace with all his neighbours, and to promote the happineſs of his ſubjects, whom he eaſed of many oppreſſive taxes.

20
An advantageous treaty with Great Britain.

In 1734, after guaranteeing the Pragmatic Sanction, Chriſtian ſent 6000 men to the aſſiſtance of the emperor, during the diſpute of the ſucceſſion to the crown of Poland. Though he was pacific, yet he was jealous of his rights, eſpecially over Hamburgh. He obliged the Hamburghers to call in the mediation of Pruſſia, to aboliſh their bank, to admit the coin of Denmark as current, and to pay him a million of ſilver marks. He had, two years after, viz. 1738, a diſpute with his Britannic majeſty about the little lordſhip of Steinhorſt, which had been mortgaged to the latter by the Duke of Holſtein Lawenburg, and which Chriſtian ſaid belonged to him. Some blood was ſpilt during the conteſt; in which Chriſtian, it is thought, never was in earneſt. It brought on, however, a treaty, in which he availed himſelf of his Britannic majeſty's predilection for his German dominions; for he agreed to pay Chriſtian a ſubſidy of 70,000 l. Sterling a-year, on condition of keeping in readineſs 7000 troops for the proportion of Hanover: this was a gainful bargain for Denmark. And two years after, he ſeized ſome Dutch ſhips for trading without his leave to Iceland; but the difference was made up by the mediation of Sweden. Chriſtian had ſo great a party in that kingdom, that it was generally thought he would revive the union of Calmar, by procuring his ſon to be declared ſucceſſor to his then Swediſh majeſty. Some ſteps for that purpoſe were certainly taken: but whatever Chriſtian's views might have been, the deſign was fruſtrated by the jealouſy of other powers, who could not bear the thoughts of ſeeing all Scandinavia ſubject to one family. Chriſtian died, in 1746, with the character of being the father of his people.

His ſon and ſucceſſor, Frederic V. had, in 1743, married the princeſs Louiſa daughter to his Britannic majeſty. He improved upon his father's plan for the happineſs of his people; but took no concern, except that of a mediator, in the German war. For it was by his intervention that the treaty of Cloſter-ſeven was concluded between his royal highneſs the late duke of Cumberland and the French general Richelieu. Upon the death of his firſt queen, who was mother to his preſent Daniſh majeſty, he married a daughter of the duke of Brunſwic Wolfenbuttel; and died in 1766.

21
Intrigues of the dowager and misfortunes of the young queen.

He was ſucceeded by his ſon Chriſtian VII. his preſent Daniſh majeſty, who married the princeſs Carolina Matilda of England. But this alliance proved extremely unfortunate, which is generally aſcribed to the intrigues of the queen dowager, mother-in-law to the preſent king. She is repreſented as ambitious, artful, and deſigning; and as one who wiſhed to have ſet aſide the king himſelf in favour of her own ſon Frederic. On the arrival of the young queen, however, ſhe received her with much apparent affection, telling her the faults of her huſband, and at the ſame time promiſing to aſſiſt her on all occaſions in reclaiming him from his vicious courſes. Thus, under pretence of kindneſs and friendſhip, ſhe ſowed the ſeeds of diſſention betwixt the royal pair before the unfortunate princeſs had the leaſt ſuſpicion of her danger; and while the unthinking queen revealed to the dowager all her ſecrets, the latter is ſaid to have placed ſpies about the king to keep him conſtantly engaged in riot and debauchery, to which he was at any rate too much inclined. At laſt it was contrived to throw a miſtreſs in his way, which he was adviſed to keep in his palace.—It was impoſſible that any woman could paſs ſuch a piece of conduct unnoticed; however, in this affair, the queen dowager behaved with her uſual duplicity. In the abſence of the king ſhe pretended great reſentment againſt him, and even adviſed the queen not to live with him; but as ſoon as he returned, when his conſort reproached him, though in a gentle manner, with his conduct, ſhe not only took his part, but inſiſted that it was preſumptuous in a queen of Denmark to pretend to direct her huſband's conduct. Notwithſtanding this incendiary behaviour, the queen was in a ſhort time reconciled to her huſband, and lived on very good terms with him until ſhe again excited the jealouſy of the dowager by aſſuming to herſelf the direction of that part of the public affairs which the dowager had been accuſtomed to look upon as her own privilege. For ſome time it ſeemed to be difficult for her to form any effectual plan of revenge, as the king had diſplaced ſeveral of her friends who had for ſome time had a ſhare in the adminiſtration. Two new favourites, Brandt and Struenſee, had now appeared; and as theſe paid great court to the queen, the dowager took occaſion to inſinuate not only that the queen was harbouring improper deſigns with regard to the government, but that ſhe had an intrigue with Struenſee. The new miniſters indeed behaved imprudently, in attempting to make a reformation in ſeveral of the departments of the ſtate at once, inſtead of waiting patiently until an opportunity ſhould offer, and in theſe precipitate ſchemes they were certainly ſupported by the queen. Theſe inſtances of want of circumſpection in the miniſters, were repreſented by the dowager and her party to be a ſettled ſcheme to make an alteration in the government; and a deſign was even ſpoken of to ſuperſede the king as being incapable of governing, to declare the queen regent during the minority of her ſon, and to make Struenſee prime miniſter.

Thus a very formidable oppoſition was formed againſt Brandt and Struenſee; and as the latter had made ſome innovations in the military department as well as the civil, ſome of the principal officers, who were the creatures of the dowager, repreſented him as deſigning to overthrow the whole ſyſtem of government. When matters were brought to a proper bearing, it was at laſt reſolved to ſurpriſe the king in the middle of the night, and force him inſtantly to ſign an order which was to be ready prepared, for commiting the obnoxious perſons to ſeparate priſons, accuſe them of high treaſon in general, and particularly with a deſign to dethrone or poiſon the king. If this could not be properly authenticated, it was determined to ſuborn witneſſes to confirm the report of a criminal correſpondence between the queen and count Struenſee. This deſign was executed on the night of the 16th of January 1772, when a maſked ball was given at the court of Denmark. The queen, after having danced moſt part of the night with count Struenſee, retired to her chamber about two in the morning. About four the ſame morning, prince Frederic got up, and went with the queen dowager to the king's bed-chamber, accompained by general Eichſtedt and count Rantzau. Having ordered the king's valet de chamber to awake him, they informed his majeſty that the queen, with count Struenſee, his brother, and Brandt one of the new miniſters, were at that moment buſy in drawing up an act of renunciation of the crown, which they would immediately compel him to ſign: and therefore there was a neceſſity for him to give an order for the arreſtment. The king is ſaid to have heſitated for ſome time, and inclined to refuſe this ſcandalous requiſition; but at length, through importunity, and according to ſome accounts, being even threatened into compliance, he conſented to what they required. Count Rantzau was diſpatched, at that untimely hour, into the queen's apartments, and immediately executed the orders of the king. The unfortunate princeſs was conveyed in one of the king's coaches to the caſtle of Cronenburgh, together with the infant princeſs, attended by Lady Moſtyn, and eſcorted by a party of dragoons. Struenſee and Brandt were ſeized in their beds and impriſoned, as well as ſeveral other members of the new adminiſtration, to the number of 18. The queen dowager and her adherents ſeemed to aſſume the government entirely into their own hands, and a total change took place in the departments of adminiſtration. The prince royal, ſon of queen Matilda, then in the fifth year of his age, was put under the care of a lady of quality, who was appointed governeſs, under the ſuperintendency of the queen dowager. Struenſee and Brandt were put in irons, and very ſeverely treated: they underwent long and frequent examinations; and Struenſee at laſt confeſſed that 22 Execution of Struenſee and Brandt. he had a criminal intercourſe with the queen. Both their heads were ſtruck off on the 28th of April; but many of their partiſans were ſet at liberty. The confeſſion of Struenſee is by many, and indeed with no ſmall degree of probability, ſuppoſed to have been extorted by fear of the torture, and to have no foundation in truth; but as no means were uſed by the court of Britain to clear up the queen's character, the affair muſt undoubtedly wear a ſuſpicious aſpect. At laſt, however, his Britannic majeſty interfered ſo far as to ſend a ſmall ſquadron of ſhips to convoy the unhappy princeſs to Germany. Here the city of Zell was appointed for her reſidence; and in this place ſhe died of a malignant fever on the 10th of May 1775, aged 23 years and 10 months.

23 Change in the adminiſtration.

The inhuman treatment of this princeſs did not long prove advantageous to the queen dowager and her party: A new revolution took place in April 1784, when the queen dowager's friends were removed, a new council was formed under the auſpices of the prince royal, and no inſtrument deemed authentic unleſs ſigned by the king, and counterſigned by the prince. Since that time, the king, who from the beginning of his adminiſtration ſhowed a great degree of incapacity, has been entirely laid aſide from public buſineſs, and has no ſhare in the government. The Danes are at preſent engaged on the ſide of Ruſſia in her war with the Turks, the immediate opponent of Denmark being Sweden.

24 Diviſion of the kingdom.

The kingdom of Denmark at preſent is divided into ſix grand diſtricts or provinces; viz. 1. Denmark properly ſo called, comprehending the iſlands of Zealand, Funen, Langland, Laaland, Falſtria, Molna, Samſoe, Arroe, Bornholm, Anhoult, Leſſaw, and that part of the continent called *North Jutland*. 2. The duchy of Sleſwick, or South Jutland. 3. The duchy of Holſtein. 4. The earldoms of Oldenburg and Delmenhorſt, 5. The kingdom of Norway; and 6. Iceland, with the iſlands lying in the Northern Seas; for a particular deſcription of which ſee theſe articles.

25 Language, religion, &c.

The language of Denmark is a dialect of the Teutonic, and bears a ſtrong affinity to the Norwegian tongue; but is diſagreeable to ſtrangers, on account of the drawling tone with which it is pronounced. They have borrowed many words from the German; and, indeed, the high Dutch is uſed in common diſcourſe by the court, the gentry, and the burghers. The better ſort likewiſe underſtand French, and ſpeak it fluently. The Lutheran doctrine is univerſally embraced through all Denmark, Sweden, and Norway; ſo that there is not another ſect in theſe kingdoms. Denmark is divided into ſix dioceſes, one in Zealand, one in Funen, and four in Jutland: but the biſhops are, properly ſpeaking, no other than ſuperintendants, or *primi inter pares*. They have no cathedrals, eccleſiaſtical courts, or temporalities. Their buſineſs is to inſpect the doctrine and morals of the inferior clergy. The revenue of the biſhop of Copenhagen amounts to about 2000 rix dollars; and this is the richeſt benefice in the kingdom. The clergy are wholly dependant on the government. They never intermeddle, nor are employed or conſulted in civil affairs. They, nevertheleſs, have acquired great influence, and erected a ſort of ſpiritual tyranny over the minds of the common people, by whom they are much revered. They are, generally ſpeaking, men of exemplary lives, and ſome erudition. Their churches are kept more clean, and better adorned, than thoſe of England: the people are great lovers of muſic, and their organiſts commonly entertain the congregation for half an hour before or after ſervice. The ſtate of literature is very low in Denmark. There is, indeed, an univerſity at Copenhagen; but meanly endowed, and very ill ſupplied with maſters. Taſte and the belles lettres are utterly unknown in this country, which yet has produced ſome men of great eminence in mathematics and medicine ; ſuch as Tycho Brahe, Borrichius, and the Bartholines.

26 Government. The conſtitution of Denmark was heretofore of the free Gothic original. The convention of the eſtates, even including the repreſentatives of the boors or peaſants, elected a king for his perſonal virtues, having ſtill a regard to the ſon of their late monarch, whom, however, they made no ſcruple of ſetting aſide, if they deemed him unworthy of the royal dignity. They enacted laws ; conferred the great offices of ſtate ; debated all affairs relating to commerce, peace, war, and alliances ; and occaſionally gave their conſent to the impoſition of neceſſary taxes. The king was no other than chief magiſtrate, generaliſſimo, and as it were prime miniſter to his people. His buſineſs was to ſee juſtice adminiſtered impartially ; command the army in time of war ; to encourage induſtry, religion, arts, and ſciences ; and to watch over the intereſts of his ſubjects.

In 1660, however, the conſtitution was new modelled, as has been already related, and which was to the following purport. "The hereditary kings of Denmark and Norway ſhould be in effect, and ought to be eſteemed by their ſubjects, the only ſupreme head upon earth ; they ſhall be above all human laws, and ſhall acknowledge, in all eccleſiaſtical and civil affairs, no higher power but God alone. The king ſhall enjoy the right of making and interpreting the laws, of abrogating, adding to, and diſpenſing with them. He may alſo annul all the laws which either he or his predeceſſors ſhall have made, excepting this royal law, which muſt remain irrevocable, and be conſidered as the fundamental law of the ſtate. He has the power of declaring war, making peace, impoſing taxes, and levying contributions of all ſorts," &c. &c.

Then follow the regulations for the order of ſucceſſion, the regency in caſe of minority, the majority of the king, the maintenance of the royal family ; and, after having enumerated all the poſſible prerogatives of regal uncircumſcribed authority, as if ſufficient had not yet been laid down, it is added in the 26th article : "All that we have hitherto ſaid of power and eminence, and ſovereignty, and if there is any thing further which has not been expreſsly ſpecified, ſhall all be compriſed in the following words : "The king of Denmark and Norway ſhall be the hereditary monarch, and endued with the higheſt authority ; inſomuch, that all that can be ſaid and written to the advantage of a Chriſtian, hereditary and abſolute king, ſhall be extended under the moſt favourable interpretation to the hereditary king or queen of Denmark and Norway," &c. &c.

The laws of Denmark are ſo conciſe, that the whole body is contained in one quarto volume, written in the language of the country. Every man may plead his own cauſe, without employing either counſel or attorney ; but there are a few advocates for the benefit of thoſe who cannot or will not ſpeak in their own defence. The proceedings are ſo ſummary, that a ſuit may be carried through all the courts, and finally decided, in 13 months. There are three courts in Denmark, and an appeal lies from the inferior to the ſuperior tribunal. The loweſt of theſe is, in cities and towns, denominated the *Byfoglids Court* ; and in the country, the *Herredsfougds*. Cauſes may be appealed from this to the *Landſtag*, or general head court for the province ; but the final appeal lies to the court of *High-right* in Copenhagen, where the king preſides in perſon, aſſiſted by the prime nobility. The judges of the two other courts are appointed by his majeſty's letters patent, to ſit and determine cauſes *durante bene placito*. Theſe are puniſhable for any miſdemeanours of which they may be guilty ; and when convicted of having paſſed an unjuſt ſentence, they are condemned to make reparation to the injured party. Their ſalaries are very inconſiderable, and paid out of the king's treaſury, from the fines of delinquents, beſides a ſmall gratuity from the plaintiff and defendent when ſentence is paſſed. Such is the peculiar privilege enjoyed by the city of Copenhagen, that cauſes appealed from the Byfoglids court, inſtead of paſſing through the provincial court, are tried by the burgomaſter and common-council ; from whence they proceed immediately to the higheſt court as the leaſt reſource. Affairs relating to the revenue are determined in the rent chamber of Denmark, which is analogous to a court of exchequer. To another tribunal, compoſed of ſome members from this rent-chamber, from the admiralty, and college of commerce, merchants appeal for redreſs, when their commodities are ſeized for non-payment of duties. All diſputes relating to the ſea are determined by the court of admiralty, conſtituted of commiſſioners appointed for theſe purpoſes. The chancellary may be more properly termed a *ſecretary's office*. It conſiſts of clerks, who write and iſſue all the king's decrees and citations, tranſcribe papers, and, according to the directions they receive, make draughts of treaties and alliances with other nations. The goverment of Denmark is very commendable for the excellent policy it mantains. Juſtice is executed upon criminals with great ſeverity ; and ſuch regulations are eſtabliſhed as effectually prevent thoſe outrages that are daily committed in other countries. No man preſumes to wag his tongue againſt the government, far leſs to hatch ſchemes of treaſon. All the ſubjects are, or ſeem to be, attached to their ſovereign by the ties of affection. Robbery on the high-way, burglary, coining or clipping, are crimes ſeldom or never heard of in Denmark. The capital crimes uſually committed are theft and manſlaughter. Such offenders are beheaded very dexterouſly with one ſtroke of a ſword. The executioner, though infamous, is commonly rich ; becauſe, over and above the functions of his office, he is employed in other ſcandalous occupations, which no other perſon will undertake. He, by means of his underſtrapper, called the *pracher*, empties all the jakes, and removes from houſes, ſtables, or ſtreets, dead dogs, horſes, &c. which no other Dane will vouchſafe to touch on any conſideration whatſoever.

28 Slaviſh condition of the Daniſh ſubjects. The Daniſh nobility and gentry are all included in the term *nobleſſe* ; and formerly there were no diſtinctions of title : but within theſe 60 or 70 years, ſome few favourites have been dignified with the titles of *count* and *baron*. Theſe, and theſe only, enjoy the privilege of diſpoſing of their eſtates by will ; though others may make particular diſpoſitions, provided they have ſufficient intereſt to procure the king's approbation and ſignature. The nobleſſe of Denmark formerly lived at their own ſeats with great magnificence ; and at the conventions of eſtates met the king with numerous and ſuperb retinues ; but ſince he became abſolute, they are ſo impoveriſhed by exorbitant taxes, that they can

hardly procure ſubſiſtence; and, for the moſt part, live obſcurely in ſome corner of their ruined country palaces, unleſs they have intereſt enough to procure ſome employment at court. They no longer inherit the ſpirit and virtues of their anceſtors; but are become ſervile, indolent oſtentatious, extravagant, and oppreſſive.

Their general character is a ſtrange compoſition of pride and meanneſs, inſolence and poverty. If any gentleman can find a purchaſer for his eſtate, the king, by the Daniſh law, has a right to one third of the purchaſe-money: but the lands are ſo burdened with impoſitions that there would be no danger of an alienation, even tho' this reſtriction was not in force. Nay, ſome gentlemen in the Iſland of Zealand have actually offered to make a ſurrender to the king of large tracts of very fertile land in the Iſland of Zealand, if his majeſty would be pleaſed to accept of them in place of the impoſitions laid on them. The reaſon of this is, becauſe, by the law of Denmark, if any eſtate is burdened beyond what it can bear, the owner muſt make up the deficiency out of his other eſtates if he has any. Hence the king generally refuſes ſuch offers; and ſome gentlemen have been tranſported with joy when they heard that his majeſty had been "graciouſly pleaſed to accept their whole eſtates."

This oppreſſion of the nobles by the king produces in them a like diſpoſition to oppreſs the commons; and the conſequence of all this is, that there is no part of the world where extravagance and diſſipation reigns to ſuch a degree. The courtiers maintain ſplendid equipages, wear fine clothes, drink a vaſt quantity of French wine, and indulge themſelves with eating to exceſs. Such as derive money from their employments, inſtead of purchaſing land in Denmark, remit their caſh to the banks of Hamburgh and Amſterdam. The merchants and burghers tread in the ſteps of their ſuperiors: they ſpend all their gains in luxury and pleaſure, afraid of incurring the ſuſpicion of affluence, and being ſtripped by taxation. The peaſant, or boor, follows the ſame example. No ſooner has he earned a rix-dollar than he makes haſte to expend it in brandy, leſt it ſhould fall into the hands of his oppreſſive landlord. This lower claſs of people are as abſolute ſlaves as the negroes in the Weſt-Indies, and ſubſiſt upon much harder fare. The value of eſtates is not computed by the number of acres, but by the ſtock of boors, who, like the timber, are reckoned a parcel of the freehold; and nothing can be more wretched than the ſtate of theſe boors. They feed upon ſtock-fiſh, ſalted meats, and other coarſe diet: there is not the leaſt piece of furniture of any value in their houſes, except feather-beds, of which there is great plenty in Denmark; and which are uſed not only as beds to lie on but as blankets for covering. After the boor has toiled as a ſlave to raiſe the king's taxes, he muſt pay the overplus of his toil to his needy landlord. Should he improve his ground and repair his farm-houſe, his cruel maſter will immediately tranſplant him to a barren farm and a naked habitation, that he may let the improved ground to another tenant at a higher price. The peaſants likewiſe ſuſtain a great deal of damage and violence from the licentious ſoldiers that are quartered in their houſes. They are moreover obliged to furniſh horſes and waggons for the royal family and all their attendants when the king makes a progreſs through the country, or removes his reſidence from one palace to another. On ſuch occaſions the neighbouring boors are ſummoned to aſſemble with their cattle and carriages, and not only to live at their own expence, but to bear every ſpecies of outrage from the meaneſt lacquies of thoſe who attend his majeſty. The warlike ſpirit of the Danes no longer ſubſiſts: the common people are mean-ſpirited, ſuſpicious, and deceitful; nor have they that talent for mechanics ſo remarkable in ſome northern nations. While the peaſants are employed in their labour without doors, the women are occupied at home in ſpinning yarn for linen, which is here made in great perfection.

29
Dreſs, &c.

In Denmark, all perſons of any rank above the vulgar dreſs in the French taſte, and affect finery; the winter-dreſs of the ladies is peculiar to the country, very neat, warm, and becoming. The common people are likewiſe remarkably neat, and pride themſelves in different changes of linen. They are very little addicted to jollity and diverſion: their whole amuſements conſiſt in running at the gooſe on Shrove Tueſday, and in winter in being drawn in ſleds upon the ice. They alſo feaſt and make merry at weddings and funerals. With reſpect to marriage, the man and woman frequently cohabit together on contract long before the ceremony is performed. The nobility and gentry pique themſelves on ſumptuous burials and monuments for the dead: the corpſe is very often kept in a vault, or in the chancel of a church, for ſeveral years, before an opportunity offers of celebrating the funeral.

The taverns in this country are poorly ſupplied; and he who diets in them muſt be contented to eat in a public room, unleſs he will condeſcend to pay an extravagant price for a private apartment. The metropolis is but indifferently furniſhed with game. The wild-ducks and plover are hardly eatable; but the hares are good, and the markets ſometimes produce tolerable roebuck. Their ſea-fiſh are not to be commended; but the rivers produce plenty of delicious carp, perch, and craw-fiſh. The gardens of the gentry are well provided with melons, grapes, peaches, and all ſorts of greens and ſalads in perfection.

The army of Denmark is compoſed, 1. of the troops of Denmark and Holſtein; and, 2. of Norway.

30
Army of Denmark.

The forces of Denmark and Holſtein are divided into regulars and national or militia. Theſe forces (the foot and horſe guards excepted who are all regulars) are not ſeparated, as in our army, into diſtinct regiments, but are formed in the following manner: Before the late augmentation, every regiment of infantry, when complete, conſiſted of 26 officers and 1632 privates, divided into ten companies of fuſileers and two of grenadiers. Of theſe 1632 privates, 480, who are chiefly foreigners enliſted in Germany, are regulars. The remaining 1152 are the national militia, or peaſants who reſide upon the eſtates of their landholders, each eſtate furniſhing a certain number in proportion to its value. Theſe national troops are occaſionally exerciſed in ſmall corps upon Sundays and holidays; and are embodied once every year for about 17 days in their reſpective diſtricts. By a late addition of ten men to each company, a regiment of infantry is increaſed to 1778, including officers. The expence of each regiment, which before amounted to L. 6000, has been raiſed by the late augmentation to L. 8000. The cavalry is upon the ſame footing; each regiment conſiſting of 17 officers, including ſerjeants and corporals, and 565 privates, divided into five ſquadrons. Of theſe about 260 are regular and the remainder national troops. The regiments of foot and horſe guards are regulars; the former is compoſed of 21 officers and 465 men, in five companies; and the latter of 7 officers and 154 men, in two ſquadrons.

The forces of Norway are all national troops or militia, excepting the two regiments of Sundenfield and Nordenfield; and as the peaſants of that kingdom are free, the forces are levied in a different manner from thoſe of Denmark. Norway is divided into a certain number of diſtricts, each whereof furniſhes a ſoldier. All the peaſants are, upon their birth, regiſtered for the militia; and the firſt on the liſt ſupplies the vacancy for the diſtrict to which he belongs. After having ſerved from 10 to 14 years they are admitted among the invalids; and when they have attained the ſeniority of that corps receive their diſmiſſion. Theſe troops are not continually under arms; but are only occaſionally exerciſed like the national forces of Denmark. A fixed ſtipend is aſſigned to the officers, nearly equal to that of the officers in the regulars; but the common ſoldiers do not receive any pay except when they are in actual ſervice, or performing their annual manœuvres. The Academy of Land Cadets, inſtituted by Frederic IV. ſupplies the army with officers. According to this foundation, 74 cadets are inſtructed in the military ſciences at the expence of the king. The whole amount of the Daniſh troops is computed at 60,900.

From their inſular ſituation the Danes have always excelled as a maritime people. In the earlier ages, when piracy was an honorable profeſſion, they were a race of pirates, and iſſued from the Baltic to the conqueſts of England and Normandy. And though, ſince the improvement of navigation by the invention of the compaſs, other nations have riſen to a greater degree of naval eminence, ſtill, however, the Danes, as they inhabit a cluſter of iſlands, and poſſeſs a large tract of ſea-coaſt, are well verſed in maritime affairs, and are certainly the moſt numerous, as well as the moſt experienced, ſailors of the north.

The greateſt part of the Daniſh navy is ſtationed in the harbour of Copenhagen, which lies within the fortifications: the depth of water being only 20 feet, the ſhips have not their lower tier of guns on board, but take them in when they get out of port. Beſide large magazines, each veſſel has a ſeparate ſtorehouſe on the water's edge, oppoſite to which ſhe is moored when in harbour, and may by this means be inſtantly equipped. The number of regiſtered ſeamen is near 40,000, and are divided into two claſſes; the firſt compriſes thoſe inhabiting the coaſts, who are allowed to engage in the ſervice of merchant-ſhips trading to any part of the world. Each receives 8s. annually from the crown as long as he ſends a certificate of his being alive; but is ſubject to a recal in caſe of war. The ſecond comprehends the fixed ſailors, who are conſtantly in the employ of the crown, and amount to about 4000, ranged under four diviſions, or 40 companies: they are ſtationed at Copenhagen for the ordinary ſervice of the navy, and work in the dock-yard. Each of them, when not at ſea, receives 8s. *per* month, beſide a ſufficient quantity of flour and other proviſions; every two years a complete ſuit of clothes; and every year breeches, ſtockings, ſhoes, and a cap. Some of them are lodged in barracks. When they ſail, their pay is augmented to 20s. *per* month. The marine artillery conſiſts of 800 men, in four diviſions.

31 Navy. The whole navy conſiſts of 38 ſhips of the line, including 9 of 50 guns and one of 44, and 20 frigates; but if we except thoſe which are condemned, and thoſe which are allotted only for parade, we cannot eſtimate that in 1779 the fleet conſiſted of more than 25 ſhips of the line and 15 frigates fit for ſervice; a number, however, fully adequate to the ſituation of Denmark; and if we include the excellence of the ſailors, it muſt be eſteemed as complete a navy as any in the north.

32 Revenue. The revenue of his Daniſh majeſty ariſes from taxes laid on his own ſubjects; from the duties paid by foreigners, from his own eſtate, crown-lands, and confiſcations. The taxes are altogether arbitrary, and therefore fluctuating; but they are always grevious to the ſubject. They commonly conſiſt of cuſtoms or toll, for export and import; of exerciſe upon the conſumption of wine, ſalt, tobacco, and all kinds of proviſions; of taxes upon marriages, paper, brewing, grinding, and the exerciſe of different profeſſions; of impoſitions on land, poll-money, ground-rent for all houſes in Copenhagen and elſewhere; of money raiſed for maintaining fortifications, and for a portion to the king's daughter when ſhe happens to be married: but this ſeldom exceeds 100,000 rixdollars. One conſiderable article in the revenue is the toll paid by foreign ſhips that paſs through the Sound, or *Ore-Sound* (the ſtrait between Schonen and Zealand), into the Baltic. This was originally no other than a ſmall contribution, which trading nations agreed to make for maintaining lights at certain places, to direct their courſe through the paſſage in dark and ſtormy weather. At the ſame time theſe trading nations agreed, that every ſhip ſhould paſs this way and pay its ſhare of the expence, rather than uſe the Great Belt, which is the other paſſage, but unprovided with any ſuch conveniency. In proceſs of time the Danes converted this voluntary contribution into an exorbitant toll, and even exacted arbitrary ſums, in proportion to the weakneſs of the nation whoſe ſhips they viſited. Theſe exactions ſometimes involved them in quarrels with their neighbours, and the toll was regulated in repeated treaties.

DENNIS, or St Dennis, a famous town of the Iſle of France, with a Benedictine abbey, wherein are the tombs of the kings of France, with a conſiderable treaſure. E. Long. 2. 26. N. Lat. 48. 56.

Dennis (John), the celebrated critic, was the ſon of a reputable tradeſman in London, and born in the year 1657. He received the firſt branches of education at the great ſchool in Harrow on the Hill, where he commenced acquaintance and intimacy with many young noblemen and gentlemen, who afterwards made conſiderable figures in public affairs, whereby he laid the foundation of a very ſtrong and extenſive intereſt, which might, but for his own fault, have been of infinite

nite uſe to him in future life. From Harrow he went to Caius-college Cambridge; where, after his proper ſtanding, he took the degree of bachelor of arts. When he quitted the univerſity, he made the tour of Europe; in the courſe of which he conceived ſuch a deteſtation for deſpotiſm, as confirmed him ſtill more in thoſe Whig principles which he had from his infancy imbibed.

On his return to England he became early acquainted with Dryden, Wycherly, Congreve, and Southerne; whoſe converſation inſpiring him with a paſſion for poetry, and a contempt for every attainment that had not ſomething of the *belles lettres*, diverted him from the acquiſition of any profitable art, or the exerciſe of any profeſſion. This, to a man who had not an independent income, was undoubtedly a misfortune: however, his zeal for the Proteſtant ſucceſſion having recommended him to the patronage of the duke of Marlborough, that nobleman procured him a place in the cuſtoms worth L. 120 *per annum*; which he enjoyed for ſome years, till from profuſeneſs and want of economy, he was reduced to the neceſſity of diſpoſing of it to ſatisfy ſome very preſſing demands. By the advice of Lord Halifax, however, he reſerved to himſelf in the ſale of it, an annuity for a term of years; which term he outlived, and was, in the decline of his life, reduced to extreme neceſſity.

Mr Theo. Cibber relates an anecdote of him, which we cannot avoid repeating, as it is not only highly characteriſtic, of the man whoſe affairs we are now conſidering, but alſo a ſtriking and melancholy inſtance, among thouſands, of the diſtreſsful predicaments into which men of genius and literary abilities are perhaps apter than any others to plunge themſelves, by paying too ſlight an attention to the common concerns of life, and their own moſt important intereſts. “After that he was worn out (ſays that author) with age and poverty, he reſided within the verge of the court, to prevent danger from his creditors. One Saturday night he happened to ſaunter to a public houſe, which in a ſhort time he diſcovered to be without the verge. He was ſitting in an open drinking-room, when a man of a ſuſpicious appearance happened to come in. There was ſomething about the man which denoted to Mr Dennis that he was a bailiff. This ſtruck him with a panic; he was afraid his liberty was at an end; he ſat in the utmoſt ſolicitude, but durſt not offer to ſtir leſt he ſhould be ſeized upon. After an hour or two had paſſed in this painful anxiety, at laſt the clock ſtruck twelve; when Mr Dennis, in an ecſtaſy, cried out, addreſſing himſelf to the ſuſpected perſon, “Now, Sir, bailiff or no bailiff, I don't care a farthing for you, you have no power now.” The man was aſtoniſhed at his behaviour; and when it was explained to him, was ſo much affronted with the ſuſpicion, that had not Mr Dennis found his protection in age, he would probably have ſmarted for his miſtaken opinion. A ſtrong picture of the effects of fear and apprehenſion, in a temper naturally ſo timorous and jealous as Mr Dennis's; of which the following is a ſtill more whimſical inſtance. In 1704 came out his favourite tragedy, *Liberty Aſſerted*; in which were ſo many ſtrokes on the French nation, that he thought they were never to be forgiven. He had worked himſelf into a perſuaſion that the king of France would inſiſt on his being delivered up, before he would conſent to a peace: and full of this idea of his own importance, when the congreſs was held at Utrecht, he is ſaid to have waited on his patron the duke of Marlborough, to deſire that no ſuch article might be ſtipulated. The duke told him he really had no intereſt then with the miniſtry; but had made no ſuch proviſion for his own ſecurity, though he could not help thinking he had done the French as much injury as Mr Dennis himſelf. Another ſtory relating to this affair is, that being at a gentleman's houſe on the coaſt of Suſſex, and walking one day on the ſea-ſhore, he ſaw a ſhip ſailing, as he fancied, towards him: he inſtantly ſet out for London, in the fancy that he was betrayed; and, congratulating himſelf on his eſcape, gave out that his friend had decoyed him down to his houſe, to ſurrender him up to the French.

Mr Dennis, partly through a natural peeviſhneſs and petulence of temper, and partly perhaps for the ſake of procuring the means of ſubſiſtence, was continually engaged in a paper-war with his cotemporaries, whom he ever treated with the utmoſt ſeverity: and, though many of his obſervations were judicious, yet he uſually conveyed them in language ſo ſcurrilous and abuſive, as deſtroyed their intended effect; and as his attacks were almoſt always on perſons of ſuperior abilities to himſelf, viz. Addiſon, Steele, and Pope, their replies uſually turned the popular opinion ſo greatly againſt him, that, by irritating his teſty temper the more, it rendered him a perpetual torment to himſelf; till at length, after a long life of viciſſitudes, diſappointments, and turmoils, rendered wretched by indiſcretion, and hateful by malevolence, having outlived the reverſion of his eſtate, and reduced to diſtreſs, from which his having been daily creating enemies had left him ſcarcely any hopes of relief, he was compelled to what muſt be the moſt irkſome ſituation that can be conceived in human life, the receiving obligations from thoſe whom he had been continually treating ill. In the very cloſe of his days, a play was acted for his benefit at the little theatre in the Hay-market, procured through the united intereſts of Meſſrs Thomſon, Mallet, and Pope; the laſt of whom, notwithſtanding the groſs manner in which Mr Dennis had on many occaſions uſed him, and the long warfare that had ſubſiſted between them, intereſted himſelf very warmly for him; and even wrote an occaſional prologue to the play, which was ſpoken by Mr Cibber. Not long after this, viz. on the 6th of January 1733, he died, being then in the 77th year of his age.

Mr Dennis certainly was poſſeſſed of much erudition, and a conſiderable ſhare of genius. In proſe, he is far from a bad writer, where abuſe or perſonal ſcurrility does not mingle itſelf with his language. In verſe, he is extremely unequal; his numbers being at ſome times ſpirited and harmonious, and his ſubjects elevated and judicious; and at others flat, harſh, and puerile.—As a dramatic author, he certainly deſerves not to be held in any conſideration. It was juſtly ſaid of him by a wit, that he was the moſt complete inſtructor for a dramatic poet, ſince he could teach him to diſtinguiſh good plays by his *precepts*, and bad ones by his *examples*.

DENOMINATION (from *denomino*, of *de* and *nomen*, "a name;" a name impoſed on any thing, uſually expreſſing ſome quality predominant therein.

DENOMINATOR, in arithmetic, a term uſed in ſpeaking of fractions. See ARITHMETIC, n° 21.

DENSITY *of* BODIES, is that property directly oppoſite to rarity, whereby they contain ſuch a quantity of matter under ſuch a bulk.

Accordingly, a body is ſaid to have double or triple the denſity of another body, when, their bulk being equal, the quantity of matter is in the one double or triple the quantity of matter in the other.

DENSITY of the Air, is a property that has employed the later philoſophers, ſince the diſcovery of the Torricellian experiment.

It is demonſtrated, that in the ſame veſſel, or even in veſſels communicating with each other, at the ſame diſtance from the centre, the air has every where the ſame denſity. The denſity of air, *cæteris paribus*, increaſes in proportion to the compreſſing powers. Hence the inferior air is denſer than the ſuperior; the denſity, however, of the lower air is not proportional to the weight of the atmoſphere on account of heat and cold, and other cauſes perhaps which make great alterations in denſity and rarity. However, from the elaſticity of the air, its denſity muſt be always different at different heights from the earth's ſurface: for the lower parts being preſſed by the weight of thoſe above, will be made to accede nearer to each other, and the more ſo as the weight of the incumbent air is greater. Hence the denſity of the air is greateſt at the earth's ſurface, and decreaſes upwards in geometrical proportion to the altitudes taken in arithmetical progreſſion.

If the air be rendered denſer, the weight of bodies in it is diminiſhed; if rarer, increaſed, becauſe bodies loſe a greater part of their weight in denſer than in rarer mediums. Hence, if the denſity of the air be ſenſibly altered, bodies equally heavy in a rarer air, if their ſpecific gravities be conſiderably different, will loſe their equilibrium in the denſer, and the ſpecifically heavier body will preponderate. See PNEUMATICS.

DENTALIUM, in natural hiſtory, a ſhell-fiſh belonging to the order of vermes teſtacea. The ſhell conſiſts of one tubulous ſtraight valve, open at both ends. There are eight ſpecies, diſtinguiſhed by the angles, ſtriæ, &c. of their ſhells.

DENTARIA, TOOTH-WORT, or *Tooth-violet:* A genus of the ſiliquoſa order, belonging to the tetradynamia claſs of plants; and in the natural method ranking under the 39th order, *Siliquoſæ*. The ſiliqua parts with a ſpring, and the valvules roll ſpirally backwards; the ſtigma is emarginated; the calyx cloſing longitudinally. There are three ſpecies, all of them hardy perennials; producing annual ſtalks 12 or 18 inches high, adorned with many-lobed leaves, and ſpikes of quadrupetalous cruciform flowers of a red or purple colour. They delight in ſhady places; and are propagated either by ſeeds or parting the roots. The ſeeds may be ſown in autumn or early in the ſpring, in a ſhady border of light earth; and when the plants are three inches high, they may be planted where they are to remain. The time for parting the roots is in October or November, or early in the ſpring.

DENTATUS (Curius), a renowned diſintereſted Roman general, whoſe virtues render him more memorable than even his great military reputation, flouriſhed 272 years B. C. He was thrice conſul; he conquered the Samnites, Sabines, and Lucanians; and gave each citizen 40 acres of land, allowing himſelf no more. The ambaſſadors of the Samnites making him a viſit, found him boiling turnips in a pipking; upon which they offered him gold to come over to their intereſt; but he told them his deſign was not to grow rich, but to command thoſe who were ſo. He defeated Pyrrhus near Tarentum, and received the honour of a triumph.

DENTELLA, in botany: A genus of the monogynia order, belonging to the pentandria claſs of plants. The calyx is a five-parted perianthium, with ſmall ſubulated leaves; the ſtamina five ſhort ſubulated filaments; the antheræ ſmall; the pericarpium a globular, bilocular capſule; the ſeeds egg-ſhaped, and very numerous.

DENTILES, or DENTILS, in architecture, an ornament in corniches bearing ſome reſemblance to teeth, particularly uſed in the Ionic and Corinthian orders. See ARCHITECTURE.

DENTIFRICE, in medicine, a remedy for the teeth. There are various kinds; generally made of earthy ſubſtances finely pounded, and mixed with alum, or ſome other ſaline ſubſtances; but theſe are pernicious, on account of their wearing away the enamel of the teeth; but more eſpecially by the ſeptic quality with which theſe earthy ſubſtances are endowed. On this account, a portion of Peruvian bark finely pounded is now commonly added, which anſwers the double purpoſe of cleaning the teeth, and preſerving them afterwards from corruption.

DENTISCALPRA, in ſurgery, an inſtrument for ſcouring yellow, livid, or black teeth; to which being applied near the gums, it ſcraps off the foul morbid cruſt.

DENTITION, the breeding or cutting the teeth in children. See (*Index* ſubjoined to) MEDICINE.

DENUNCIATION, a ſolemn publication or promulgation of any thing.

All veſſels of enemies are lawful prizes, after denunciation or proclamation of war. The deſign of the denunciation of excommunicated perſons is, that the ſentence may be the more fully executed by the perſon's being more known.

DENUNCIATION at the Horn, in Scots law. See LAW, Part III. N° clxvi. 14.

DENYS (the Little). See DIONYSIUS.

DEOBSTRUENTS, in pharmacy, ſuch medicines as open obſtructions. See DETERGENT.

DEODAND, in Engliſh cuſtoms, a thing given or forfeited as it were to God, for the pacification of his wrath in a caſe of miſadventure, whereby a Chriſtian ſoul comes to a violent end, without the fault of any reaſonable creature.

As, if a horſe ſtrike his keeper and kill him: if a man, in driving a cart, falls ſo as the cart-wheel runs over him, and preſſes him to death: if one by felling a tree, and gives warning to the ſtanders-by to look to themſelves, yet a man is killed by the fall thereof: in the firſt place, the horſe; in the ſecond, the cart-wheel, cart and Horſes; and in the third, the tree, is *Deo dandus*, "*to be given to God*," that is, to the king, to be diſtributed to the poor by his almoner, for expiation of this dreadful event; though effected by irrational, nay, ſenſeleſs and dead creatures.

Omnia quæ movent ad mortem ſunt Deodanda.
What moves to death, or kills him dead,
Is *Deodand*, and forfeited.

This law ſeems to be an imitation of that in Exodus, chap. xxi. "If an ox gore a man, or a woman, with his horns, ſo as they die; the ox ſhall be ſtoned to death, and his fleſh not be eat; ſo ſhall his owner be innocent."

Fleta ſays, the Deodand is to be ſold, and the price diſtributed to the poor, for the ſoul of the king, his anceſtors, and all faithful people departed this life.

DEPHLEGMATION, is an operation by which the ſuperabundant water of a body is taken from it; and it is principally effected by evaporation or diſtillation. Dephlegmation is alſo called *concentration*, particularly when acids are the ſubject. See CONCENTRATION.

DEPHLOGISTICATED, in chemiſtry, any thing deprived of the phlogiſton ſuppoſed to be contained in it.

DEPHLOGISTICATED *Air*, an inviſible elaſtic fluid, of ſomewhat greater ſpecific gravity than that of the common atmoſphere, and capable of ſupporting animal life and flame for a much longer time than the air we commonly breathe.

This fluid was firſt diſcovered by Dr Prieſtley, and a very ſhort time after by Mr Scheele, who appears to have been entirely unacquainted with what the Doctor had done. The methods of making it artificially are enumerated under the article AEROLOGY; here we ſhall make ſome obſervations on the way in which nature ſeems to accompliſh the ſame end. Under that article, as well as that of FIXED *Air*, and others connected with them, it has been obſerved, that this kind of air becomes convertible into fixed air by the addition of a certain proportion of phlogiſton or charcoal; and that theſe two ingredients may be again ſeparated by certain means; the dephlogiſticated air aſſuming its proper ſtate, and the charcoal its own native form. A great number of experiments alſo are there related concerning the effects of vegetables in purifying tainted air, and their emiſſion of the dephlogiſticated kind; which has been thought to indicate, that vegetation is probably one of the methods by which nature ſupplies the great quantity of this fluid neceſſary for the purpoſes of animal life. This was ſuggeſted by an experiment of Dr Prieſtley, who had diſcovered that pump-water, on being expoſed to the light of the ſun, ſoon began to emit pure air; and that, after ſome days, a quantity of green matter accumulated on the ſides of the veſſel. This was naturally ſuppoſed to be of the vegetable kind, till Sir Benjamin Thomſon found it to conſiſt of a number of very minute animals. Upon this diſcovery he diſputed the commonly received opinion, that vegetation is employed by nature as a purifier of the atmoſpherical air. He likewiſe oppoſed the concluſion drawn from Dr Ingenhouſz's experiments, who had obſerved that freſh leaves of plants immerſed in water, and expoſed to the light, emitted a vaſt quantity of dephlogiſticated air. Sir Benjamin juſtly obſerved, that a leaf certainly ceaſed to vegetate after being ſeparated from the plant on which it grew; and therefore the emiſſion of this kind of air could by no means be aſcribed to vegetation: as a more deciſive proof of which, he likewiſe urged, that leaves, after being entirely dead and withered, would notwithſtanding emit dephlogiſticated air for a very conſiderable time. Thus matters ſeemed to be rendered doubtful: but by an attentive obſervation of all circumſtances relating to theſe experiments, we ſhall find that conſiderable light will be thrown upon the ſubject.

In the firſt place, we are to conſider that the light of the ſun, or at leaſt a very ſtrong light of ſome kind, is neceſſary in all theſe productions of dephlogiſticated air; for if the apparatus is ſet in a very dark place, little will be formed, and that of a bad quality. So ignorant are we of the nature of this myſterious fluid, that ſcarce any inquiry has been made into its mode of operation in producing dephlogiſticated air. By ſome the element of light has been ſuppoſed to be phlogiſton itſelf, or ſome modification of it: but ſince the diſcovery of the identity of phlogiſton and charcoal, it is probable that this opinion will not be held by many. One experiment, however, commonly brought in favour of this ſuppoſition, deſerves particular attention. This is the property which light has of giving a black colour to the calces of ſilver; a phenomenon ſo remarkable, that it has been imagined an indubitable proof of the identity of light and phlogiſton. In like manner, the pure and dephlogiſticated ſpirit of nitre is found to be converted into the phlogiſticated and ſmoking kind by expoſure to the ſolar rays. The extenſive diffuſion of the ſubſtance called *phlogiſton*, however, is now ſo well known, that we may reaſonably conclude, that in theſe experiments it was contained in the ingredients themſelves, and not in the light. Thus when ſilver is precipitated by chalk, and the maſs turns black on expoſure to the ſun's rays, we are very ſure that the chalk contains phlogiſton; and that there is an attraction between the metallic calx and this principle: but we are by no means aſcertained of the nature of light, as not being in any manner of way the ſubject of our inveſtigation except by obſerving its effects. As in all other caſes, therefore, where light is concerned, we can only ſay that ſuch a thing is the *effect* of the operation of light, and not the ſubſtance of the element made viſible, or converted into ſome other thing; we have no reaſon, in this caſe, to ſay, that the blackening of the metallic clax is any other than an effect of the light's operation, and not the detention of any part of its ſubſtance. This operation may be eaſily conceived to be the promoting of the union of the phlogiſton and calx, which we know that light has a great tendency to do at any rate when we augment its action in ſuch a manner as to make it become *fire*. The tendency of light, therefore, to promote an union betwixt phlogiſton and other ſubſtances, will explain this and many other experiments in a very eaſy manner. In the caſe of chalk and calx of ſilver, the action of the light enables the calx to attract the phlogiſton of the chalk, and thus become black. If the calx is not precipitated by chalk, but by an alkali, it muſt be in contact either with air, water, or ſome other fluid. All theſe undoubtedly contain phlogiſton. With regard to air, it has not been denied that it is a general receptacle of all the decayed and volatile parts of vegetables and animals; that it contains vaſt quantities of inflammable air, which are conſtantly emitted from various parts of the earth; and, according to the Phlogiſtians, that fluid called *phlogiſticated air*, which conſtitutes the other part of the fluid we breathe, likewiſe contains a quantity of the ſame matter. We are not to be ſurpriſed therefore that, in the caſe of the calx of ſilver, ſome of theſe ſubſtances ſhould be obliged to part with a little of their phlogiſton, ſufficient to blacken the metallic earth. In order to prove that *light* and phlogiſton are the ſame, the experiment ought to ſucceed in a perfect vacuum, of which there is no probability; though indeed it has never been tried that we know of. In like manner, when ſpirit of nitre is rendered high coloured and ſmoking by expoſure to the ſun in a glaſs, the phlogiſton may come either from the glaſs itſelf, which is now found to contain phlogiſton, or from the quantity of air which is neceſſary to be left in the glaſs, in order to make the experiment ſucceed.

Thus we may reaſonably ſuppoſe the blackening of the calx of ſilver, and the rendering clear ſpirit of nitre high-coloured, to proceed only from the ſeparation of phlogiſton by means of light, and its conſequent attraction by the calx or acid; and in other caſes, where any ſimilar effect is obſerved by the expoſure of bodies to that element, we are to ſuppoſe that it is occaſioned by the detachment of phlogiſton from one ſubſtance and its attachment to another. In the caſe of the emiſſion of dephlogiſticated air by means of light, therefore, we may, by reaſoning analogically, conclude, that it is occaſioned by the abſorption of phlogiſton by the ſubſtance which is ſaid to emit the air.

Before this matter, however, can be determined exactly, we ought to be well acquainted with the compoſition of dephlogiſticated air itſelf; and indeed, without this, it ſeems almoſt in vain to ſpeak upon the ſubject. But, notwithſtanding the labours and ingenuity of modern aerologiſts, this point has not been in any degree ſettled. On examination, it is found to conſiſt of an inviſible fluid which does not appear to gravitate, and which in all probability is no other than elementary fire; and of another ſubſtance equally inviſible, but capable of attaching itſelf to certain bodies, particularly iron, and adding to its weight very conſiderably. On attempting to procure this ſubſtance by itſelf, we find the attachment ſo ſtrong, that no force of fire can ſeparate them. In attempting a decompoſition by means of the electric ſpark, all that has been yet done, even with the greateſt power of electricity excited by Van Marum's new machine, is to make it loſe ſome part of its bulk, the remainder appearing by the eudiometer to have undergone no change. Dr Prieſtley, in his ſixth volume of Experiments on Air, acquieſces in the opinion ſuggeſted to him by Mr Watt, that the air in queſtion is nothing elſe but one of the component parts of water united with the element of heat. Allowing this to be juſt, and indeed there is no experiment hitherto publiſhed by which it can be contradicted, the natural method of the production of dephlogiſticated air from water may be eaſily explained. This only requires us to ſuppoſe, that the ſubſtances immerſed in the water, are by the action of the ſun's light made to attract part of the phlogiſton of the water; in conſequence of which the dephlogiſticated part of that element, inſtantly being volatilized by the light and heat of the ſun (for heat is neceſſary for the production as well as light), aſſumes the properties of dephlogiſticated air. But why, it may be aſked, does water of itſelf emit dephlogiſticated air without any ſubſtance whatever immerſed in it? or, after certain ſubſtances have been immerſed in it, by which this emiſſion is promoted, why does the production of air ſtop with regard to any particular ſubſtance, and any determined quantity of water? Thus, it may be ſaid, if any quantity of water, ſuppoſe a pint, yields one inch of cubic air by the immerſion of a certain ſubſtance into it, why does not this ſubſtance attract from it all the phlogiſton it is capable of abſorbing? Inſtead of this, the water appears, by the colour it acquires, to be more phlogiſticated than before; and the ſubſtance immerſed, by being put into freſh water, will immediately occaſion the emiſſion of new quantities of air, and this for ſeveral times running. But to this it may be replied, that though the ſubſtance immerſed attracts the phlogiſton of the water, the latter will part with it only to a certain degree; and it is well known, that when two ſubſtances are united to the point of ſaturation by chemical attraction, the abſtraction of a part of one of them will increaſe the attraction betwixt the remainder to a great degree. Though the ſubſtance immerſed in the fluid, therefore, has originally a greater attraction for the phlogiſton of the water than the dephlogiſticated part of the element itſelf; yet as the one gradually augments, and the other diminiſhes, a balance ſoon takes place. With regard to the green colour generally aſſumed by the water after ſuch experiments, it moſt probably proceeds from an accumulation of ſome terreſtrial particles partly ſupplied by the immerſed ſubſtance, or perhaps from a diſpoſition to generate the green matter obſerved by Dr Prieſtley. That the ſubſtance immerſed in the water does really part with ſome particles, is evident, becauſe the water ſmells of it, as when raw ſilk is made uſe of; nor can we ſuppoſe that any vegetable or animal ſubſtance, ſuch as are found to be alone fit for theſe experiments, can endure a long maceration in water without parting with a conſiderable quantity of their component parts. Indeed, under the article CHARCOAL, it is ſhown that this body, though now allowed to be pure phlogiſton, or the next thing to it, has the power of ſeparating other phlogiſtic matter, probably ſuch as is more impure, from different ſubſtances. Hence its property of whitening tartar, purifying malt ſpirits, &c. It is not unreaſonable, therefore, to ſuppoſe, that a dead leaf, though a very phlogiſtic ſubſtance, may have the power of attracting more phlogiſton from the water, and thus allowing part of that element to be changed into dephlogiſticated air; while, in lieu of the phlogiſton attracted from the water, it diffuſes a certain portion of its own ſubſtance through the fluid, and thus gives it the colour in queſtion. With regard to the other difficulty, viz. that water, when expoſed to the ſolar rays, will emit dephlogiſticated air without any thing immerſed in it, it may be accounted for from the eaſe with which the dephlogiſticated part of the water is volatilized; ſo that the attraction of the other is not able to detain it. This we find exemplified in ſeveral chemical experiments, as when a volatile alkali is joined with any of the more fixed acids; for in theſe caſes the alkali, notwithſtanding the mutual attraction betwixt it and the acid, will be made to fly off by a ſtrong heat.

On the ſuppoſition that dephlogiſticated air is compoſed of elementary fire and one of the conſtituent parts of water, there is very little difficulty in accounting for the origin of the immenſe quantity neceſſary to ſupply the animal creation with it. Under the article DAMPS, it has been ſhown that a vaſt quantity of fixed air is continually elaborated in the bowels of the earth. This is compoſed entirely of dephlogiſticated air, compounded with a certain portion of phlogiſton. Part of this fixed air muſt be undoubtedly evaporating conſtantly from the ſurface, and would as certainly infect the lower parts of the atmoſphere, were there not ſome natural cauſes for its decompoſition. One of theſe undoubtedly is the abſorption of the phlogiſtic part by vegetables, which under the article AGRICULTURE is ſhown to be their proper food. But when the phlogiſton is abſorbed, a great quantity of dephlogiſticated air is prepared, which ſupplies the deficiency occaſioned by the reſpiration of animals. It muſt likewiſe be obſerved, that after the dephlogiſticated air has been ſpoiled either by reſpiration or the ſupport of flame, it is not for that reaſon entirely deſtroyed, but only converted into fixed air, and conſequently may again be purified as before.

It may be likewiſe reaſonably ſuppoſed, that in caſes where vegetation does not take place, and in ſpring before the plants begin to exert their vegetative powers, and in autumn, or the beginning of winter, when they decay, the vegetable ſoil itſelf may perform this office: and indeed the circumſtance of freſh vegetable mold affording an agreeable ſmell when turned up, as is mentioned under the article AGRICULTURE, ſeems to be a conſiderable confirmation of this.

The property which water has of abſorbing fixed air, and alſo phlogiſton, may likewiſe induce us to ſuppoſe that it acts as a purifier not only of the common atmoſphere, but of that which iſſues from the earth; and hence ſome waters, particularly that of the ocean, are found to contain air of a purer kind than that of the atmoſphere.

As light, however, is an indiſpenſable requiſite in all theſe caſes, a difficulty ſtill remains concerning the production of dephlogiſticated air in winter, when the light and heat are ſo much diminiſhed. In this ſeaſon, indeed, it is probable that a quantity will be produced greatly inferior to that which the ſummer affords: but here we may very reaſonably have recourſe to the immenſe magazine of the atmoſphere itſelf; which, from the mere circumſtance of quantity, muſt be much more than ſufficient to anſwer the expences of one ſeaſon; eſpecially when we conſider, that in ſummer a ſuperabundant quantity is certainly produced. Add to this, that in extreme cold, fixed air ſeems not only to be leſs noxious than at other times, but even neceſſary for the preſervation of health*. We muſt likewiſe conſider, that during the winter ſeaſon there will be a conſtant flux of the cold air of the northern and ſouthern regions towards the equator; and this, however imperceptible to the inhabitants, will keep up a conſtant circulation of atmoſpherical fluid, ſo that there cannot be any ſtagnation even in the calmeſt weather and moſt ſevere and long continued froſts.

Soon after Dr Prieſtley began his experiments on air, he found that the red colour of the blood depends on the air; that by coming in contact with it, the black venous blood became in a very ſhort time of a beautiful florid colour; and that even the under ſide of a clot of blood, by expoſure to the air, will loſe its diſagreeable dark colour, and aſſume the ſame with that of blood newly drawn. Theſe effects are entirely to be attributed to the dephlogiſticated part: and his theory of reſpiration being a phlogiſtic proceſs, ſeems to be fully confirmed by the diſcovery of the compoſition of fixed air. For, as fixed air is known to be compoſed of phlogiſton and dephlogiſticated air, we cannot ſuppoſe this phlogiſton to be derived from any other ſource than the lungs. The doctor in this theory likewiſe obviates an objection that might naturally occur, that the air has not immediate acceſs to the blood in the lungs, becauſe of the thin membranes of the veſſels which intervene. But, from his experiments, it appears that this is no obſtacle. The ſerum of blood he finds to be capable of tranſmitting dephlogiſticated air, or at leaſt of propagating this effect through a very conſiderable thickneſs of its own ſubſtance, as well as through bladders moiſtened with it; a property which does not belong to any other animal fluid.

As dephlogiſticated air is now known to be the immediate ſupport of animal life, it has naturally been ſuppoſed that it might anſwer valuable purpoſes in medicine; but the difficulty of procuring it in ſufficient quantity has hitherto prevented theſe hopes from being realized, excepting only in caſes of drowning, where it is ſaid to produce very great effects. With regard to any method of preparing it, no farther diſcovery has been made than what is ſuggeſted under the article AEROLOGY.

DEPILATORY MEDICINES, thoſe applied in order to take off the hair; ſuch are lime and orpiment known to be, but which ought to be uſed with great caution.

DEPONENT, in Latin grammar, a term applied to verbs which have active ſignifications, but paſſive terminations or conjugations, and want one of their participles paſſive.

DEPONENT, in the law of Scotland, a perſon who makes a depoſition. See DEPOSITION.

DEPOPULATION, the act of diminiſhing the number of people in any country, whether by war or bad politics.

DEPORTATION, a ſort of baniſhment uſed by the Romans, whereby ſome iſland or other place was allotted to a criminal for the place of his abode, with a prohibition not to ſtir out of the ſame on pain of death.

DEPOSIT, among civilians, ſomething that is committed to the cuſtody of a perſon, to be kept without any reward, and to be returned again on demand.

DEPOSITARY, in law, a perſon intruſted as keeper or guardian of a depoſit.

DEPOSITION, in law, the teſtimony given in court by a witneſs upon oath.

DEPOSITION is alſo uſed for the ſequeſtering or depriving a perſon of his dignity and office.

This depoſition only differs from abdication, in that the latter is ſuppoſed voluntary, and the act of the dignitary, or officer himſelf; and the former of compulſion, being the act of a ſuperior power, whoſe authority

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* See *Fixed Air.*

rity extends thereto. Some ſay the depoſition, and ſome the abdication, of king James II.

Depoſition does not differ from deprivation: we ſay indifferently, a depoſed, or deprived biſhop, official, &c.

Depoſition differs from ſuſpenſion, in that it abſolutely and for ever ſtrips or diveſts a prieſt, &c. of all dignity, office, &c. whereas ſuſpenſion only prohibits, or reſtrains, the exerciſe thereof.

Depoſition only differs from degradation, in that the latter is more formal, and attended with more circumſtances, than the former; but in effect and ſubſtance they are the ſame; thoſe additional circumſtances being only matter of ſhow, firſt ſet on foot out of zeal and indignation, and kept up by cuſtom, but not warranted by the laws or canons. See DEGRADATION.

DEPRECATION, in rhetoric, a figure whereby the orator invokes the aid and aſſiſtance of ſome one; or prays for ſome great evil or puniſhment to befal him who ſpeaks falſely, either himſelf or his adverſary.

DEPRECATORY, or DEPRECATIVE, in theology, a term applied to the manner of performing ſome ceremonies in the form of prayer.

The form of abſolution is deprecative in the Greek church, being conceived in theſe terms, *May God abſolve you:* whereas it is in the declarative form in the Latin church, and ſome of the reformed churches, *I abſolve you.*

DEPRESSION *of the* POLE. When a perſon ſails or travels towards the equator, he is ſaid to depreſs the pole; becauſe as many degrees as he approaches nearer the equator, ſo many degrees will the pole be nearer the horizon. This phenomenon ariſes from the ſpherical figure of the earth.

DEPRESSOR, or DEPRIMENS, in anatomy, a name applied to ſeveral muſcles, becauſe they depreſs the parts they are faſtened to.

DEPRIVATION, in the common law, the act of bereaving, diveſting, or taking away a ſpiritual promotion or dignity: as when a biſhop, vicar, prebend, or the like, is depoſed or deprived of his preferment, for ſome matter, or fault, in fact, or in law. See DEPOSITION.

Deprivation is of two kinds; *a beneficio, et ab officio.*

DEPRIVATION *a beneficio* is, when for ſome great crime a miniſter is wholly and for ever deprived of his living or preferment: which differs from ſuſpenſion, in that the latter is only temporary.

DEPRIVATION *ab officio*, is when a miniſter is for ever deprived of his order: which is the ſame, in reality, with what we otherwiſe call *depoſition* and *degradation;* and is uſually for ſome heinous crime deſerving death, and is performed by the biſhop in a ſolemn manner. See DEGRADATION.

DEPTFORD, a town three miles eaſt of London, on the ſouthern banks of the Thames; chiefly conſiderable for its fine docks for building ſhips, and the king's yard. E. Long. 0. 4. N. Lat. 51. 30.

DEPTH, the meaſure of any thing from the ſurface downwards.

Meaſuring of DEPTHS *by the Barometer*, depends on the ſame principles on which heights are meaſured by the ſame inſtrument. The menſuration of depths being chiefly applied to mines, is ſtill more precarious than the menſuration of heights, on account of the various kinds of vapours with which theſe ſubterranean regions are filled. But for a particular account of theſe difficulties, with the beſt methods of obviating them, ſee the articles BAROMETER and MINES.

DEPTH *of a Squadron*, or *Battalion*, is the number of men in a file; which in a ſquadron is three, and in a battalion generally ſix. See SQUADRON, FILE, &c.

We ſay, the battalion was drawn up ſix *deep;* the enemies horſe were drawn up five *deep*.

DEPURATION is the freeing of any fluid from its heterogeneous matter or feculence. It is of three kinds. 1. Decantation; which is performed by letting the liquid to be depurated ſtand for ſome time in a pretty deep veſſel, till the groſs ſediment has fallen to the bottom; after which the clear fluid is poured off. 2. Deſpumation; which is performed by means of the whites of eggs, or other viſcid matter, and is alſo called CLARIFICATION. 3. Filtration. See CHEMISTRY, nº 69.

DEPURATORY FEVER, a name given by Sydenham to a fever which prevailed much in the years 1661, 1662, 1663, and 1664. He called it depuratory, becauſe he ſuppoſed that nature regulated all the ſymptoms in ſuch a manner, as to fit the febrile matter, prepared by proper concoction, for expulſion in a certain time, either by a copious ſweat or a freer perſpiration.

DEPUTATION, a miſſion of ſelect perſons out of a company or body, to a prince or aſſembly, to treat of matters in their name.

DEPUTY, a perſon ſent upon ſome buſineſs by ſome community.

DEPUTY is alſo one that exerciſes an office in another's right; and the forfeiture or miſdemeanour of ſuch deputy ſhall cauſe the perſon whom he repreſents to loſe his office.

DEPUTATUS, among the ancients, a name applied to perſons employed in making of armour; and likewiſe to briſk active people, whoſe buſineſs was to take care of the wounded in engagements, and carry them off the field.

DER, a ſyllable frequently prefixed to the names of places in England. It is ſaid to ſignify that ſuch were formerly places where wild beaſts herded together, ſo called from the Saxon *deop, fera*, unleſs the ſituation was near ſome river.

DERBEND, a ſtrong town of Aſia, in Perſia, ſaid to have been founded by Alexander the Great. The walls are built with ſtones as hard as marble; and near it are the remains of a wall which reached from the Caſpian to the Black Sea. It is ſeated near the Caſpian Sea, at the foot of Mount Caucaſus. E. Long. 50. 0. N. Lat. 42. 8.

DERBY, the capital of a county of the ſame name in England. It is thought to have received its name from being formerly a park or ſhelter for deer; and what makes this ſuppoſition more probable is, that the arms of the town conſiſt of a buck couchant in a park. It is very ancient, having been a royal borough in the time of Edward the Confeſſor. At preſent it is a neat town, very populous, and ſends two members to parliament. In digging for foundations of houſes, human bones of a monſtrous ſize have ſometimes been found. The trade conſiſts in wool, corn, malt, and ale, of which conſiderable quantities are ſent to London. Here alſo is that curious machine for throwing ſilk, the model of which Sir Thomas Lombe, at the hazard of his life, brought from Italy. Before that time, the Engliſh merchants uſed to purchaſe thrown ſilks of the Italians for ready money. But by the help of this wonderful machine, one hand-mill will twiſt as much ſilk as 50 people could do without it. It works 73,726 yards of ſilk every time the water-wheel goes round, which is thrice in a minute. The houſe in which it is contained is five or ſix ſtories high, and half a quarter of a mile in length. When Sir Thomas's patent expired in 1732, the parliament were ſo ſenſible of the value and importance of the machine, that they granted him a further recompence of 14,000 l. for the hazard and expence he had incurred in introducing and erecting it, upon condition he ſhould allow an exact model of it to be taken. This model is depoſited in the Tower of London, in order to prevent ſo curious and important an art from being loſt. The town of Derby is watered by a river and a brook; the latter of which has nine bridges over it, the former only one. Derby gives title of Earl to the noble family of Stanley, being the ſecond earldom in England. W. Long. 1. 45. N. Lat. 52. 57.

DERBY-SHIRE, a county of England, bounded on the eaſt by Nottingham-ſhire, and a part of Leiceſterſhire, which laſt bounds it alſo on the ſouth. On the weſt it is bounded by Stafford-ſhire, and part of Cheſhire; and on the north by Yorkſhire. It is near 40 miles in length from ſouth to north; about 30 in breadth on the north ſide, but on the ſouth no more than ſix.—The air is pleaſant and healthful, eſpecially on the eaſt ſide; but on the weſt, about the peak, it is ſharper and more ſubject to wind and rain. The ſoil is very different in different parts of the country. In the eaſt and ſouth parts it is very fruitful in all kinds of grain; but in the weſt, beyond the Derwent, it is barren and mountainous, producing nothing but a little oats. There is, however, plenty of graſs in the valleys, which affords paſture to a great number of ſheep. This part of the country is called the *Peak*, from a Saxon word ſignifying an eminence. Its mountains are very bleak, high, and barren; but extremely profitable to the inhabitants. They yield great quantities of the beſt lead, antimony, iron, ſcythe-ſtones, grind-ſtones, marble, alabaſter, a coarſe ſort of cryſtal, azure, ſpar, and pit-coal. In theſe mountains are two remarkable caverns, named *Pool's Hole*, and *Eiden-Hole*; for a deſcription of which, ſee theſe articles.

DEREHAM, a town of Norfolk in England, ſituated in E. Long. 1. 0. N. Lat. 52. 40. It is pretty large, and the market is noted for wollen yarn.

DERELICTS, (from *de*, and *relinquo*, "I leave"), in the civil law, are ſuch goods as are wilfully thrown away, or relinquiſhed by the owner.

DERELICT is alſo applied to ſuch lands as the ſea receding from leaves dry, and fit for cultivation. If they are left by a gradual receſs of the ſea, they are adjudged to belong to the owner of the adjoining lands; but when an iſland is formed in the ſea, or a large quantity of new land appears, ſuch derelict lands belong to the king.

DERHAM (Doctor William), a very celebrated Engliſh philoſopher and divine, born in 1657. In 1682, he was preſented to the vicarage of Wargrave in Berkſhire; and, in 1689, to the valuable rectory of Upminſter in Eſſex; which latter lying at a convenient diſtance from London, afforded him an opportunity of converſing and correſponding with the greateſt virtuoſos of the nation. Applying himſelf there with great eagerneſs to natural and experimental philoſophy, he ſoon became a diſtinguiſhed member of the Royal ſociety, whoſe Philoſophical Tranſactions contain a great variety of curious and valuable pieces, the fruits of his laudable induſtry. In his younger years he publiſhed his Artificial Clockmaker, which has been often printed: and in 1711, 1712, and 1714, he preached thoſe ſermons at Boyle's lecture which he afterward digeſted under the well-known titles of *Phyſico-Theology* and *Aſtro-Thelogy*, and enriched with valuable notes and copper-plates. The laſt thing he publiſhed of his own compoſition was *Chriſto-Theology*, a demonſtration of the divine authority of the Chriſtian religion, being the ſubſtance of a ſermon preached at Bath in 1729. This great good man, after ſpending his life in the moſt agreeable as well as improving ſtudy of nature, died at Upminſter in 1735; and, beſide many other works, left a valuable collection of curioſities, particularly ſpecimens of birds and inſects of the iſland.—It may be neceſſary juſt to obſerve, that Dr Derham was very well ſkilled in medical as well as in phyſical knowledge; and was conſtantly a phyſician to the bodies as well as to the ſouls of his pariſhioners.

DERIVATION, in medicine, is when a humour which cannot conveniently be evacuated at the part affected, is attracted from thence, and diſcharged elſewhere; thus, a bliſter is applied to the neck to draw away the humour from the eyes.

DERIVATION, in grammar, the affinity one word has with another, by having been originally formed from it. See DERIVATIVE.

DERIVATIVE, in grammar, a word which takes its origin from another word, called its *primitive*.—Such is the word derivative itſelf, which takes its origin from the primitive *rivus*, a rivulet or channel, out of which leſſer ſtreams are drawn; and thus *manhood*, *deity*, *lawyer*, &c. are *derived* from *man*, *deus*, *law*, &c.

DERMESTES, in zoology, a genus of inſects belonging to the order of coleoptera. The antennæ are clavated, with three of the joints thicker than the reſt; the breaſt is convex; and the head is inflected below the breaſt. The ſpecies are pretty numerous.

1. The lardarius is of an oblong form and of a dim black colour, eaſily diſtinguiſhable by a light brown ſtripe that occupies tranſverſely almoſt the anterior half of the elytra. That colour depends on ſmall grey hairs ſituated on that part. The ſtripe is irregular at its edges, and interſected through the middle by a ſmall tranſverſal ſtreak of black ſpots, three in number on each of the elytra. the middlemoſt of which is ſomewhat lower than the reſt, which gives the black ſtreak a ſerpentine form. Its larva that is oblong, ſomewhat

hairy, and divided into ſegments alternately dark and light coloured, gnaws and deſtroys preparations of animals preſerved in collections, and even feeds upon the inſects; it is alſo to be found in old bacon. 2. The domeſticus varies greatly in ſize and colour, ſome being found of a dark brown, others of a much lighter hue. The form of it is oblong, almoſt cylindrical. The elytra are ſtriated, the thorax is thick and rather gibbous. This little animal, when touched, draws in its head under its thorax and its feet beneath its abdomen, remaining ſo motionleſs that one would think it dead. This is the ſame inſect which makes in wooden furniture thoſe little round holes that reduce it to powder. 3. The violaceus is a beautiful little inſect: its elytra are of a deep violet blue. The thorax is covered with greeniſh hairs, the legs are black. The whole animal being of a glittering brilliancy renders it a pleaſing object. The larva, as well as the perfect inſect, inhabits the bodies of dead animals. 4. The fumatus is of a light brown, except the eyes, which are black. It is however ſometimes more or leſs deep. The thorax is margined, and the inſect has the whole carriage of a ſcarabæus; but its antennæ have the character of thoſe of the dermeſtæ. This little creature is found in dung. It alſo frequently finds its way into houſes. 5. The ferrugineus is the largeſt genus; its colour is a ruſty iron, having many oblong, velvety, black ſpots upon the elytra, which gives the inſect a gloomy, yet elegant appearance. The antennæ differ from the preceding ſpecies; the three laſt articulations being conſiderably longer, thicker, and not perfoliated.

There are 25 other ſpecies, diſtinguiſhed by their colour.—Many varieties of this genus, as well as the larvæ, are to be met with in dried ſkins, bark of trees, wood, ſeeds, flowers, the carcaſes of dead animals, &c. —The lardarius, ſo deſtructive to birds, inſects, and other ſubjects of natural hiſtory preſerved in cabinets, is to be killed by arſenic.

DERNIER RESSORT. See RESSORT

DEROGATION, an act contrary to a preceding one, and which annuls, deſtroys, and revokes it, either in whole or in part.

DEROGATORY, a clauſe importing derogation. A derogatory clauſe in a teſtament, is a certain ſentence, cipher, or ſecret character, which the teſtator inſerts in his will, and of which he reſerves the knowledge to himſelf alone, adding a condition, that no will he may make hereafter is to be reckoned valid, if this derogatory clauſe is not inſerted expreſsly and word for word. It is a precaution invented by lawyers againſt latter-wills exorted by violence, or obtained by ſuggeſtion.

DERP, a town of Livonia, and capital of a palatinate of the ſame name, with a biſhop's ſee, and an univerſity. It is ſubject to the Ruſſians, and lies near the river Ambeck. E. Long. 31. 55. N. Lat. 30. 40.

DERTONA, DERTON or DERTHON (anc. geog.), a colony of the Ciſpadana; called *Julia Auguſta*, on inſcriptions and coins; midway between Genoa and Placentia, and ſituated to the eaſt of the Tanarus in Liguria. Now Tortona, a city of Milan. E. Long. 9. 12. N. Lat. 45.

DERTOSA, (anc. geog.); the capital of the Ilercaones, in Tarraconenſis, or the Hither Spain: a municipum and colony; ſurnamed *Julia Ilergavonia* (Coin.) *Dertoſani*, the people. Now Tortoſa, in Catalonia, on the Ebro. E. Long. 15. N. Lat. 40. 45.

DERVENTIO, (anc. geog.); a river of the Brigantes in Britain. Now the Darwent, in the eaſt of Yorkſhire, falling into the Ouſe. Alſo a town of the Brigantes on the ſame river. Now called *Auldby*, ſeven miles from York, to the north-eaſt (Camden).

DERVIS, or DERVICH, a name given to a ſort of monks among the Turks, who lead a very auſtere life, and profeſs extreme poverty; though they are allowed to marry. The word is originally Perſian, דרויש ſignifying a "beggar," or perſon who has nothing: and becauſe the religious, and particularly the followers of Mevelava, profeſs not to poſſeſs any thing, they call both the religious in general, and the Mevelavites in particular, *Derviſes* or *Derviches*.

The derviſes, called alſo *Mevelavites*, are a Mahometan order of religious; the chief or founder whereof was one Mevelava. They are now very numerous. Their chief monaſtery is that near Cogna in Natolia, where the general makes his reſidence, and where all the aſſemblies of the order are held; the other houſes being all dependent on this, by a privilege granted to this monaſtery under Ottoman I.

The derviſes affect a great deal of modeſty, patience, humility, and charity. They always go bare-legged and open-breaſted, and frequently burn themſelves with hot irons, to inure themſelves to patience. They always faſt on Wedneſdays, eating nothing on thoſe days till after ſun-ſet. Tueſdays and Fridays they hold meetings, at which the ſuperior of the houſe preſides. One of them plays all the while on a flute, and the reſt dance, turning their bodies round and round with the greateſt ſwiftneſs imaginable. Long cuſtom to this exerciſe from their youth has brought them to ſuch a habitude, that it does not diſcompoſe them at all. This practice they obſerve with great ſtrictneſs, in memory of Mevelava their patriarch's turning miraculouſly round, as they pretend, for the ſpace of four days, without any food or refreſhment; his companion Hamſa playing all the while on the flute: after which he fell into an ecſtaſy, and therein received wonderful revelations for the eſtabliſhment of his order. They believe the flute an inſtrument conſecrated by Jacob and the ſhepherds of the Old Teſtament, becauſe they ſang the praiſes of God upon them. They profeſs poverty, chaſtity, and obedience, and really obſerve them while they remain derviſes; but if they chooſe to go out and marry, they are always allowed.

The generality of derviſes are mountebanks: ſome apply themſelves to legerdemain, poſtures, &c. to amuſe the people; others give in to ſorcery and magic: but all of them, contrary to Mahomet's precept, are ſaid to drink wine, brandy, and other ſtrong liquors, to give them the degree of gaiety their order requires.

Beſide their great ſaint Mevelava, there are particular ſaints honoured in ſome particular monaſteries: as Kiderele, greatly revered in the monaſteries of Egypt, and held by ſome to be St George; and by others, with more probability, the prophet Elias.

The derviſes are great travellers; and, under pretence of preaching, and propagating their faith, are continually paſſing from one place to another: on which account they have been frequently uſed as ſpies.

There are alſo derviſes in Perſia, called in that country *Abdals*, q. d. *ſervants of God*. They lead a very penurious, auſtere life, and preach the Alcoran in the ſtreets, coffee-houſes, and wherever they can meet with auditors. The Perſian derviſes retail little but fables to the people, and are in the utmoſt contempt among the men of ſenſe and letters.

There are in Egypt two or three kinds: thoſe that are in convents, are in a manner of the religious order, and live retired; though there are of theſe ſome who travel, and return again to their convents. Some take this character, and yet live with their families, and exerciſe their trades: of this kind are the dancing derviſes at Damaſcus, who go once or twice a week to a little uninhabited convent, and perform their extraordinary exerciſes; theſe alſo ſeem to be a good people: but there is a third ſort of them who travel about the country, and beg, or rather oblige people to give, for whenever they ſound their horn ſomething muſt be given them. The people of theſe orders, in Egypt, wear an octagonal badge, of a greeniſh white alabaſter, at their girdles, and a high ſtiff cap without any thing round it.

DESAGULIERS (John Theophilus), who introduced the practice of reading public lectures in experimental philoſophy in London, and who made ſeveral improvements in mechanics; was the ſon of the reverend John Deſaguliers, a French proteſtant refugee, and was born at Rochelle in 1683. His father brought him to England an infant; and at a proper age placed him at Chriſt-church college, Oxford; where he ſucceeded Dr Keil in reading lectures on experimental philoſophy at Hart Hall. The magnificent duke of Chandos made Dr Deſaguliers, his chaplain, and preſented him to the living of Edgware, near his ſeat at Cannons: and he was afterwards chaplain to Frederic prince of Wales. He read lectures with great ſucceſs to the time of his death in 1749. He communicated many curious papers printed in the Phiſophical Tranſactions; publiſhed a valuable *Courſe of Experimental Philoſophy*, in 2 vols 4to; and gave an edition of *Gregory's Elements of Catoptrics and Dioptrics*, with an appendix on reflecting teleſcopes, 8vo. He was a member of the Royal Society, and of ſeveral foreign academies.

DESART, a large extent of country entirely barren, and producing nothing. In this ſenſe ſome are ſandy deſarts; as thoſe of Lop, Xamo, Arabia, and ſeveral others in Aſia; in Africa, thoſe of Libya and Zara: others are ſtony, as the deſart of Pharan in Arabia Petrea.

The DESART, abſolutely ſo called, is that part of Arabia ſouth of the Holy Land, where the children of Iſrael wandered forty years.

DESCANT, in muſic, the art of compoſing in ſeveral parts. See COMPOSITION.

Deſcant is three-fold, viz. plain, figurative, and double.

Plain DESCANT is the ground-work and foundation of all muſical compoſitions, conſiſting altogether in the orderly placing of many concords, anſwering to ſimple counterpoint. See COUNTERPOINT.

Figurative or Florid DESCANT, is that part of an air of muſic wherein ſome diſcords are concerned, as well, though not ſo much, as concords. This may be termed the ornamental and rhetorical part of muſic, in regard that there are introduced all the varieties of points, ſyncopes, diverſities of meaſures, and whatever is capable of adorning the compoſition.

DESCANT *Double*, is when the parts are ſo contrived, that the treble, or any high part, may be made the baſs; and, on the contrary, the baſs the treble.

DESCARTES. See CARTES.

DESCENDANT. The iſſue of a common parent, *in infinitum*, are called his deſcendants. See the article DECENT.

DESCENSION, in aſtronomy, is either right or oblique.

Right DESCENSION, is an arch of the equinoctial, intercepted between the next equinoctial point and the interſection of the meridian, paſſing through the centre of the object, at its ſetting, in a right ſphere.

Oblique DESCENSION, an arch of the equinoctial, intercepted between the next equinoctial point and the horizon, paſſing through the centre of the object, at its ſetting in an oblique ſphere.

DESCENT, in general, is the tendency of a body from a higher to a lower place; thus all bodies, unleſs otherwiſe determined by a force ſuperior to their gravity, deſcend towards the centre of the earth. See GRAVITY and MECHANICS.

DESCENT, or *Hereditary Succeſſion*, in law, is the title whereby a man, on the death of his anceſtor, acquires his eſtate by right of repreſentation, as his heir at law. An heir, therefore, is he upon whom the law caſts the eſtate immediately on the death of the anceſtor; and an eſtate ſo deſcending to the heir is in law called the *inheritance*.

Deſcent is either *lineal* or *collateral*. The former is that conveyed down in a right line from the grandfather to the father, and from the father to the ſon, and from the ſon to the grandſon. The latter is that ſpringing out of the ſide of the line or blood; as from a man to his brother, nephew, or the like.

The doctrine of deſcents, or law of inheritances in fee-ſimple, is a point of the higheſt importance: (See the article FEE). All the rules relating to purchaſes, whereby the legal courſe of deſcents is broken and altered, perpetually refer to this ſettled law of inheritance as a *datum* or firſt principle univerſally known, and upon which their ſubſequent limitations are to work. Thus a gift in tail, or to a man and the heirs of his body, is a limitation that cannot be perfectly underſtood without a previous knowledge of the law of deſcents in fee-ſimple. One may well perceive, that this is an eſtate confined in its deſcent to ſuch heirs only of the donee as have ſprung or ſhall ſpring from his body: but who thoſe heirs are, whether all his children both male and female, or the male only, and (among the males) whether the eldeſt, youngeſt, or other ſon alone, or all the ſons together, ſhall be his heir; this is a point that we muſt reſult back to the ſtanding law of deſcents in fee-ſimple to be informed of.

And as this depends not a little on the nature of kindred, and the ſeveral degrees of conſanguinity, it will be neceſſary to refer the reader to the article CONSANGUINITY, where the true notion of this kindred or alliance in blood is particularly ſtated.

We ſhall here exhibit a ſeries of rules or canons of inheritance, with illuſtrations, according to which, by the law of England, eſtates are tranſmitted from the anceſtor to the heir.

1. " Inheritances ſhall lineally deſcend to the iſſue of the perſon laſt actually ſeiſed *in infinitum*, but ſhall never lineally aſcend."

To underſtand both this and the ſubſequent rules, it muſt be obſerved, that by law no inheritance can veſt, nor can any perſon be the actual complete heir of another, till the anceſtor is previouſly dead. *Nemo eſt hæres viventis.* Before that time, the perſon who is next in the line of ſucceſſion is called an *heir apparent* or *heir preſumptive.* Heirs apparent are ſuch whoſe right of inheritance is indefeaſible, provided they outlive the anceſtor; as the eldeſt ſon or his iſſue, who muſt, by the courſe of the common law, be heirs to the father whenever he happens to die. Heirs preſumptive are ſuch, who, if the anceſtor ſhould die immediately, would in the preſent circumſtances of things be his heirs; but whoſe right of inheritance may be defeated by the contingency of ſome nearer heir being born: as a brother or nephew, whoſe preſumptive ſucceſſion may be deſtroyed by the birth of a child: or a daughter, whoſe preſent hopes may be hereafter cut off by the birth of a ſon. Nay, even if the eſtate hath deſcended, by the death of the owner, to ſuch a brother, or nephew, or daughter; in the former caſes, the eſtate ſhall be deveſted and taken away by the birth of a poſthumous child; and in the latter, it ſhall alſo be totally diveſted by the birth of a poſthumous ſon.

We muſt alſo remember, that no perſon can be properly ſuch an anceſtor as that an inheritance in lands or tenements can be derived from him, unleſs he hath had actual ſeiſin of ſuch lands, either by his own entry, or by the poſſeſſion of his own or his anceſtor's leſſee for years, or by receiving rent from a leſſee of the freehold: or unleſs he hath what is equivalent to corporal ſeiſin in hereditaments that are incorporeal; ſuch as the receipt of rent, a preſentation to the church in caſe of an advowſon, and the like. But he ſhall not be accounted an anceſtor who hath had only a bare right or title to enter or be otherwiſe ſeiſed. And therefore all the caſes which will be mentioned in the preſent article, are upon the ſuppoſition that the deceaſed (whoſe inheritance is now claimed) was the laſt perſon actually ſeiſed thereof. For the law requires this notoriety of poſſeſſion, as evidence that the anceſtor had that property in himſelf, which is now to be tranſmitted to his heir. Which notoriety hath ſucceeded in the place of the ancient feodal inveſtiture, whereby, while feuds were precarious, the vaſſal on the deſcent of lands was formerly admitted in the lord's court (as is ſtill the practice in Scotland); and therefore received his ſeiſin, in the nature of a renewal of his anceſtor's grant, in the preſence of the feodal peers: till at length, when the right of ſucceſſion became indefeaſible, an entry on any part of the lands within the county (which if diſputed was afterwards to be tried by thoſe peers), or other notorious poſſeſſion, was admitted as equivalent to the formal grant of ſeiſin, and made the tenant capable of tranſmitting his eſtate by deſcent. The ſeiſin therefore of any perſon, thus underſtood, makes him the root or ſtock from which all future inheritance by right of blood muſt be derived; which is very briefly expreſſed in this maxim, *ſeiſina facit ſtipitem.*

Blackſt. Comment.

When therefore a perſon dies ſo ſeiſed, the inheritance firſt goes to his iſſue: as if there be Geoffrey, John, and Matthew, grandfather, father and ſon; and John purchaſes land, and dies: his ſon Matthew ſhall ſucceed him as heir, and not the grandfather Geoffrey; to whom the land ſhall never aſcend, but ſhall rather eſcheat to the lord.

2. " The male iſſue ſhall be admitted before the female."—Thus ſons ſhall be admitted before daughters; or, as our male lawgivers have ſomewhat uncomplaiſantly expreſſed it, the worthieſt of blood ſhall be preferred. As if John Stiles hath two ſons, Matthew and Gilbert, and two daughters, Margaret and Charlotte, and dies; firſt Matthew, and (in caſe of his death without iſſue) then Gilbert, ſhall be admitted to the ſucceſſion in preference to both the daughters.

3. " Where there are two or more males in equal degree, the eldeſt only ſhall inherit; but the females all together."—As if a man hath two ſons, Matthew and Gilbert, and two daughters, Margaret and Charlotte, and dies; Matthew his eldeſt ſon alone ſhall ſucceed to his eſtate, in excluſion of Gilbert the ſecond ſon and both the daughters; but if both the ſons die without iſſue before the father, the daughters Margaret and Charlotte ſhall both inherit the eſtate as coparceners.

4. " The lineal deſcendants, *in infinitum*, of any perſon deceaſed, ſhall repreſent their anceſtor; that is, ſhall ſtand in the ſame place as the perſon himſelf would have done had he been living."—Thus the child, grandchild, or great-grandchild (either male or female), of the eldeſt ſon, ſucceeds before the younger ſon, and ſo *in infinitum.* And theſe repreſentatives ſhall take neither more nor leſs, but juſt ſo much as their principles would have done. As if there be two ſiſters, Margaret and Charlotte; and Margaret dies, leaving ſix daughters; and then John Stiles the father of the two ſiſters dies without other iſſue: theſe ſix daughters ſhall take among them exactly the ſame as their mother Margaret would have done had ſhe been living; that is, a moiety of the lands of John Stiles in coparcenary: ſo that upon partition made, if the land be divided into twelve parts, thereof Charlotte the ſurviving ſiſter ſhall have ſix, and her ſix neices, the daughters of Margaret one a-piece.

5. " On failure of lineal deſcendants, or iſſue, of the perſon laſt ſeiſed, the inheritance ſhall deſcend to the blood of the firſt purchaſer; ſubject to the three preceeding rules."—Thus, if Geoffrey Stiles purchaſes land, and it deſcends to John Stiles his ſon and John dies ſeiſed thereof without iſſue; whoever ſucceeds to this inheritance muſt be of the blood of Geoffrey the firſt purchaſer of this family. The firſt purchaſer, *perquiſiter*, is he who firſt acquired the eſtate to his family, whether the ſame was transferred to him by ſale or by gift, or by any other method, except only that of deſcent.

6. " The collateral heir of the perſon laſt ſeiſed muſt be his next collateral kinſman of the whole blood."

Firſt, he muſt be his next collateral kinſman either perſonally or *jure repreſentationis*; which proximity is reckoned according to the canonical degrees of conſanguinity: See Consanguinity. Therefore, the brother being in the firſt degree, he and his deſcendants ſhall exclude the uncle and his iſſue, who is only in the ſecond.—Thus if John Stiles dies without iſſue, his eſtate ſhall deſcend to Francis his brother, who is lineally deſcended from Geoffrey Stiles his next immediate anceſtor or father. On failure of brethren or ſiſters and their iſſue, it ſhall deſcend to the uncle of John Stiles, the lineal deſcendant of his grandfather George: and ſo on *in infinitum.*

But, ſecondly, the heir need not be the neareſt kinſman abſolutely, but only *ſub modo;* that is, he muſt be the neareſt kinſman of the *whole* blood: for if there be a much nearer kinſman of the *half* blood, a diſtant kinſman of the whole blood ſhall be admitted, and the other entirely excluded.—A kinſman of the whole blood is he that is derived, not only from the ſame anceſtor, but from the ſame couple of anceſtors. For as every man's own blood is compounded of the bloods of his reſpective anceſtors, he only is properly of the whole or entire blood with another who hath (ſo far as the diſtance of degrees will permit) all the ſame ingredients in the compoſition of his blood that the other hath. Thus, the blood of John Stiles being compoſed of thoſe of Geoffrey Stiles his father, and Lucy Baker his mother, therefore his brother Francis, being deſcended from both the ſame parents, hath entirely the ſame blood with John Stiles; or he is his brother of the whole blood. But if, after the death of Geoffrey, Lucy Baker the mother marries a ſecond huſband, Lewis Gay, and hath iſſue by him: the blood of this iſſue, being compounded of the blood of Lucy Baker (it is true) on the one part, but that of Lewis Gay (inſtead of Geoffrey Stiles) on the other part, it hath therefore only half the ſame ingredients with that of John Stiles; ſo that he is only his brother of the half blood, and for that reaſon they ſhall never inherit to each other. So alſo, if the father has two ſons, A and B, by different venters or wives; now theſe two brethren are not brethren of the whole blood, and therefore ſhall never inherit to each other, but the eſtate ſhall rather eſcheat to the lord. Nay, even if the father dies, and his lands deſcend to his eldeſt ſon A, who enters thereon, and dies ſeiſed without iſſue; ſtill B ſhall not be heir to this eſtate, becauſe he is only of the half blood to A, the perſon laſt ſeiſed: but had A died without entry, then B might have inherited: not as heir to A his half-brother, but as heir to their common father, who was the perſon laſt actually ſeiſed.

The rule then, together with its illuſtration, amounts to this, That in order to keep the eſtate of John Stiles as nearly as poſſible in the line of his purchaſing anceſtor, it muſt deſcend to the iſſue of the neareſt couple of anceſtors that have left deſcendents behind them; becauſe the deſcendants of one anceſtor only are not ſo likely to be in the line of that purchaſing anceſtor as thoſe who are deſcended from two.

But here a difficulty ariſes. In the ſecond, third, fourth, and every ſuperior degree, every man has many couples of anceſtors, increaſing according to the diſtances in a geometrical progreſſion upwards, the deſcendants of all which reſpective couples are (repreſentatively) related to him in the ſame degree. Thus, in the ſecond degree, the iſſue of George and Cecilia Stiles and of Andrew and Eſther Baker, the two grandſires and grandmothers of John Stiles, are each in the ſame degree of propinquity; in the third degree, the reſpective iſſues of Walter and Chriſtian Stiles, of Luke and Francis Kempe, of Herbert and Hannah Baker, and of James and Emma Thorpe, are (upon the extinction of the two inferior degrees) all equally intitled to call themſelves the next kindred of the whole blood to John Stiles. To which therefore of theſe anceſtors muſt we firſt reſort in order to find out deſcendants to be preferably called to the inheritance? In anſwer to this, and to avoid the confuſion and uncertainty that might ariſe between the ſeveral ſtocks wherein the purchaſing anceſtor may be ſought for,—

7. The ſeventh and laſt rule or canon is, “ That in collateral inheritances the male ſtocks ſhall be preferred to the female (that is, kindred derived from the blood of the male anceſtors ſhall be admitted before thoſe from the blood of the female);—unleſs where the lands have in fact deſcended from a female.”—Thus the relations on the father's ſide are admitted *in infinitum,* before thoſe on the mother's ſide are admitted at all; and the relations of the father's father, before thoſe of the father's mother; and ſo on.

For the original and progreſs of the above canons, the reaſons upon which they are founded, and their agreement with the laws of other nations, the curious reader may conſult *Blackſtone's Commentaries,* Vol. II. p. 208—237.

We ſhall conclude with exemplifying the rules themſelves by a ſhort ſketch of the manner in which we muſt ſearch for the heir of a perſon, as John Stiles, who dies ſeiſed of land which he acquired, and which therefore he held as a feud of indefinite antiquity. See the *Table of Descents* on Plate CLVI.

In the firſt place ſucceeds the eldeſt ſon, Matthew Stiles, or his iſſue, (n° 1.):—if his line be extinct, then Gilbert Stiles and the other ſons reſpectively, in order of birth, or their iſſue, (n° 2.):—in default of theſe, all the daughters together, Margaret and Charlotte Stiles, or their iſſue, (n° 3)—On failure of the deſcendants of John Stiles himſelf, the iſſue of Geoffrey and Lucy Stiles, his parents, is called in: *viz.* firſt, Francis Stiles, the eldeſt brother of the whole blood, or his iſſue, (n° 4):—then Oliver Stiles and the other whole brothers reſpectively, in order of birth, or their iſſue, (n° 5.):—then the ſiſters of the whole blood altogether, Bridget and Alice Stiles, or their iſſue, (n° 6.)—In defect of theſe, the iſſue of George and Cecilia Stiles, his father's parents; reſpect being ſtill had to their age and ſex, (n° 7.);—then the iſſue of Walter and Chriſtian Stiles, the parents of his paternal grandfather, n° 8.:—then the iſſue of Richard and Anne Stiles, the parents of his paternal grandfather's father, (n° 9.):—and ſo on in the paternal grandfather's paternal line, or blood of Walter Stiles, *in infinitum.* In defect of theſe, the iſſue of William and Jane Smith, the parents of his paternal grandfather's mother, (n° 10.):—and ſo on in the paternal grandfather's maternal line, or blood of Chriſtian Smith, *in infinitum;* till both the immediate bloods of George Stiles, the paternal grandfather, are ſpent.—Then we muſt reſort to the iſſue of Luke and Francis Kempe, the parents of John Stiles's paternal grandmother, (n° 11.):—then to the iſſue of Thomas and Sarah Kempe, the parents of his paternal grandmother's father, (n° 12.);—and ſo on in the paternal grandmother's paternal line, or blood of Luke Kempe, *in infinitum.* In default of which, we muſt call in the iſſue of Charles and Mary Holland, the parents of his paternal grandmother's mother, n° 13.): and ſo on in the paternal grandmother's maternal line, or blood of Frances Holland, *in infinitum;* till both the immediate bloods of Cecilia Kempe, the paternal grandmother, are alſo ſpent.—Whereby the paternal blood of John Stiles entirely failing, recourſe muſt then, and not before, be had to his maternal relations; or the blood of the Bakers, (n° 14, 15, 16.), Willis's (n° 17), Thorpe's (n° 18, 19.), and White's (n° 20); in the ſame regular ſucceſſive order as in the paternal line.

The ſtudent ſhould bear in mind, that during this whole proceſs, John Stiles is the perſon ſuppoſed to have been laſt actually ſeized of the eſtate. For if ever it comes to veſt in any other perſon, as heir to John Stiles, a new order of ſucceſſion muſt be obſerved upon the death of ſuch heir; ſince he, by his own ſeiſin, now becomes himſelf an anceſtor, or *ſtipes*, and muſt be put in the place of John Stiles. The figures, therefore, denote the order in which the ſeveral claſſes would ſucceed to John Stiles, and not to each other: and before we ſearch for an heir in any of the higher figures, (as n° 8.) we muſt be firſt aſſured that all the lower claſſes (from n° 1 to 7.) were extinct at John Stiles's deceaſe.

DESCENT, or *Succeſſion*, in the law of Scotland. See LAW, Part III. N° clxxx. clxxxi.

DESCENT of the crown. See SUCCESSION.

DESCENT of Dignities. A dignity differs from common inheritances, and goes not according to the rules of the common law: for it deſcends to the half-blood; and there is no coparcenerſhip in it, but the eldeſt takes the whole. The dignity of peerage is perſonal, annexed to the blood; and ſo inſeparable, that it cannot be transferred to any perſon, or ſurrendered even to the crown: it can move neither forward nor backward, but only downward to poſterity; and nothing but corruption of blood, as if the anceſtor be attainted of treaſon or felony, can hinder the deſcent to the right heir.

DESCENT, in genealogy, the order of ſucceſſion of deſcendants in a line or family; or their diſtance from a common progenitor: Thus we ſay, one deſcent, two deſcents, &c.

DESCENT, in heralry, is uſed to expreſs the coming down of any thing from above; as, a lion *en deſcent* is a lion with his head towards the baſe points, and his heels towards one of the corners of the chief, as if he were leaping down from ſome high place.

DESCHAMPS (Francis), a French poet, born in Champagne, was the author of a tragedy intitled Cato of Utica, and a hiſtory of the French theatre. He died at Paris in 1747.

DESCRIPTION, in literary compoſition, is ſuch a ſtrong and beautiful repreſentation of a thing, as gives the reader a diſtinct view and ſatisfactory notion of it. See *NARRATION and Deſcription.*

DESEADA, or DESIDERARA, one of the Caribbee iſlands, ſubject to France, lying eaſtward of Guadaloupe.

DESERT, or DESART. See DESART.

DESERTER, in a military ſenſe, a ſoldier who, by running away from his regiment or company, abandons the ſervice.

A deſerter is, by the articles of war, puniſhable by death; which, after conviction, is executed upon him at the head of the regiment he formerly belonged to, with his crime written on his breaſt.

DESERTION, in law. See LAW, N° clx. 24.

DESHABILLE, a French term, naturalized of late. It properly ſignifies a night-gown, and other neceſſaries made uſe of in dreſſing or undreſſing. Mr —— is not to be ſpoken with, he is yet in his *deſhabille*, i. e. undreſſed or in his night-gown. The word is compounded of the privative *de* and *s'habiller*, "to dreſs one's ſelf."

DESHACHE', in heraldry, is where a beaſt has its limbs ſeparated from its body, ſo that they ſtill remain on the eſcutcheon, with only a ſmall ſeparation from their natural places.

DESIDERATUM, is uſed to ſignify the deſirable perfections in any art or ſcience: thus, it is a deſideratum with the blackſmith, to render iron fuſible by a gentle heat, and yet preſerve it hard enough for ordinary uſes; with the glaſsman and looking-glaſs maker, to render glaſs malleable; with the clock-maker, to bring pendulums to be uſeful where there are irregular motions, &c.

DESIGN, in a general ſenſe, the plan, order, repreſentation, or conſtruction of a building, book, painting, &c. See ARCHITECTURE, PAINTING, POETRY, ORATORY, and HISTORY.

DESIGN, in the manufactories, expreſſes the figures wherewith the workman enriches his ſtuff or ſilk, and which he copies after ſome painter or eminent draughtſman, as in diaper, damaſk, and other flowered ſilk and tapeſtry, and the like.

In undertaking of ſuch kinds of figured ſtuffs, it is neceſſary, ſays Monſ. Savary, that, before the firſt ſtroke of the ſhuttle, the whole deſign be repreſented on the threads of the warp, we do not mean in colours, but with an infinite number of little packthreads, which, being diſpoſed ſo as to raiſe the threads of the warp, let the workmen ſee, from time to time, what kind of ſilk is to be put in the eye of the ſhuttle for woof. This method of preparing the work is called *reading the deſign*, and *reading the figure*, which is performed in the following manner: A paper is provided, conſiderably broader than the ſtuff, and of a length proportionate to what is intended to be repreſented thereon. This they divide lengthwiſe, by as many black lines as there are intended threads in the warp; and croſs theſe lines, by others drawn breadthwiſe, which, with the former, make little equal ſquares; on the paper thus ſquared, the draughtſman deſigns his figures, and heightens them with colours as he ſees fit. When the deſign is finiſhed, a workman reads it, while another lays it on the ſimblot.

To read the deſign, is to tell the perſon who manages the loom, the number of ſquares or threads compriſed in the ſpace he is reading, intimating at the ſame time, whether it is ground or figure. To put what is read on the ſimblot, is to faſten little ſtrings to the ſeveral packthreads, which are to raiſe the threads named; and this they continue to do till the whole deſign is read.

Every piece being compoſed of ſeveral repetitions of the ſame deſign, when the whole deſign is drawn, the drawer, to re-begin the deſign afreſh, has nothing to do but to raiſe the little ſtrings, with ſlip-knots, to the top of the ſimblot, which he had let down to the bottom: this he is to repeat as often as is neceſſary till the whole be manufactured.

The ribbon-weavers have likewiſe a deſign, but far more ſimple than that now deſcribed. It is drawn on paper with lines and ſquares, repreſenting the threads of the warp and woof. But inſtead of lines, whereof the figures of the former conſiſt, theſe are conſtituted of points only or dots, placed in certain of the little ſquares formed by the interſection of the lines. Theſe points mark the threads of the warp that are to be raiſed, and the ſpaces left blank denote the threads that are to keep their ſituation: the reſt is managed as in the former.

Design is alſo uſed, in painting, for the firſt idea of a large work, drawn roughly, and in little, with an intention to be executed and finiſhed in large.

In this ſenſe, it is the ſimple contour or outlines of the figures intended to be repreſented, or the lines that terminate and circumſcribe them: ſuch deſign is ſometimes drawn in crayons or ink, without any ſhadows at all; ſometimes it is hatched, that is, the ſhadows are expreſſed by ſenſible outlines, uſually drawn acroſs each other with the pen, crayon, or graver. Sometimes, again, the ſhadows are done with the crayon rubbed ſo as that there do not appear any lines: at other times, the grains or ſtroke of the crayon appear, as not being rubbed: ſometimes the deſign is waſhed, that is, the ſhadows are done with a pencil in Indian ink, or ſome other liquor; and ſometimes the deſign is coloured, that is, colours are laid on much like thoſe intended for the grand work.

Design, in muſic, is juſtly defined by Rouſſeau to be the invention and the conduct of the ſubject, the diſpoſition of every part, and the general order of the whole.

It is not ſufficient to form beautiful airs, and a legitimate harmony; all theſe muſt be connected by a principal ſubject, to which all the parts of the work relate, and by which they become one. Thus unity ought to prevail in the air, in the movement, in the character, in the harmony, and in the modulation. All theſe muſt indiſpenſably relate to one common idea which unites them. The greateſt difficulty is, to reconcile the obſervation of thoſe precepts with an elegant variety, which, if not introduced, renders the whole piece irkſome and monotonic. Without queſtion, the muſician, as well as the poet and the painter, may riſk every thing in favour of this delightful variety; if, under the pretext of contraſting, they do not endeavour to cheat us with falſe appearances, and inſtead of pieces juſtly and happily planned, preſent us with a muſical minced meat, compoſed of little abortive fragments, and of characters ſo incompatible, that the whole aſſembled forms a heterogeneous monſter.

Non ut placidis coeant immitia, non ut
Serpentes avibus giminentur, tigribus agni.

Tranſlated thus:

But not that nature ſhould revers'd appear;
Mix mild with fierce, and gentle with ſevere;
Profane her laws to contradiction's height;
Tygers with lambs, with ſerpent's birds unite.

It is therefore in a diſtribution formed with intelligence and taſte, in a juſt proportion between all the parts, that the perfection of deſign conſiſts; and it is above all, in this point, that the immortal Pergoleſo has ſhown his judgment and taſte, and has left ſo far behind him all his competitors. His *Stabat Mater*, his *Orfeo*, his *Serva Padrona*, are, in three different ſpecies of compoſition, three maſterpieces of *deſign* equally perfect.

This idea of the general deſign of a work is likewiſe particularly applicable to every piece of which it conſiſts; thus the compoſer plans an air, a duett, a chorus, &c. For this purpoſe, after having invented his ſubject, he diſtributes it, according to the rules of a legitimate modulation, into all the parts where it ought to be perceived, in ſuch a proportion, that its impreſſion may not be loſt on the minds of the audience; yet that it may never be reiterated in their ears, without the graces of novelty. The compoſer errs in deſigning who ſuffers his ſubject to be forgot; he is ſtill more culpable who purſues it till it becomes trite and tireſome.

DESIGNATION, the act of marking or indicating, and making a thing known. The deſignation of ſuch an eſtate is made by the tenants, butments, and boundings. Among the Romans, there were deſignations of the conſuls and other magiſtrates, ſome time before their election.

DESIGNATOR, a Roman officer, who aſſigned and marked each perſon his place and rank in public ceremonies, ſhows, proceſſions, &c. The word is formed from the verb *deſignare*, to deſign.

The deſignator was a kind of marſhal, or maſter of the ceremonies, who regulated the ſeats, march, order, &c. There were deſignators at funeral ſolemnities, and at the games, theatres, and ſhows, who not only aſſigned every one his place, but alſo led him to it; as appears from the prologue to the Pœnulus of Plautus. Much of the ſame nature were the *agonothetæ* of the Greeks.

DESIGNING, the art of delineating or drawing the appearance of natural objects, by lines, on a plane. To deſign, according to the rules of mathematics, makes the object of perſpective. See Perspective.

DESPORTES (Francis), a French painter of the 18th century, was born at Champagne in 1661. He acquired great reputation, not only in France, but in England and Poland: he particularly excelled in ſtill life. He was received into the academy of painting, made pictures for the tapeſtry of the Gobelins, and died at Paris in 1743.

DESPOT, a term ſometimes uſed for an abſolute prince: (ſee the next article). The word, in its firſt origin, ſignified the ſame with the Latin *herus*, and the Engliſh *maſter*: but in time it underwent the ſame fate on medals, as among the Latins, Cæſar did with regard to Auguſtus; ΒΑϹΙΛΕΥϹ anſwering to Auguſtus, and ΔΕϹΠΟΤΗϹ, *deſpotes*, to Cæſar. See Cæsar. Thus, Nicephorus having ordered his ſon Stauracius to be crowned, the ſon, out of reſpect, would only take the name ΔΕϹΠΟΤΗϹ, leaving to his father that of ΒΑϹΙΛΕΥϹ. For it is to be noted, that it was juſt about the time that the emperors began to ceaſe to uſe Latin inſcriptions. This delicacy, however, did not laſt long; for the following emperors preferred the quality of ΔΕϹΠΟΤΗϹ to that of ΒΑϹΙΛΕΥϹ, particularly Conſtantine, Michael Ducas, Nicephorus Botoniates, Romanus Diogenes, the Comneni, and ſome others. In imitation of the princes, the princeſſes likewiſe aſſumed the title of ΔΕϹΠΟΙΝΑ.

It was the emperor Alexius, ſurnamed the Angel, that created the dignity of deſpot, and made it the firſt after that of emperor, above that of Auguſtus or Sebaſtocrator and Cæſar. See AUGUST.

The deſpots were uſually the emperors ſons or ſons-in-law, and their colleagues or copartners in the empire, as well as their preſumptive heirs. The deſpots that were ſons of the emperors had more privileges and authority than thoſe that were only ſons-in-law. Codin. p. 38. deſcribes the habit and ornaments of the deſpot. See the notes of father Goar on that author. Under the ſucceſſors of Conſtantine the Great, the title *deſpot of Sparta* was given to the emperor's ſon or brother, who had the city of Sparta or Lacedemon by way of apannege.

DESPOT is at preſent a title of quality given to Wallachia, Servia, and ſome of the neighbouring countries.

DESPOTICAL, in general, denotes any thing that is uncontrolled and abſolute; but is particularly uſed for an arbitrary government, where the power of the prince is unlimited, and his will a law to his ſubjects: ſuch are thoſe of Turkey, Perſia, and moſt of the eaſtern governments; and even thoſe of Europe, if we except the republics, the Britiſh, and of late the French governments.

DESPOUILLE, in heraldry, the whole caſe, ſkin, or ſlough of a beaſt, with the head, feet, tail, and all appurtenances, ſo that being filled and ſtuffed it looks like the entire creature.

DESPREAUX. See BOILEAU.

DESSAW, a city in Upper Saxony, in Germany, ſituated on the river Elbe, 60 miles north-weſt of Dreſden, and ſubject to the prince of Anhalt Deſſaw. E. Long. 12. 40. N. Lat. 51. 50.

DESSERT, or DESERT, a ſervice of fruits and ſweetmeats, uſually ſerved up laſt to table.

DESSICATIVE, or DESICATIVE, in pharmacy, an epithet applied to ſuch topical medicines as dry up the humours flowing to a wound or ulcer.

DESTINIES, in mythology. See PARCÆ.

DESTINY, among philoſophers and divines. See FATE.

DESTRUCTION, in general, an alteration of any thing from its natural ſtate to one contrary to nature; whereby it is deemed the ſame with CORRUPTION.

A chemical deſtruction, or corruption, is nothing but a reſolution of the whole naturally mixt body into its parts.

DESUDATION, in medicine, a profuſe and inordinate ſweat, ſucceeded by an eruption of puſtules, called *ſudamina*, or *heat-pimples*.

DESULTOR, in antiquity, a vaulter or leaper, who, leading one horſe by the bridle, and riding another, jumped from the back of one to the other, as the cuſtom was after they had run ſeveral courſes or heats.—This practice required great dexterity, being performed before the uſe of either ſaddles or ſtirrups. The cuſtom was practiſed in the army when neceſſity required it; but chiefly amongſt the Numidians, who always carried with them two horſes at leaſt for that purpoſe, changing them as they tired. The Greeks and Romans borrowed the practice from them; but only uſed it at races, games, &c. The Sarmatæ were great maſters of this exerciſe, and the Huſſars have ſtill ſome ſmall remains of it.

DETACHMENT, in military affairs, a certain number of ſoldiers drawn out from ſeveral regiments or companies equally, to be employed as the general thinks proper, whether on an attack, at a ſiege, or in parties to ſcour the country.

DETENTION (from *detineo* "I detain"), the poſſeſſion or holding of lands, or the like, from ſome other claimant. The word is chiefly uſed in an ill ſenſe, for an unjuſt with-holding, &c.

DETENTS, in a clock, are thoſe ſtops which, by being lifted up or let fall down, lock and unlock the clock in ſtriking.

DETENT-Wheel, or *Hoop-wheel*, in a clock, that wheel which has a hoop almoſt round it, wherein there is a vacancy, at which the clock locks.

DETERGENTS, in pharmacy, ſuch medicines as are not only ſoftening and adheſive, but alſo, by a peculiar activity, conjoined with a ſuitable configuration of parts, are apt to abrade and carry along with them ſuch particles as they lay hold on in their paſſage.

DETERIORATION, the impairing or rendering any thing worſe: it is juſt the reverſe of melioration.

DETERMINATION, in mechanics, ſignifies much the ſame with the tendency or direction of a body in motion. See MECHANICS.

DETERMINATION, among ſchool-divines, is an act of divine power, limiting the agency of ſecond cauſes, in every inſtance, to what the Deity predeſtinated concerning them. See PREDESTINATION.

DETERSIVES, the ſame with DETERGENTS.

DETINUE, in law, a writ or action that lies againſt one who has got goods or other things delivered to him to keep, and afterwards refuſes to deliver them.—In this action, the thing detained is generally to be recovered, and not damages; but if one cannot recover the thing itſelf, he ſhall recover damages for the thing and alſo for the detainer. Detinue lies for any thing certain and valuable, wherein one may have a property or right; as for a horſe, cow, ſheep, hens, dogs, jewels, plate, cloth, bags of money, ſacks of corn, &c. It muſt be laid ſo certain, that the thing detained may be known and recovered: and therefore, for money out of a bag, or corn out of a ſack, &c. it lies not; for the money or corn cannot in this caſe be known from other money or corn; ſo that the party muſt have an action on the caſe, &c. Yet detinue may be brought for a piece of gold of the price of 22s. though not for 22s. in money.

DETONATION, in chemiſtry, ſignifies an exploſion with noiſe made by the ſudden inflammation of ſome combuſtible body: Such are the exploſions of *gun-powder*, *fulminating gold*, and *fulminating powder*. As nitre is the cauſe of moſt exploſions, the word *detonation* has been appropriated to the inflammation of the acid of this ſalt with bodies containing phlogiſton; and it is frequently given to thoſe inflammations of nitrous acid which are not accompanied with exploſion. Thus nitre is ſaid to detonate with ſulphur, with coals, with metals; although in the ordinary method of making theſe operations, that is, in open crucibles, and with ſmall quantities of detonating ſubſtances, the nitre does not truly explode. See NITRE.

DETRANCHE, in heraldry, a line bend-wiſe, proceeding always from the dexter-ſide, but not from the very angle diagonally athwart the ſhield.

DETTINGEN, a village of Germany, in the circle of the Upper Rhine, and in the territory of Hanau. Here the Auſtrians and the Britiſh, in June 1743, were attacked by the French, who met with a repulſe; but as the allies were inferior in number, they could not make the advantage of it they might otherwiſe have done. E. Long. 8. 45. N. Lat. 50. 8.

DEVA, or Deuna (anc. geog.), a town of the Cornavii in Britain. Now *Cheſter*, on the Dee. W. Long. 3. Lat. 53. 15.

DEUCALEDONIUS Oceanus, or (which comes nearer the original pronunciation) *Duacaledonius*, ſo called from *Duah Gael*, the northern Highlanders: the ſea on the north-weſt of Scotland.

DEUCALION, king of Theſſaly. The flood ſaid to have happened in his time (1500 B. C.), is ſuppoſed to have been only an inundation of that country, occaſioned by heavy rains, and an earthquake that ſtopped the courſe of the river Peneus where it uſually diſcharged itſelf into the ſea. On theſe circumſtances the fable of Deucalion's flood is founded.—According to the fable, he was the ſon of Prometheus. He governed his people with equity; but the reſt of mankind being extremely wicked, were deſtroyed by a flood, while Deucalion and Pyrrha his queen ſaved themſelves by aſcending mount Parnaſſus. When the waters were decreaſed, they went and conſulted the oracle of Themis, on the means by which the earth was to be repeopled; when they were ordered to veil their heads and faces, to unlooſe their girdles, and throw behind their backs the bones of their great mother. At this advice Pyrrha was ſeized with horror: but Deucalion explained the myſtery, by obſerving, that their great mother muſt mean the earth, and her bones the ſtones; when taking them up, thoſe Deucalion threw over his head became men, and thoſe thrown by Pyrrha, women.

Some have ſuppoſed that Deucalion, whom the Greeks have repreſented under a variety of characters, and concerning whom their poets have given many fabulous accounts, was the ſame with the patriarch Noah; and that Deucalion's flood in Theſſaly, as well as that of Ogyges in Attica, and of Prometheus in Egypt, were the ſame with that of Noah recorded in ſcripture. Diodorus Siculus expreſsly ſays, that in the deluge which happened in the time of Deucalion almoſt all fleſh died. Apollodorus having mentioned Deucalion εν-λαρνακι, "conſigned to an ark," takes notice, upon his quitting it, of his offering up an immediate ſacrifice, Διι φυξιω, "to the God who delivered him." As he was the father of all mankind, the ancients have given him great dignity and univerſal monarchy; though ſometimes he is reduced to a petty king of Theſſaly. Apollonius Rhodius makes him a native of Greece, and the ſon of Prometheus. We may learn, however, from their confuſed hiſtory, that the perſon repreſented was the firſt of men, through whom religious rites were renewed, cities built, and civil polity eſtabliſhed in the world: none of which circumſtances are applicable to any king of Greece. Philo aſſures us, that the Grecians call the perſon Deucalion, but the Chaldeans ſtyle him Noe, in whoſe time there happened the great eruption of waters. But as Lucian has given us the moſt particular hiſtory of the deluge, and that which comes neareſt to the account given by Moſes; and as he was a native of Samoſata, a city of Commagene upon the Euphrates, a part of the world where memorials of the deluge were particularly preſerved, and where an obvious reference to that hiſtory may be obſerved in the rites and worſhip of the country, we ſhall give the following extract of what he ſays on the ſubject. Having deſcribed Noah under the name of Deucalion, he ſays, that the preſent race of mankind are different from thoſe who firſt exiſted; for thoſe of the antediluvian world were all deſtroyed. The preſent world is peopled from the ſons of Deucalion: having increaſed to ſo great a number from one perſon. In reſpect to the former brood, they were men of violence, and lawleſs in their dealings. They regarded not oaths, nor obſerved the rites of hoſpitality, nor ſhowed mercy to thoſe who ſued for it. On this account they were doomed to deſtruction; and for this purpoſe there was a mighty eruption of waters from the earth, attended with heavy ſhowers from above; ſo that the rivers ſwelled, and the ſea overflowed, till the whole earth was covered with a flood, and all fleſh drowned. Deucalion alone was preſerved to repeople the world. This mercy was ſhown to him on account of his juſtice and piety. His preſervation was effected in this manner: he put all his family, both his ſons and their wives, into a vaſt ark which he had provided, and he went into it himſelf. At the ſame time animals of every ſpecies, boars, horſes, lions, ſerpents, whatever lived upon the face of the earth, followed him by pairs; all which he received into the ark, and experienced no evil from them; for there prevailed a wonderful harmony throughout by the immediate influence of the Deity. Thus were they wafted with him as long as the flood endured. After this he proceeds to mention, that upon the diſappearing of the waters Deucalion went forth from the ark and raiſed an altar to God.

De Dea Syria, vol ii. p. 882.

Dr Bryant produces a variety of monuments that bear an obvious reference to the deluge in the Gentile hiſtory, beſides this account of Deucalion and his flood. Analyſis of Ancient Mythology, vol. ii. p. 193—250.

DEVENSHRING. See Devonsheering.

DEVENTER, a large, ſtrong, trading, and populous town of the United Provinces in Overyſſel, with an univerſity. It is ſurrounded with ſtrong walls, flanked with ſeveral towers, and with ditches full of water. It is ſeated on the river Iſſel, 55 miles eaſt of Amſterdam, and 42 weſt of Benthem. E. Long. 5. 8. N. Lat. 52. 18.

DEVEREUX (Robert), earl of Eſſex, the ſon of Walter Devereux, viſcount Hereford, was born at Netherwood in Herefordſhire, in the year 1567. He ſucceeded to the title of earl of Eſſex at ten years of age; and about two years after, was ſent, by his guardian lord Burleigh, to Trinity-college in Cambridge. He took the degree of maſter of arts in 1582, and ſoon after retired to his ſeat at Lampſie in South-Wales. He did not however continue long in this retreat; for we find him, in his ſeventeenth year, at the court of queen Elizabeth, who immediately honoured him with ſingular marks of her favour. Authors ſeem very unneceſſarily perplexed to account for this young earl's gracious reception at the court of Elizabeth. The reaſons are obvious; he was her relation, the ſon of one of her moſt faithful ſervants, the ſon-in-law of her favourite Leiceſter, and a very handſome and accompliſhed youth. Towards the end of (the following year) 1585, he attended the earl of Leiceſter to Holland; and gave ſignal proofs of his perſonal courage during the campaign of 1586, particularly at the battle of Zutphen, where the gallant Sidney was mortally wounded. On this occaſion the earl of Leiceſter conferred on him the honour of knight banneret.

In the year 1587, Leiceſter being appointed lord ſteward of the houſehold, Eſſex ſucceeded him in the honourable poſt of maſter of the horſe; and the year following, when the queen aſſembled an army at Tilbury to oppoſe the Spaniſh invaſion, Eſſex was made general of the horſe. From this time he was conſidered as the happy favourite of the queen. And, if there was any mark yet wanting to fix the people's opinion in that reſpect, it was ſhown by the queen's conferring on him the honour of the garter.

We need not wonder, that ſo quick an elevation, and to ſo great a height, ſhould affect ſo young a man as the earl of Eſſex; who ſhowed from henceforwards a very high ſpirit, and often behaved petulantly enough to the queen herſelf, who yet did not love to be controlled by her ſubjects. His eagerneſs about this time to diſpute her favour with Sir Charles Blunt, afterwards lord Montjoy and earl of Devonſhire, coſt him ſome blood; for Sir Charles, thinking himſelf affronted by the earl, challenged him, and after a ſhort diſpute, wounded him in the knee. The queen, ſo far from being diſpleaſed with it, is ſaid to have ſworn a good round oath, that it was fit ſomebody ſhould take him down, otherwiſe there would be no ruling him. However, ſhe reconciled the rivals; who, to their honour, continued good friends as long as they lived.

The gallant Eſſex, however, was not ſo entirely captivated with his ſituation, as to become inſenſible to the allurements of military glory. In 1589, Sir John Norris and Sir Francis Drake having ſailed on an expedition againſt Spain, our young favourite, without the permiſſion or knowledge of his royal miſtreſs, followed the fleet; which he joined as they were ſailing towards Liſbon, and acted with great reſolution in the repulſe of the Spaniſh garriſon of that city. The queen wrote him a very ſevere letter on the occaſion; but ſhe was, after his return, ſoon appeaſed. Yet it was not long before he again incurred her diſpleaſure, by marrying the widow of Sir Philip Sidney. In 1591, he was ſent to France with the command of 4000 men to the aſſiſtance of Henry IV. In 1596, he was joined with the lord high admiral Howard in the command of the famous expedition againſt Cadiz, the ſucceſs of which is univerſally known. In 1597, he was appointed maſter of the ordnance; and the ſame year commanded another expedition againſt Spain, called the *Iſland voyage*, the particulars of which are alſo well known.

Soon after his return, he was created earl marſhal of England; and on the death of the great lord Burleigh, in 1598, elected chancellor of the univerſity of Cambridge. This is reckoned one of the laſt inſtances of this great man's felicity, who was now advanced too high to ſit at eaſe; and thoſe who longed for his honours and employments, very cloſely applied themſelves to bring about his fall. The firſt great ſhock he received, in regard to the queen's favour, aroſe from a warm diſpute between her majeſty and himſelf, about the choice of ſome fit and able perſons to ſuperintend the affairs of Ireland. The affair is related by Camden; who tells us, that nobody was preſent but the lord admiral, Sir Robert Cecil ſecretary, and Windebank clerk of the ſeal. The queen looked upon Sir William Knolls, uncle to Eſſex, as the moſt proper perſon for that charge: Eſſex contended, that Sir George Carew was a much fitter man for it. When the queen could not be perſuaded to approve his choice, he ſo far forgot himſelf and his duty, as to turn his back upon her in a contemptuous manner: which inſolence her majeſty not being able to bear, gave him a box on the ear, and bid him go and be hanged. Eſſex, like a blockhead, put his hand to his ſword, and ſwore revenge. Where was his gallantry on this occaſion? Could a ſtroke from an angry woman tinge the honour of a gallant ſoldier? This violent ſtorm, however, ſoon ſubſided: and they were again reconciled, at leaſt apparently.

The total reduction of Ireland being brought upon the tapis ſoon after, the earl was pitched upon as the only man from whom it could be expected. This was an artful contrivance of his enemies, who hoped by this means to ruin him; nor were their expectations diſappointed. He declined this fatal preferment as long as he could: but, perceiving that he ſhould have no quiet at home, he accepted it; and his commiſſion for lord lieutenant paſſed the great ſeal on the 12th of March 1598. His enemies now began to inſinuate, that he had ſought this command, for the ſake of greater things which he then was meditating; but there is a letter of his to the queen, preſerved in the Harleian collections, which ſhows, that he was ſo far from entering upon it with alacrity, that he looked upon it rather as a baniſhment, and a place aſſigned him for a retreat from his ſovereign's diſpleaſure, than a potent goverment beſtowed upon him by her favour. “ *To the Queen.* From a mind delighting in ſorrow; “ from ſpirits waſted with paſſion; from a heart torn in “ pieces with care, grief, and travail; from a man that “ hateth himſelf, and all things elſe that keep him alive; “ what ſervice can your Majeſty expect, ſince any ſervice paſt deſerves no more than baniſhment and proſcription to the curſedeſt of all iſlands? It is your “ rebels pride and ſucceſſion muſt give me leave to ranſom myſelf out of this hateful priſon, out of my “ loathed body; which, if it happen ſo, your majeſty “ ſhall have no cauſe to miſlike the faſhion of my death, “ ſince the courſe of my life could never pleaſe you.

“ Happy he could finiſh forth his fate,
“ In ſome unhaunted deſert moſt obſcure
“ From all ſociety, from love and hate
“ Of worldly folk; then ſhould he ſleep ſecure.
“ Then wake again, and yield God ever praiſe,
“ Content with hips, and hawes, and brambleberry;
“ In contemplation paſſing out his days,
“ And change of holy thoughts to make him merry.
“ Who, when he dies his tomb may be a buſh
“ Where harmleſs robin dwells with gentle thruſh.

“ Your Majeſty's exiled ſervant,
“ Robert Essex.”

The earl met with nothing in Ireland but ill ſucceſs and croſſes: in the midſt of which, an army was ſuddenly raiſed in England, under the command of the earl of Nottingham; nobody well knowing why, but in reality from the ſuggeſtions of the earl's enemies to the queen, that he rather meditated an invaſion on his native country, than the reduction of the Iriſh rebels. This and other conſiderations made him reſolve to quit his poſt, and come over to England: which he accordingly did without leave. He burſt into her majeſty's bed-chamber as ſhe was riſing, and ſhe received him with a mixture of tenderneſs and ſeverity: but ſhe, ſoon after, thought fit to deprive him of all his employments, except that of maſter of the horſe. He was committed to the cuſtody of the lord-keeper, with whom he continued ſix months. No ſooner had he regained his liberty, than he was guilty of many extravagancies; to which he was inſtigated by knaves and fools, but perhaps more powerfully by his own paſſions. He firſt determined to obtain an audience of the queen by force. He refuſed to attend the council when ſummoned. When the queen ſent the lord-keeper, the lord chief-juſtice, and two others, to know his grievances, he confined them; and then marched with his friends into the city, in expectation that the people would riſe in his favour; but in that he was diſappointed. He was at laſt beſieged, and taken in his houſe in Eſſex-ſtreet; committed to the tower; tried by his peers, condemned, and executed. Thus did this brave man, this favourite of his queen, this idol of the people, fall a ſacrifice to his want of that diſſimulation, that cunning, that court-policy, by which his enemies were enabled to effect his ruin. He was a polite ſcholar, and a generous friend to literature.

To theſe who have not taken the trouble to conſult and compare the ſeveral authors who have related the ſtory of this unfortunate earl, it muſt appear wonderful, if, as hath been ſuggeſted, he was really beloved by queen Elizabeth, that ſhe could conſent to his execution. Now that ſhe had conceived a tender paſſion for him, is proved beyond a doubt by Mr Walpole in his very entertaining and inſtructive *Catalogue of Noble Authors*.—"I am aware (ſays that author) that it is become a mode to treat the queen's paſſion for him as a romance. Voltaire laughs at it; and obſerves, that when her ſtruggle about him muſt have been the greateſt (the time of his death), ſhe was ſixty-eight.—Had *he* been ſixty-eight, it is probable ſhe would *not* have been in love with him."—"Whenever Eſſex acted a fit of ſickneſs, not a day paſſed without the queen's ſending often to ſee him; and once went ſo far as to ſit long by him, and order his *broths and things*. It is recorded by a diligent obſerver of that court, that in one of his ſick moods, he took the liberty of going up to the queen in his night-gown. In the height of theſe fretful fooleries, there was a maſk at Black Fryars on the marriage of lord Herbert and Mrs Ruſſel. Eight lady-maſkers choſe eight more to dance the meaſures. Mrs Fitton, who led them, went to the queen, and wooed her to dance. Her majeſty aſked what ſhe was? *Affection*, ſhe ſaid. *Affection!* ſaid the queen; *Affection is falſe*. Were not theſe the murmurs of a heart ill at eaſe? Yet her majeſty roſe, and danced. She was then ſixty-eight. Sure it was as natural for her to be in love."

Mr Walpole farther obſerves, that her court and cotemporaries had an uniform opinion of her paſſion for Eſſex, and quotes ſeveral inſtances from a letter written by Sir Francis Bacon to the earl; in which, among other things, he adviſes him to conſult her taſte in his very apparel and geſtures, and to give way to any other inclination ſhe may have. Sir Francis adviſed the queen herſelf, knowing her inclination, to keep the earl about her for *ſociety*. What Henry IV. of France thought of the queen's affection for Eſſex, is evident from what he ſaid to her ambaſſador.—"*Que ſa majeſté ne laiſſeroit jamais ſon couſin d'Eſſex eſloigner de ſon cotillon.*"—After his confinement, on hearing he was ill, ſhe ſent him word, with tears in her eyes, that if ſhe might with her honour, ſhe would viſit him.

"If (ſays Mr Walpole) theſe inſtances are problematic, are the following ſo? In one of the curious letters of Rowland White, he ſays, *the queen hath of late uſed the fair Mrs Bridges with words and blows of anger*. In a ſubequent letter, he ſays, *the earl is again fallen in love with his faireſt B. It cannot chooſe but come to the queen's ear, and then he is undone*."—Eſſex himſelf ſays, that her fond parting with him when he ſet out for Ireland, pierced his very ſoul.

Probably the reader has now very little doubt as to queen Elizabeth's affection for the unfortunate Eſſex; but, in proportion to our belief of the exiſtence of this affection, her motives for conſenting to his execution become more inexplicable. Queen Elizabeth had a very high opinion of her beauty and perſonal attractions, and probably expected more entire adoration than the earl's paſſion for variety would ſuffer him to pay. Towards the latter end of her life, ſhe was certainly an object of diſguſt. He had too much honeſt ſimplicity in his nature, to feign a paſſion which he did not feel. She fooliſhly gave credit to the ſtories of his ambitious projects incompatible with her ſafety; and was informed that he had once inadvertently ſaid, that *ſhe grew old and cankered, and that her mind was become as crooked as her carcaſe*. If this be true, where is the woman that would not ſacrifice ſuch a lover to her reſentment?

It is ſaid, however, that, concerning his execution, her majeſty was irreſolute to the laſt, and ſent orders to countermand it; but, conſidering his obſtinacy in refuſing to aſk her pardon, afterwards directed that he ſhould die. It is reported, that the queen, in the height of her paſſion for the earl of Eſſex, had given him a ring, ordering him to keep it, and that whatever crime he ſhould commit, ſhe would pardon him when he ſhould return that pledge. The earl, upon his condemnation, applied to admiral Howard's lady, his relation, deſiring her, by a perſon whom ſhe could truſt, to return it into the queen's own hands; but her huſband, who was one of the earl's greateſt enemies, and to whom ſhe had imprudently told the circumſtance, would not ſuffer her to acquit herſelf of the commiſſion; ſo that the queen conſented to the earl's death, being full of indignation againſt ſo proud and haughty a ſpirit, who choſe rather to die than implore her mercy. Some time after, the admiral's lady fell ſick, and being near her death, ſhe ſent word to the queen that ſhe had ſomething of great conſequence to communicate before ſhe died. The queen came to her bedſide, and having ordered all her attendants to withdraw, the lady returned, but too late, the ring, deſiring to be excuſed that ſhe did not return it ſooner: on which, it is ſaid, the queen immediately retired, overwhelmed with grief.

The earl of Eſſex died in the thirty-fourth year of his age; leaving by his lady one ſon and two daughters.

DEVICE, among painters. See DEVISE.

DEVIL (*Diabolus*), an evil angel, one of thoſe celeſtial ſpirits caſt down from heaven for pretending to equal himſelf with God. The Ethiopians paint the devil white, to be even with the Europeans who paint him black.

There is no mention of the word *devil* in the Old Teſtament, but only of the word *Satan* and *Belial*; nor do we meet with it in any heathen authors, in the ſenſe it is taken among Chriſtians, that is, as a creature revolted from God. Their theology went no farther than to evil genii or dæmons.

Some of the American idolaters have a notion of two collateral independent beings, one of whom is good, and the other evil; which laſt they imagine has the direction and ſuperintendance of this earth, for which reaſon they chiefly worſhip him; whence thoſe that give us an account of the religion of theſe ſavages give out, with ſome impropriety, that they worſhip the devil. The Chaldeans, in like manner, believed both a good principle and an evil one; which laſt they imagined was an enemy to mankind.

Iſaiah, ſpeaking, according to ſome commentators, of the fall of the devil, calls him *Lucifer*, from his former elevation and ſtate of glory: but others explain this paſſage of Iſaiah in reference to the king of Babylon, who had been precipitated from this throne and glory. The Arabians call Lucifer, *Eblis*; which ſome think is only a diminutive or corruption of the word *Diabolus*.

DEVIL on the Neck, a tormenting engine made of iron, ſtraitening and wincing the neck of a man, with his legs together, in a horrible manner; ſo that the more he ſtirreth in it, the ſtraiter it preſſeth him; formerly in uſe among the perſecuting papiſts.

DEVINCTION (*Devinctio*), in antiquity, was uſed to ſignify a love-charm or incantation to gain the affection a perſon beloved.

It was done by tying knots; and is thus deſcribed by Virgil in his eighth Eclogue:

> *Necte tribus nodis ternos, Amarylli, colores:*
> *Necte, Amarylli modo; et Veneris, dic, vincula necto.*

DEVISE, or DEVICE, in heraldry, painting, and ſculpture, any emblem uſed to repreſent a certain family, perſon, action, or quality; with a ſuitable motto, applied in a figurative ſenſe. See MOTTO.

The eſſence of a device conſiſts in a metaphorical ſimilitude between the things repreſenting and repreſented: thus, a young nobleman, of great courage and ambition, is ſaid to have borne for his deviſe, in a late carouſal at the court of France, a rocket mounted in the air, with this motto in Italian, "*poco duri purche m'inalzi*;" expreſſing, that he preferred a ſhort life, provided he might thereby attain to glory and eminence.

The Italians have reduced the making of deviſes into an art, ſome of the principal laws of which are theſe. 1. That there be nothing extravagant or monſtrous in the figures. 2. That figures be never joined which have no relation or affinity with one another; excepting ſome whimſical unions eſtabliſhed in ancient fables, which cuſtom has authoriſed. 3. That the human body be never uſed. 4. The fewer figures the better. 5. The motto ſhould be every way ſuitable.

DEVISE, in law, the act whereby a perſon bequeaths his lands or tenements to another by his laſt will or teſtament.

DEUNX, in Roman antiquity, 11 ounces, or $\frac{11}{12}$ of the LIBRA.

DEVOLVED, ſomething acquired by right of devolution. Such a right is devolved to the crown: ſuch an eſtate devolved on M—— by the death of N——.

The word is alſo uſed for a right, acquired by a ſuperior, of conferring a benefice, when the inferior and ordinary collator has neglected to confer, or has conferred it on an unqualified perſon.

If a patron neglects to preſent to a benefice in ſix months, the preſentation lapſes or devolves upon the biſhop, from thence to the primate, and from thence to the king.

DEVOLUTION, in law, a right acquired by ſucceſſion from one to another.

DEVONSHEERING, a term uſed by the farmers to expreſs the burning of land by way of manure: the method is to cut off the turf about four inches thick, and burn it in heaps, and then ſpread the aſhes upon the land. The name is probably derived from its having been earlieſt practiſed in Devonſhire.

DEVONSHIRE, a county of England, bounded on the ſouth by the Engliſh channel, on the north by the Briſtol channel, on the eaſt by Somerſetſhire, and on the weſt by Cornwall. It is about 69 miles long and 66 broad. The ſoil is various; in the weſtern parts of the country it is coarſe and mooriſh, bad for ſheep, but proper for black cattle. In the northern parts, the dry ſoil and downs are well adapted to ſheep, with numerous flocks of which they are well covered. Tolerable crops of corn are alſo produced there when the land is well manured. The ſoil of the reſt of the country is rich and fertile both in corn and paſture, yielding alſo in ſome places plenty of marle for manuring it. In other places they pare off and burn the ſurface, making uſe of the aſhes as a manure. Dr Campbell ſtyles it a rich and pleaſant country; as in different parts it abounds with all ſorts of grain, produces abundance of fruit, has mines of lead, iron, and ſilver, in which it formerly exceeded Cornwall, though now it is greatly inferior. On the coaſt alſo they have herring and pilchard fiſheries. Devonſhire ſends two members to parliament, and gives title of Duke to the noble family of Cavendiſh.

DEVOTION, DEVOTIO, a ſincere ardent worſhip of the Deity.

Devotion, as defined by Jurieu, is a ſoftening and yielding of the heart, with an internal conſolation, which the ſouls of believers feel in the practice or exerciſe of piety. By devotion is alſo underſtood certain religious practices, which a perſon makes it a rule to diſcharge regularly; and with reaſon, if the exactitude be founded on ſolid piety, otherwiſe it is vanity or ſuperſtition,

perſtition. That devotion is vain and trifling, which would accommodate itſelf both to God and to the world. *Trevoux.*

The character of devotion has frequently ſuffered from the forbidding air which has been thrown over it, by the narrowneſs of bigotry on one hand, or the gloom of ſuperſtition on the other. When freer and more cheerful minds have not had occaſion to ſee it accompanied with thoſe feelings of delight and benevolence which naturally attend it, they are apt to be prejudiced againſt piety at large, by miſtaking this ungracious appearance for its genuine form. Nor has the rant of vulgar enthuſiaſts contributed a little to beget or ſtrengthen the ſame averſion, in perſons of a cool and ſpeculative temper; who have happened to meet with ſuch images and phraſes among religioniſts of a certain ſtrain, as ill ſuit the rational, pure, and ſpiritual nature of true devotion. It may likewiſe be remarked on the other ſide, that people of taſte and ſenſibility have not ſeldom been diſguſted with the inſipid ſtyle too often employed on ſuch ſubjects, by thoſe who poſſeſs neither, or who purpoſely avoid every thing of that kind, from an aim at ſimplicity miſunderſtood, or perhaps from a fear of being thought too warm, in an age of faſhionable indifference and falſe refinement.

Wherever the vital and unadulterated ſpirit of Chriſtian devotion prevails, its immediate object will be to pleaſe Him whom we were made to pleaſe, by adoring his perfections; by admiring his works and ways; by entertaining with reverence and complacence the various intimations of his pleaſure, eſpecially thoſe contained in holy writ; by acknowledging our abſolute dependence, and infinite obligations; by confeſſing and lamenting the diſorders of our nature, and the tranſgreſſions of our lives; by imploring his grace and mercy through Jeſus Chriſt; by interceding for our brethren of mankind; by praying for the propagation and embelliſhment of truth, righteouſneſs, and peace on earth; in fine, by longing for a more entire conformity to the will of God, and breathing after the everlaſting enjoyment of his friendſhip. The effects of ſuch a ſpirit habitually cheriſhed, and feelingly expreſſed before him, with conceptions more or leſs enlarged and elevated, in language more leſs emphatical and accurate, ſententious or diffuſe, muſt ſurely be important and happy. Among theſe effects may be reckoned, a profound humility in the ſight of God, a high veneration for his preſence and attributes, an ardent zeal for his worſhip and honour, an affectionate faith in the Saviour of the world, a conſtant imitation of his divine example, a diffuſive charity for men of all denominations, a generous and unwearied ſelf-denial for the ſake of virtue and ſociety, a total reſignation to Providence, an increaſing eſteem for the goſpel, with clearer and firmer hopes of that immortal life which it has brought to light.

Devotion, among the Romans, was a kind of ſacrifice or ceremony, whereby they conſecrated themſelves to the ſervice of ſome perſon. The ancients had a notion, that the life of one might be ranſomed by the death of another; whence thoſe devotions became frequent for the lives of the emperors. Devotion to any particular perſon was unknown among the Romans till the time of Auguſtus. The very day after the title of Auguſtus had been conferred upon Octavius, Pacuvius, a tribune of the people, publicly declared, that he would devote himſelf to Auguſtus, and obey him at the expence of his life (as was the practice among barbarous nations), if he was commanded. His example was immediately followed by all the reſt; till at length it became an eſtabliſhed cuſtom never to go to ſalute the emperor, without declaring that they were devoted to him.—Before this, the practice of the Romans was that of devoting themſelves to their country. See Decius.

DEUTEROCANONICAL, in the ſchool theology, an appellation given to certain books of holy ſcripture, which were added to the canon after the reſt; either by reaſon they were not wrote till after the compilation of the canon, or by reaſon of ſome diſpute as to their canonicity. The word is Greek, being compounded of δευτερος *ſecond*, and κανονικος *canonical.*

The Jews, it is certain, acknowledged ſeveral books in their canon, which were put there later than the reſt. They ſay, that under Eſdras, a great aſſembly of their doctors, which they call by way of eminence the *great ſynagogue*, made the collection of the ſacred books which we now have in the Hebrew Old Teſtament. And they agree that they put books therein which had not been ſo before the Babyloniſh captivity; ſuch are thoſe of Daniel, Ezekiel, Haggai, &c. and thoſe of Eſdras and Nehemiah.

And the Romiſh church has ſince added others to the canon, that were not, nor could not be, in the canon of the Jews; by reaſon ſome of them were not compoſed till after. Such is the book of Eccleſiaſticus; with ſeveral of the apocriphal books, as the Maccabees, Wiſdom, &c. Others were added ſtill later, by reaſon their canonicity had not been yet examined; and till ſuch examen and judgment they might be ſet aſide at pleaſure.—But ſince that church has pronounced as to the canonicity of theſe books, there is no more room now for her members to doubt of them, than there was for the Jews to doubt of thoſe of the canon of Eſdras. And the deuterocanonical books are with them as canonical as the proto-canonical; the only difference between them conſiſting in this, that the canonicity of the one was not generally known, examined, and ſettled, ſo ſoon as that of the others.

The deuterocanonical books in the modern canon, are the book of Eſther, either the whole, or at leaſt the ſeven laſt chapters thereof; the epiſtle to the Hebrews; that of James; and that of Jude; the ſecond of St Peter; the ſecond and third of St John; and the Revelation. The deuterocanonical parts of books, are, in Daniel, the Hymn of the three children; the prayer of Azariah; the hiſtories of Suſannah, of Bel and the Dragon; the laſt chapter of St Mark; the bloody ſweat, and the appearance of the angel, related in St Luke, chap. xxii; and the hiſtory of the adulterous woman in St John, chap. viii.

DEUTERONŎMY, one of the ſacred books of the Old Teſtament; being the laſt of thoſe written by Moſes: (See Pentateuch). The word is Greek, compounded of δευτερος *ſecond* and νομος *law.*

Deuteronomy was written the 40th year after the delivery from Egypt, in the country of the Moabites beyond Jordan; Moſes being then in the 120th year of his age. It contains, in Hebrew, 11 paraches, though only 10 in the edition of the rabbins at Venice; XX chapters, and 955 verſes. In the Greek, Latin, and other verſions, it contains XXXIV chapters. The laſt is not of Moſes. Some ſay it was added by Joſhua immediately after Moſes's death; which is the moſt probable opinion. Others will have it added by Eſdras.

DEUTEROPOTMI, in Grecian antiquity, a deſignation given to ſuch of the Athenians as had been thought dead, and, after the celebration of the funeral rites, unexpectedly recovered. It was unlawful for the deuteropotmi to enter into the temple of the Eumenides, or to be admitted to the holy rites, till after they were purified, by being let through the lap of a woman's gown, that they might ſeem to be new born.

DEUTEROSIS, the Greek name by which the Jews called their Miſchnah, or ſecond law. See MISCHNAH.

DEW, a denſe, moiſt vapour, found on the earth in ſpring and ſummer mornings, in form of a miſling rain, being collected there chiefly while the ſun is below the horizon.

It hath been diſputed whether the dew is formed from the vapours *aſcending* from the earth during the night-time, or from the *deſcent* of ſuch as have been already raiſed through the day. The moſt remarkable experiments adduced in favour of the firſt hypotheſis are thoſe of Mr Dufay of the Royal Academy of Sciences at Paris. He ſuppoſed, that if the dew *aſcended*, it muſt wet a body placed low down ſooner than one placed in a higher ſituation: and, if a number of bodies were placed in this manner, the lowermoſt would be wetted firſt; and the reſt in like manner, gradually up to the top.

To determine this, he placed two ladders againſt one another, meeting at their tops, ſpreading wide aſunder at the bottom, and ſo tall as to reach 32 feet high. To the ſeveral ſteps of theſe he faſtened large ſquares of glaſs like the panes of windows, placing them in ſuch a manner that they ſhould not overſhade one another. On the trial it appeared exactly as Mr Dufay had apprehended. The lower ſurface of the loweſt piece of glaſs was firſt wetted then the upper, then the lower ſurface of the pane next above it; and ſo on, till all the pieces were wetted to the top. Hence it appeared plain to him, that the dew conſiſted of the vapours aſcending from the earth during the night-time; which, being condenſed by the coldneſs of the atmoſphere, are prevented from being diſſipated as in the day-time by the ſun's heat. He afterwards tried a ſimilar experiment with pieces of cloth inſtead of panes of glaſs, and the reſult was quite conformable to his expectations. He weighed all the pieces of cloth next morning, in order to know what quantity of water each had imbibed, and found thoſe that had been placed lowermoſt conſiderably heavier than ſuch as had been placed at the top; tho' he owns that this experiment did not ſucceed ſo perfectly as the former.

M. Muſchenbroek, who embraced the contrary opinion, thought he had invalidated all Mr Dufay's proofs, by repeating his experiments, with the ſame ſucceſs on a plane covered with ſheet-lead. But to this Mr Dufay replied, that there was no occaſion for ſuppoſing the vapour to riſe through the lead, nor from that very ſpot; but that as it aroſe from the adjoining open ground, the continual fluctuation of the air could not but ſpread it abroad and carry it thither in its aſcent.

But though this experiment of M. Muſchenbroek's is not ſufficient to overthrow thoſe of Mr Dufay, it muſt ſtill remain dubious whether the dew riſes or falls. One thing which ſeems to favour the hypotheſis of its deſcent is, that in cloudy weather there is little or no dew to be obſerved. From this M. de Luc brings an argument in favour of the hypotheſis juſt now mentioned. He accounts for it in the following manner. When there were no clouds in the air, the heat of the inferior air and that which riſes from the earth diſſipates itſelf into the ſuperior regions; and then the vapours which are diſperſed throughout the air, condenſe, and fall down in dew. But, when the clouds continue, they ſeparate the inferior from the ſuperior part of the atmoſphere, and thus prevent the diſſipation of the heat, by which means the vapours remain ſuſpended. When the ſky grows cloudy, ſome hours after ſun-ſet, although the heat has been ſenſibly diminiſhed, it is again increaſed; becauſe, continuing to riſe out of the earth, it is accumulated in the inferior air. But neither can this be reckoned a poſitive proof of the deſcent of the dew; ſince we may as well ſuppoſe the heat of the atmoſphere to be great enough to diſſipate it in its aſcent, as to keep it ſuſpended after its aſcent through the day.

Phil. Tranſ. vol. lxiii. part 2.

On the other hand, its being found in greater quantities on bodies placed low down than on ſuch as are high up, is no proof of the aſcent of the dew; becauſe the ſame thing is obſerved of rain. A body placed low down receives more rain than one placed in an elevated ſituation; and yet the rain certainly deſcends from the atmoſphere. The reaſon why the dew appears firſt on the lower parts of bodies may be, that, in the evening, the lower part of the atmoſphere is firſt cooled, and conſequently moſt diſpoſed to part with its vapour. It is alſo certain, that part of the water contained in the air may be condenſed at any time on the ſides of a glaſs, by means of cold, ſo as to run down its ſides in ſmall drops like dew. It ſeems, therefore, that this ſubject is not ſufficiently determined by ſuch experiments as have yet been made; nor indeed does it appear eaſy to make ſuch experiments as ſhall be perfectly deciſive on the matter.

Several ſubſtances, expoſed to the ſame dew, receive and charge themſelves with it in a very different manner; ſome more, others leſs, and ſome even not at all. The drops ſeem to make a ſort of choice of what bodies they ſhall affix themſelves to: glaſs and cryſtals are thoſe to which they adhere in the moſt ready manner, and in the largeſt quantity; but metals of all kinds never receive them at all, nor do the drops ever adhere to them. The reaſon of this is probably becauſe metals promote evaporation more than glaſs does. Thus, if a piece of metal and a piece of glaſs are both made equally moiſt, the former will be found to dry in much leſs time than the latter. Hence it would ſeem, that there is between metals and water ſome kind of repulſion: and this may be ſufficient to keep off the very ſmall quantity that falls in dew; for whatever tends to make water evaporate after it is actually in contact with any ſubſtance, alſo tends to keep the water from ever coming into contact with it. On this ſubject ſeveral curious particulars are mentioned by Dr Percival, relative to the attraction and repulſion between dew and glaſs or metalline veſſels. The experiments were made by M. du Fay, who, in order to determine with certainty whether the difference between vitrified ſubſtances and metals was the ſame in all caſes, ſet a china ſaucer in the middle of a ſilver plate, and on one ſide, adjoining to it, was placed a china plate, with a ſilver diſh very much reſembling the ſaucer in the middle. In this experiment the china ſaucer was covered with dew, but the plate, though extending four inches round it, was not moiſtened in the leaſt. The china plate alſo had become quit moiſt, while the ſilver veſſel in the middle had not received the ſmalleſt drop. M. du Fay next endeavoured to aſcertain whether a china ſaucer ſet upon a plate of metal, as already deſcribed, did not receive more dew than it would have done if expoſed alone. To accompliſh this deſign, he took two watch cryſtals of equal dimenſions, and placed the one upon a plate of ſilver, the other upon a plate of china, each with its concave uppermoſt. That which was upon the ſilver plate he ſurrounded with a ferrel of the ſame metal, well poliſhed, that no watery particles might attach themſelves to the convex ſurface of the glaſs. In this ſituation he expoſed the cryſtals for ſeveral days ſucceſſively, and always found five or ſix times more dew in that which was on the china plate than on the other placed on the ſilver. The repulſion between the dew and ſilver is further confirmed by the following experiment of M. du Fay, with regard to the cryſtal on the ſilver plate. He informs us, that the ſmall quantity of dew on the inſide near the centre, was in minute drops; and that round the border there was a ſpace of five or ſix lines perfectly dry; towards which the drops regularly decreaſed in magnitude, as if the ſilver ferrel had driven away the dew from that part of the glaſs which was contiguous to it. Theſe experiments were repeated thirty times with invariable ſucceſs. M. du Fay's experiments have received a remarkable confirmation from ſome lately made by Dr Watſon, now biſhop of Landaff, with a view to determine the quantity of vapour that aſcends from a given ſurface of earth. "By means of a little bees-wax (ſays he), I faſtened a half crown very near, but not quite contiguous, to the ſide of the glaſs; and, ſetting the glaſs with its mouth downward on the graſs, it preſently became covered with vapour, except that part of it which was next the half-crown. Not only the half-crown itſelf was free from vapour, but it had hindered any from ſettling on the glaſs which was near it; for there was a little ring of glaſs ſurrounding the half-crown, to the diſtance of a quarter of an inch, which was quite dry, as well as that part of the glaſs which was immediately under the half-crown; it ſeemed as if the ſilver had repelled the water to that diſtance. A large red wafer had the ſame effect as the half-crown; it was neither wetted itſelf, nor was the ring of glaſs contiguous to it wetted. A circle of white paper produced the ſame effect, ſo did ſeveral other ſubſtances, which it would be too tedious to enumerate."

Substances of a very different kind from the uſual dew are ſaid to have ſometimes fallen from the atmoſphere. In the Phil. Tranſ. we are told, that in the year 1695 there fell in Ireland, in the provinces of Leinſter and Munſter, for a conſiderable part of the winter and ſpring, a fatty ſubſtance reſembling butter, inſtead of the common dew. It was of a clammy texture, and dark yellow colour; and was, from its great reſemblance, generally called *dew-butter* by the country people. It always fell in the night, and chiefly in the mooriſh low grounds; and was found hanging on the tops of the graſs, and on the thatch of the houſes of the poor people. It was ſeldom obſerved to fall twice in the ſame place; and uſually, wherever it fell, it lay a fortnight upon the ground before it changed colour; but after that it gradually dried up, and became black. The cattle fed in the fields where it lay as well as in others, and received no harm by it. It fell in pieces of the bigneſs of one's finger-end; but they were diſperſed ſcatteringly about, and it had an offenſive ſmell like a church-yard. There were in the ſame places very ſtinking fogs during the winter, and ſome people ſuppoſed this no other than a ſediment from the fog. It would not keep very long, but never bred worms.

May-Dew whitens linen and wax; the dew of autumn is converted into a white froſt. Out of dew putrified by the ſun, ariſe divers inſects, which change apace from one ſpecies into another: what remains is converted into a fine white ſalt, with angles like thoſe of ſalt-petre, after a number of evaporations, calcinations, and fixations.

There is a ſpirit drawn from May-dew, which has wonderful virtues attributed to it. The method of collecting and preparing it, is preſcribed by Hanneman, phyſician at Kiel. It is to be gathered in clean linen cloths; expoſed to the ſun in cloſe vials; then diſtilled, and the ſpirit thrown upon the caput mortuum; this is to be repeated till the earth unite with the ſpirit, and become liquid; which happens about the ſeventh or eighth cohobation or diſtillation. By ſuch means you gain a very red, odoriferous ſpirit. Stolterfoht, a phyſician of Lubec, thinks May-dew may be gathered in glaſe-plates, eſpecially in ſtill weather, and before ſun-riſe. And Etmuller is of the ſame ſentiment. It might likewiſe be collected with a glaſs funnel, expoſed to the air, having a crooked neck to bring the dew into a vial in a chamber. See Phil. Tranſ. n° 3. Hoffman, and others. It is apparently from the preparation of this dew, that the brothers of the Roſy-Croſs took their denomination. See Rosicrucians.

Dew-Born, in country affairs, a diſtemper in cattle, being a ſwelling in the body, as much as the ſkin can hold, ſo that ſome beaſts are in danger of burſting. This diſtemper proceeds from the greedineſs of a beaſt to feed, when put into a rank paſture; but commonly when the graſs is full of water. In this caſe the beaſt ſhould be ſtirred up and down, and made to purge well: but the proper cure is bleeding in the tail; then take a grated nutmeg, with an egg, and breaking the top of the ſhell, put out ſo much of the white as you may have room to ſlip the nutmeg into the ſhell; mix them together, and then let ſhell and all be put down the beaſt's throat; that done, walk him up and down, and he will ſoon mend.

Dew-Worm. See Lumbricus.

DE WIT (John), the famous penſionary, was born in 1625, at Dort, where he proſecuted his ſtudies ſo diligently, that, at the age of 23, he publiſhed *Elementa*

menta Curvarum Linearium, one of the deepeſt books in mathematics at that time. After taking his degrees, and travelling, he, in 1650, became penſionary of Dort, and diſtinguiſhed himſelf very early in the management of public affairs. He oppoſed with all his power the war between the Engliſh and the Dutch; and when the event juſtified his predictions, he was unanimouſly choſen penſionary of Holland. In this capacity he laboured to procure a peace with Cromwell; in which peace a ſecret article was introduced by one ſide or other, for the excluſion of the houſe of Orange. In the war with England after the king's reſtoration, when it was thought expedient, on Opdam's defeat and death, that ſome of their own deputies ſhould command the fleet, he was one of the three put in commiſſion; and wrote an accurate relation of all that happened during the expedition he was engaged in, for which, at his retnrn, he received the ſolemn thanks of the States-General. In 1667, he eſtabliſhed the perpetual edict for aboliſhing the office of Stadtholder, to fix the liberty of the republic, as it was hoped, on a firm baſis; which produced ſeditions and tumults, that reſtored the office, on pretence that the De Wits were enemies to the houſe of Orange, and plundered the ſtate. The penſionary begged diſmiſſion from his poſt: which was granted, with thanks for his faithful ſervices. But the invaſion of the French, and the internal diviſions among the Hollanders themſelves, ſpread every where terror and confuſion; which the Orange party heightened to ruin the De Wits. Cornelius, the penſionary's brother, was impriſoned and condemned to exile; and a report being raiſed that he would be reſcued, the mob armed, and ſurrounded the priſon where the two brothers then were together, dragged them out, barbarouſly murdered them, hung the bodies on the gallows, and cut them to pieces, which many of them even broiled, and ate with ſavage fury. Such was the end of one of the greateſt geniuſes of his age: of whom Sir William Temple, who was well acquainted with him, writes with the greateſt eſteem and admiration. He obſerves, that when he was at the head of the government, he differed nothing in his manner of living from an ordinary citizen. His office, for the firſt ten years, brought him in little more than 300l. and in the latter part of his life, not above 700l. *per annum.* He refuſed a gift of 10,000l. from the States-General, becauſe he thought it a bad precedent in the government. With great reaſon, therefore, Sir William Temple, ſpeaking of his death, obſerves, "He was a perſon that deſerved another fate, and a better return from his country; after 18 years ſpent in their miniſtry, without any care of his entertainments or eaſe, and little of his fortune. A man of unwearied induſtry, inflexible conſtancy, ſound, clear, and deep underſtanding, and untainted integrity; ſo that whenever he was blinded, it was by the paſſion he had for that which he eſteemed the good and intereſt of his ſtate. This teſtimony is juſtly due to him from all that were well acquainted with him: and is the more willingly paid, ſince there can be as little intereſt to flatter, as honour to reproach, the dead."

Beſides the works already mentioned, he wrote a book containing thoſe maxims of government upon which he acted; which will be a never-fading monument to his immortal memory. A tranſlation of it from the original Dutch, intitled, *The true intereſt and political maxims of the republic of Holland*, has been printed in London; to the laſt edition of which, in 1646, are prefixed hiſtorical memoirs of the illuſtrious brothers Cornelius and John de Wit, by John Campbell, Eſq.

DEXTANS, in Roman antiquity, ten ounces, or $\frac{10}{12}$ of their libra. See Libra.

DEXTER, in heraldry, an appellation given to whatever belongs to the right ſide of a ſhield or coat of arms: thus we ſay, *bend-dexter, dexter point*, &c.

DEXTROCHERE, or Destrochere, in heraldry, is applied to the right arm painted in a ſhield, ſometimes naked; ſometimes clothed, or adorned with a bracelet; and ſometimes armed, or holding ſome moveable or member uſed in the arms.

DEY, the title of the ſovereign of Algiers, under the protection of the grand ſeignor. A prince under this title was appointed by the ſultan, at the requeſt of the Turkiſh ſoldiers, in the year 1710. The term *dey*, in the Turkiſh language, ſignifies *an uncle* by the mother's ſide; and the reaſon of the denomination is this: that the Turkiſh military conſider the grand ſeignor as their father; the republic as their mother, by which they are nouriſhed and maintained; and the dey as the brother of the republic, and conſequently the uncle of all who are under his dominion. Beſides the age, experience, and valour, which are neceſſary qualifications of a perſon to be elected, he muſt alſo be a native Turk, and have made the voyage to Mecca. He has no guards nor conſiderable retinue. He preſides at the divan, and is moſt diſtinguiſhed by the reſpect and ſubmiſſion which are paid him.

DIABETES, in phyſic, an exceſſive diſcharge of urine, which comes away crude, and exceeds the quantity of liquids drank. See (the *Index* ſubjoined to) Medicine.

DIABOLUS. See Devil.

Diabolus Marinus. See Raia.

Diabolus Metallorum, a title given by chemiſts to jupiter or tin; becauſe, when incorporated with other metals, it renders them incapable of reduction, or at leaſt very difficult to undergo that operation.

DIACAUSTIC curve, a ſpecies of the cauſtic curves formed by refraction.

DIACHYLON, in pharmacy, an emollient digeſtive plaſter, compoſed of mucilages or viſcid juices drawn from certain plants. See Pharmacy.

DIACODIUM, in pharmacy, a ſyrup prepared from poppy-heads. It is alſo called the *ſyrupus de meconio.* See Pharmacy.

DIACOUSTICS, called alſo Diaphonics, the conſideration of the properties of refracted ſound, as it paſſes through different mediums: (See Acoustics.) The word is formed from the Greek δια *per*, "thro'," which intimates a paſſage; and ακουω "I hear," *q. d.* the conſideration of the paſſage of the ſounds we hear. See Sound.

DIACRII, in antiquity, was the name of a party or faction at Athens.—That city, we read, was divided into two parties: the one favourers of an oligarchy, who would have only a few perſons employed in the government: the other conſiſted of ſuch as were for a democratical or popular government, wherein the whole people ſhould have a ſhare. The firſt were called *diacrii*, and the latter *pediaci*; the latter inhabiting the lower, and the former the ακρον, or upper quarter or part of the city.—The laws of Solon imported, that Piſiſtratus ſhould be chief of the diacrii; though the ſcholiaſt on Ariſtophanes's comedy The Waſps, affirms, that Pandion diſtributed the quarter of the diacrii among his ſons, and put Lycus at their head.

DIADELPHIA (*δις* "twice," and *αδελφος* "a brother"), claſs the 17th in the ſexual ſyſtem, comprehending thoſe plants which bear hermaphrodite flowers with two ſets of united ſtamina; but this circumſtance muſt not be abſolutely depended on. They are the *papilionacei* of Tournefort, the *irregulares tetrapetali* of Rivinus, and the *leguminoſa* of Ray. See Botany, the *Scheme*, p. 430, and Plate CII. fig. 17.

DIADEM, in antiquity, a head-band or fillet, worn by kings as a badge of their royalty. It was made of ſilk, thread, or wool, and tied round the temples and forehead, the ends being tied behind, and let fall on the neck. It was uſually white, and quite plain; tho' ſometimes embroidered with gold, and ſet with pearls and precious ſtones. In latter times, it came to be twiſted round crowns, laurels, &c. and even appears to have been worn on divers parts of the body. See Crown.—The word comes from the Latin *diadema*; of the Greek *διαδημα* "a little band encompaſſing the head," of the verb *διαδεω*, *cingo*, "I gird."

Diadem, in heraldry, is applied to certain circles or rims ſerving to incloſe the crowns of ſovereign princes, and to bear the globe and croſs, or the flower-de-luces, for their creſt. The crowns of ſovereigns are bound, ſome with a greater, and ſome with a leſs number of diadems.—The bandage about the heads of the Moors on ſhields is alſo called *diadem*, in blazoning.

DIÆRESIS, in ſurgery, an operation ſerving to divide and ſeparate the part when the continuity is a hindrance to the cure.

Diæresis, in medicine, is the conſuming of the veſſels of an animal body, when from ſome corroding cauſe certain paſſages are made, which naturally ought not to have been; or certain natural paſſages are dilated beyond their ordinary dimenſions, ſo that the humours which ought to have been contained in the veſſels extravaſate or run out.

Diæresis, in grammar, the diviſion of one ſyllable into two, which is uſually noted by two points over a letter, as *aulaï* inſtead of *aulæ*, *diſſoluenda* for *diſſolvenda*.

DIÆTETÆ, in Grecian antiquity, a kind of judges, of which there were two ſorts, the cleroti and diallacterii. The former were public arbitrators, choſen by lot to determine all cauſes exceeding ten drachms, within their own tribe, and from their ſentence an appeal lay to the ſuperior courts.

The diallacterii, on the contrary, were private arbitrators from whoſe ſentence there lay no appeal, and accordingly they always took an oath to adminiſter juſtice without partiality.

DIAGLYPHICE, the art of cutting or engraving figures on metals, ſuch as ſeals, intaglios, matrices of letters, &c. or coins for medals. See Engraving.

DIAGNOSIS (from *διαγινωσκω to diſcern* or *diſtinguiſh*), the diagnoſtics or the ſigns of a diſeaſe. They are of two kinds, *viz.* the adjunct and pathognomonic; the firſt are common to ſeveral diſeaſes, and ſerve only to point out the difference between diſeaſes of the ſame ſpecies; the latter are thoſe which always attend the diſeaſe, and diſtinguiſh it from all others.

DIAGNOSTIC, in medicine, a term given to thoſe ſigns which indicate the preſent ſtate of a diſeaſe, its nature and cauſe.

DIAGONAL, in geometry, a right line drawn acroſs a quadrilateral figure, from one angle to another; by ſome called the *diameter*, and by others the *diametral*, of the figure. See Geometry.

DIAGORAS, ſurnamed the *Atheiſt*, lived in the 91ſt Olympiad. He was not a native of Athens, but he philoſophiſed there. He delighted in making verſes, and had compoſed a poem which a certain poet ſtole from him. He ſued the thief, who ſwore it was his own, and got glory by it. This tempted Diagoras to deny a Providence. The Athenians ſummoned him to give an account of his doctrine. He fled, and they ſet a price upon his head, promiſing a reward to any who ſhould kill him; but he took ſhipping, and was caſt away.

DIAGRAM, in geometry, a ſcheme for explaining and demonſtrating the properties of any figure, whether triangle, ſquare, circle, &c. See Geometry.

Diagram, among ancient muſicians, the ſame with the ſcale of the moderns. See Scale.

DIAH, Diat, a name given by the Arabs to the puniſhment of retaliation. By the Mahometan law, a brother, or the next relation of a murdered perſon, ought to take part againſt the murderer, and demand his blood in reparation for that which he has ſhed. Before the time of Mahomet, the Arabs had a cuſtom of putting a freeman of their priſoners to death in lieu of every ſlave they loſt in battle, and a man for every woman that was killed. But Mahomet regulated the laws of repriſal; directing in the Alcoran, by the diat, that a freeman ſhould be required for a freeman, and a ſlave for a ſlave. The Turks, probably in conſequence of this law, formerly maſſacred almoſt all their priſoners of war, but they now content themſelves with enſlaving and ſelling them.

DIAHEXAPLA, or Diahexapte, among farriers, a compound medicine, ſo called from its containing ſix ingredients, *viz.* birthwort and gentian roots, juniper-berries, bay-berries, myrrh, and ivory-ſhavings. It is commended for colds, conſumptions, purſineſs, and many other diſorders in horſes.

DIAL, an inſtrument ſerving to meaſure time; which it effected by the aid of the ſun, is called a *ſun dial*. The word is from the Latin *dies* "day," becauſe indicating the hour of the day. The ancients alſo called it *ſciatherium*, from its effect by the ſhadow. See the article Dialing.

DIALECT, an appellation given to the language of a province, in ſo far as it differs from that of the whole kingdom. The term, however, is more particularly uſed in ſpeaking of the ancient Greek, whereof there were four dialects, the Attic, Ionic, Æolic, and Doric; each of which was a perfect language in its kind, that took place in certain countries, and had peculiar beauties.

In Great Britain, beſides the grand diverſity of Engliſh and Scotch, almoſt every county has a dialect of its own, all differing conſiderably in pronunciation, accent, and tone, although one and the ſame language.

DIALECTICS, in the literary hiſtory of the ancients, that branch of logics which taught the rules and modes of reaſoning. See Logic, Part III.

Zeno Eleates was the firſt who diſcovered the natural ſeries of principles and concluſions obſerved in reaſoning, and formed an art thereof in form of a dialogue; which, for this reaſon, was called *dialectica.*

The dialectica of the ancients is uſually divided into ſeveral kinds: the firſt was the *eleatica*, that of Zeno Eleates, which was threefold; *viz. conſecutionum, colloquutionum*, and *contentionum.* The firſt conſiſting of rules for deducing or drawing concluſions. The ſecond, the art of dialogue; which became of ſuch univerſal uſe in philoſophy, that all reaſoning was called *interrogation:* then, ſyllogiſm being laid aſide, the philoſophers did all by dialogue; it lying on the reſpondent to conclude and argue from the ſeveral conceſſions made. The laſt part of Zeno's dialectics, Εριϛικη, was contentious, or the art of diſputing and contradicting; though ſome, particularly Laertius, aſcribe this part to Protagoras a diſciple of Zeno.

The ſecond is the *dialectica megarica*, whoſe author is Euclid, not the mathematician, but another of Megara. He gave much into the method of Zeno and Protagoras; though there are two things appropriated to him: the firſt, that he impugned the demonſtrations of others, not by aſſumptions, but concluſions; continually making illations, and proceeding from conſequence to conſequence: the ſecond, that he ſet aſide all arguments drawn from compariſons of ſimilitude as invalid.

He was ſucceeded by Eubulides, from whom the ſophiſtic way of reaſoning is ſaid to be derived. In his time the art is deſcribed as manifold: mentiens, fallens, electra, obvelata, arcevalis, cornuta, and calva. See Sophism.

The third is the dialectics of Plato, which he propoſes as a kind of analyſis to direct the human mind, by dividing, defining, and bringing things to the firſt truth: where being arrived, and ſtopped there a little, it applies itſelf to explain ſenſible things, but with a view to return to the firſt truth, where alone it can reſt. Such is the idea of Plato's analyſis.

The fourth is Ariſtotle's dialectics; containing the doctrine of ſimple words, delivered in his book of Prædicaments; the doctrine of propoſitions, in his book *De Interpretatione;* and that of the ſeveral kinds of ſyllogiſm, in his books of Analytics, Topics, and Elenchuſes.

The fifth is the dialectics of the Stoics; which they call a part of philoſophy, and divide into rhetoric and dialectic; to which ſome add the definitive, whereby things are juſtly defined; comprehending likewiſe the canons or criterions of truth.

The Stoics, before they come to treat of ſyllogiſms, have two principal places; the one about the ſignification of words, the other about the things ſignified. On occaſion of the firſt, they conſider abundance of things belonging to the grammarian's province: what, and how many letters; what is a word, diction, ſpeech, &c. On occaſion of the latter, they conſider things themſelves, not as without the mind, but as in it, received in it by means of the ſenſes. Accordingly, they firſt teach, that *nil ſit in intellectu, quod non prius fuerit in ſenſu;* "whatever is in the mind came thither by the ſenſes;" and that *aut incurſione ſui*, as Plato, who meets the ſight; *aut ſimilitudine*, as Cæſar by his effigy; *aut proportione*, either by enlarging as a giant or by diminiſhing as a pygmy; *aut tranſlatione*, as a Cyclops; *aut compoſitione*, as a Centaur; *aut contrario*, as death; *aut privatione*, as a blind man.

The ſixth is Epicurus's dialectics; for though he ſeems to have deſpiſed dialectic, he cultivated it with vigour. He was only averſe to that of the Stoics; who he thought attributed too much to it, as pronouncing him alone wiſe who was well verſed in dialectics. For this reaſon, Epicurus, ſeeming to ſet aſide the common dialectics, had recourſe to another way; *viz.* to certain canons which he ſubſtituted in their ſtead, the collection whereof he called *canonica;* and as all queſtions in philoſophy are either *de re* or *de voce*, he gave ſeparate rules for each. See Epicureans.

DIALIA, in antiquity, ſacrifices performed by the flamen dialis. See Flamen.

DIALING,

THE art of drawing dials on the ſurface of any given body or plane. The Greeks and the Latins called this art *gnomonica* and *ſciatherica*, by reaſon it diſtinguiſhes the hours by the ſhadow of the gnomon. Some call it *photo-ſciatherica*, becauſe the hours are ſometimes ſhown by the light of the ſun. Laſtly, others call it *horologiography*.

1 Utility of this art. Dialing is a moſt neceſſary art: for notwithſtanding we are provided with moving machines, ſuch as clocks and watches, to ſhow time; yet theſe are apt to be out of order, go wrong, and ſtop: conſequently they ſtand frequently in need of regulation by ſome invariable inſtrument, as a dial; which being rightly conſtructed and duly placed, will always, by means of the ſun, inform us of the true ſolar time; which time being corrected by the equation table publiſhed annually in the ephemerides, almanacs, and other books, will be the mean time to which clocks and watches are to be ſet.

Hiſtory The antiquity of dials is beyond doubt. Some attribute their invention to Anaximenes Mileſius; and others to Thales. Vitruvius mentions one made by the ancient Chaldee hiſtorian Beroſus, on a reclining plane, almoſt parallel to the equinoctial. Ariſtarchus Samius invented the hemiſpherical dial. And there were ſome ſpherical ones, with a needle for a gnomon. The diſcus of Ariſtarchus was an horizontal dial, with its limb raiſed up all around, to prevent the ſhadows ſtretching too far.

But it was late ere the Romans became acquainted with dials. The firſt ſun-dial at Rome was ſet up by Papirius Curſor, about the year of the city 460; before which time, ſays Pliny, there is no mention of any account of time but by the ſun's riſing and ſetting: it was ſet up at or near the temple of Quirinus, but went ill. About 30 years after, M. Valerius Meſſala being conſul, brought out of Sicily another dial, which he ſet up on a pillar near the roſtrum; but for want of its being made for that latitude, it could not go true. They made uſe of it 99 years; till Martius Philippus ſet up another more exact.

But there ſeem to have been dials among the Jews much earlier than any of theſe. Witneſs the dial of Ahaz; who began to reign 400 years before Alexander, and within twelve years of the building of Rome; mentioned by Iſaiah, chap. xxxviii. verſe 8.

The firſt profeſſed writer on dialing is Clavius; who demonſtrates all, both the theory and the operations, after the rigid manner of the ancient mathematicians; but ſo intricately, that few, we dare ſay, ever read them all. Dechales and Ozanam give much eaſier demonſtrations in their *Courſes*, and Wolfius in his *Elements*. M. Picard has given a new method of making large dials, by calculating the hour-lines; and M. de la Hire, in his *Dialing*, printed in 1683, a geometrical method of drawing hour-lines from certain points determined by obſervation. Eberhardus Welperus, in 1625, publiſhed his *Dialing*, wherein he lays down a method of drawing the primary dials on a very eaſy foundation. The ſame foundation is deſcribed at length by Sebaſtian Munſter, in his *Rudimenta Mathematica*, publiſhed in 1551. Sturmius, in 1672, publiſhed a new edition of Welperus's *Dialing*, with the addition of a whole ſecond part, about inclining and declining dials, &c. In 1708, the ſame work, with Sturmius's additions, was republiſhed with the addition of a fourth part, containing Picard's and de la Hire's methods of drawing large dials. Paterſon, Michael, and Muller, have each wrote on dialing, in the German tongue; Coetſius in his *Horologiographia Plana* printed in 1689; Gauppenius, in his *Gnomonica Mechanica*; Bion, in his *Uſe of Mathematical Inſtruments*; the late ingenious Mr Ferguſon, in his *Select Lectures*; Mr Emerſon, in his *Dialing*; and Mr W. Jones, in his *Inſtrumental Dialing*.

3 Definitions. A *Dial*, accurately defined, is a plane, upon which lines are deſcribed in ſuch a manner, that the ſhadow of a wire, or of the upper edge of another plane, erected perpendicularly on the former, may ſhow the true time of the day.

The edge of the plane by which the time of the day is found, is called the *ſtile of the dial*, which muſt be parallel to the earth's axis; and the line on which the ſaid plane is erected is called the *ſubſtile*.

The angle included between the ſubſtile and ſtile, is called the *elevation* or *height of the ſtile*.

Thoſe dials whoſe planes are parallel to the plane of the horizon, are called *horizontal dials*; and thoſe dials whoſe planes are perpendicular to the plane of the horizon, are called *vertical* or *erect dials*.

Thoſe erect dials, whoſe planes directly front the north or ſouth, are called *direct north* or *ſouth dials*; and all other erect dials are called *decliners*, becauſe their planes are turned away from the north or ſouth.

Thoſe dials whoſe planes are neither parallel nor perpendicular to the plane of the horizon, are called *inclining* or *reclining dials*, according as their planes make acute or obtuſe angles with the horizon; and if their planes are alſo turned aſide from facing the ſouth or north, they are called *declining-inclining* or *declining-reclining dials*.

The interſection of the plane of the dial, with that of the meridian, paſſing through the ſtile, is called the *meridian of the dial*, or the *hour-line of XII.*

Thoſe meridians, whoſe planes paſs through the ſtile, and make angles of 15, 30, 45, 60, 75 and 90 degrees with the meridian of the place (which marks the hour-line of XII.) are called *hour-circles*; and their interſections with the plane of the dial are called *hour-lines*.

In all declining dials, the ſubſtile makes an angle with the hour-line of XII.; and this angle is called the *diſtance of the ſubſtile from the meridian*.

The declining plane's difference of longitude, is the angle formed at the interſection of the ſtile and plane of the dial, by two meridians; one of which paſſes thro' the hour-line of XII. and the other through the ſubſtile.

Thus much being premiſed concerning dials in general, we ſhall now proceed to explain the different methods of their conſtruction.

Plate CLVIII. fig. 1.

4 The univerſal principle on which dialing depends. If the whole earth $aPcp$, were tranſparent, and hollow, like a ſphere of glaſs, and had its equator divided into 24 equal parts by ſo many meridian ſemicircles, a, b, c, d, e, f, g, &c. one of which is the geographical meridian of any given place, as London (which is ſuppoſed to be at the point a;) and if the hours of XII were marked at the equator, both upon that meridian and the oppoſite one, and all the reſt of the hours in order on the reſt of the meridians, thoſe meridians would be the hour-circles of London: then, if the ſphere had an opaque axis as PEp, terminating in the poles P and p, the ſhadow of the axis would fall upon every particular meridian and hour, when the ſun came to the plane of the oppoſite meridian, and would conſequently ſhow the time at London, and at all other places on the meridian of London.

5 Horizontal dial. If this ſphere was cut through the middle by a ſolid plane $ABCD$, in the rational horizon of London, one half of the axis EP would be above the plane, and the other half below it; and if ſtraight lines were drawn from the centre of the plane to thoſe points where its circumference is cut by the hour-circles of the ſphere, thoſe lines would be the hour-lines of a horizontal dial for London: for the ſhadow of the axis would fall upon each particular hour-line of the dial, when it fell upon the like hour-circle of the ſphere.

Fig. 2.

6 Vertical dial. If the plane which cuts the ſphere be upright as $AFCG$, touching the given place (London) at F, and directly facing the meridian of London, it will then become the plane of an erect direct ſouth-dial: and if right lines be drawn from its centre E to thoſe points of its circumference where the hour-circles of the ſphere cut it, theſe will be the hour-lines of a vertical or direct ſouth-dial for London, to which the hours are to be ſet as in the figure (contrary to thoſe on a horizontal dial), and the lower half Ep of the axis will caſt a ſhadow on the hour of the day on this dial, at the ſame time that it would fall upon the like hour-circle of the ſphere, if the dial-plane was not in the way.

If the plane (ſtill facing the meridian) be made to incline, Plate CLVIII. incline, or recline, any given number of degrees, the hour-circles of the ſphere will ſtill cut the edge of the plain in thoſe points to which the hour-lines muſt be drawn ſtraight from the centre; and the axis of the ſphere will caſt a ſhadow on theſe lines at the reſpective hours. The like will ſtill hold, if the plane be made to decline by any given number of degrees from the meridian towards the eaſt or weſt: provided the declination be leſs than 90 degrees, or the reclination be leſs than the co-latitude of the place: and the axis of the ſphere will be a gnomon, or ſtile, for the dial. But it cannot be a gnomon, when the declination is quite 90 degrees, nor when the reclination is equal to the co-latitude; becauſe, in theſe two caſes, the axis has no elevation above the plane of the dial.

7 Inclining, reclining, and declining, dials.

And thus it appears, that the plane of every dial repreſents the plane of ſome great circle upon the earth; and the gnomon of the earth's axis, whether it be a ſmall wire as in the above figures, or the edge of a thin plate, as in the common horizontal dials.

The whole earth, as to its bulk, is but a point, if compared to its diſtance from the ſun: and therefore, if a ſmall ſphere of glaſs be placed upon any part of the earth's ſurface, ſo that its axis be parallel to the axis of the earth, and the ſphere have ſuch lines upon it, and ſuch planes within, as above deſcribed; it will ſhow the hours of the day as truly as if it were placed at the earth's centre, and the ſhell of the earth were as tranſparent as glaſs.

But becauſe is is impoſſible to have a hollow ſphere of glaſs perfectly true, blown round a ſolid plane; or if it was, we could not get at the plane within the glaſs to ſet it in any given poſition; we make uſe of a wire-ſphere to explain the principles of dialing, by joining 24 ſemicircles together at the poles, and putting a thin flat plate of braſs within it.

Fig. 1, 2.

8 Dialing by the common terreſtrial globe.

A common globe of 12 inches diameter, has generally 24 meridian ſemicircles drawn upon it. If ſuch a globe be elevated to the latitude of any given place, and turned about until one of theſe meridians cut the horizon in the north point, where the hour of XII is ſuppoſed to be marked, the reſt of the meridians will cut the horizon at the reſpective diſtances of all the other hours from XII. Then if theſe points of diſtance be marked on the horizon, and the globe be taken out of the horizon, and a flat board or plate he put into its place, even with the ſurface of the horizon; and if ſtraight lines be drawn from the centre of the board, to theſe points of diſtance on the horizon which were cut by the 24 meridian ſemicircles; theſe lines will be the hour-lines of a horizontal dial for that latitude, the edge of whoſe gnomon muſt be in the very ſame ſituation that the axis of the globe was, before it was taken out of the horizon: that is, the gnomon muſt make an angle with the plane of the dial, equal to the latitude of the place for which the dial is made.

If the pole of the globe be elevated to the co-latitude of the given place, and any meridian be brought to the north point of the horizon, the reſt of the meridians will cut the horizon in the reſpective diſtances of all the hours from XII, for a direct ſouth dial, whoſe gnomon muſt be an angle with the plane of the dial, equal to the co-latitude of the place; and the hours muſt be ſet the contrary way on this dial to what they are on the horizontal.

Plate CLVIII. But if your globe have more than 24 meridian ſemicircles upon it, you muſt take the following method for making *horizontal* and *ſouth dials.*

9 To conſtruct a horizontal dial.

Elevate the pole to the latitude of your place, and turn the globe until any particular meridian (ſuppoſe the firſt) comes to the north point of the horizon, and the oppoſite meridian will cut the horizon in the ſouth. Then, ſet the hour-index to the uppermoſt XII on its circle; which done, turn the globe weſtward until 15 degrees of the equator paſs under the brazen meridian, and then the hour-index will be at I (for the ſun moves 15 degrees every hour), and the firſt meridian will cut the horizon in the number of degrees from the north point that I is diſtant from XII. Turn on until other 15 degrees of the equator paſs under the brazen meridian, and the hour-index will then be at II, and the firſt meridian will cut the horizon in the number of degrees that II is diſtant from XII: and ſo, by making 15 degrees of the equator paſs under the brazen meridian for every hour, the firſt meridian of the globe will cut the horizon in the diſtances of all the hours from XII to VI, which is juſt 90 degrees: and then you need go no farther, for the diſtances of XI, X, IX, VIII, VII, and VI, in the forenoon, are the ſame from XII, as the diſtances of I, II, III, IV, V, and VI, in the afternoon: and theſe hour-lines continued through the centre, will give the oppoſite hour-lines on the other half of the dial.

Thus, to make a horizontal dial for the latitude of London, which is 51$\frac{1}{2}$ degrees north, elevate the north pole of the globe 51$\frac{1}{2}$ degrees above the north point of the horizon; and then turn the globe, until the firſt meridian (which is that of London on the Engliſh terreſtrial globe) cuts the north point of the horizon, and ſet the hour-index to XII at noon.

Then turning the globe weſtward until the index points ſucceſſively to I, II, III, IV, V, and VI, in the afternoon, or until 15, 30, 45, 60, 75, and 90 degrees of the equator paſs under the brazen meridian, you will find that the firſt meridian of the globe cuts the horizon in the following number of degrees from the north towards the eaſt, viz. 11$\frac{2}{3}$, 24$\frac{1}{4}$, 38$\frac{1}{10}$, 53$\frac{3}{5}$, 71$\frac{1}{10}$, and 90; which are the reſpective diſtances of the above hours from XII upon the plane of the horizon.

Fig. 3.

To transfer theſe, and the reſt of the hours, to a horizontal plane, draw the parallel right lines *a c* and *d b*, upon that plane, as far from each other as is equal to the intended thickneſs of the gnomon or ſtile of the dial, and the ſpace included between them will be the meridian or twelve o'clock line on the dial. Croſs this meridian at right angles with the ſix o'clock line *g h*, and ſetting one foot of your compaſſes in the interſection *a*, as a centre, deſcribe the quadrant *g e* with any convenient radius or opening of the compaſſes: then, ſetting one foot in the interſection *b*, as a centre, with the ſame radius deſcribe the quadrant *f h*, and divide each quadrant into 90 equal parts or degrees, as in the figure.

Becauſe the hour-lines are leſs diſtant from each other about noon, than in any other part of the dial, it is beſt to have the centres of theſe quadrants at a little diſtance from the centre of the dial plane, on the ſide oppoſite to XII, in order to enlarge the hour-diſtances thereabouts, under the ſame angles on the plane. Thus, the

Fig. 1

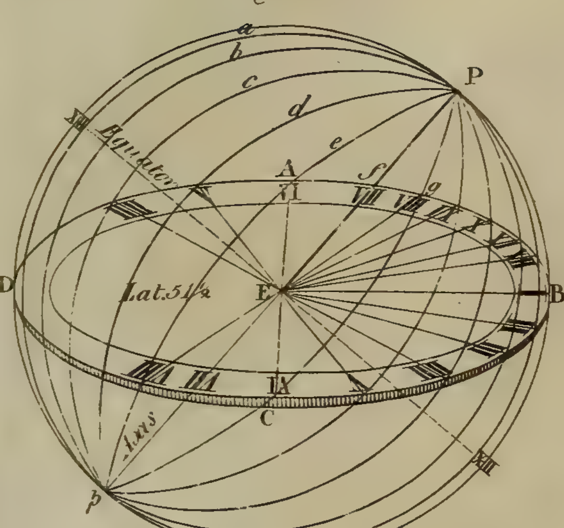


Fig. 2

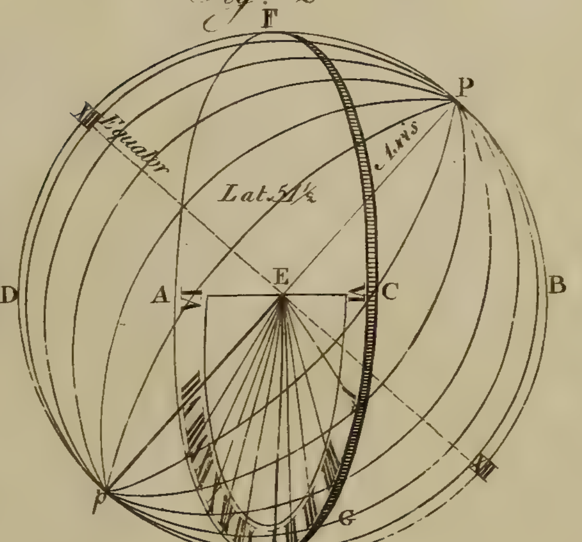


Fig. 3

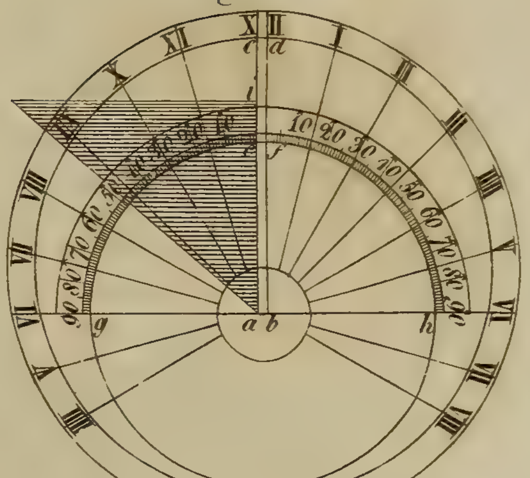


Fig. 5

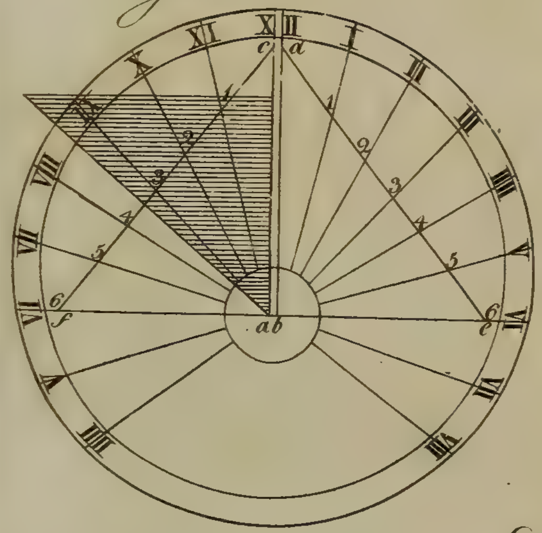


Fig. 4

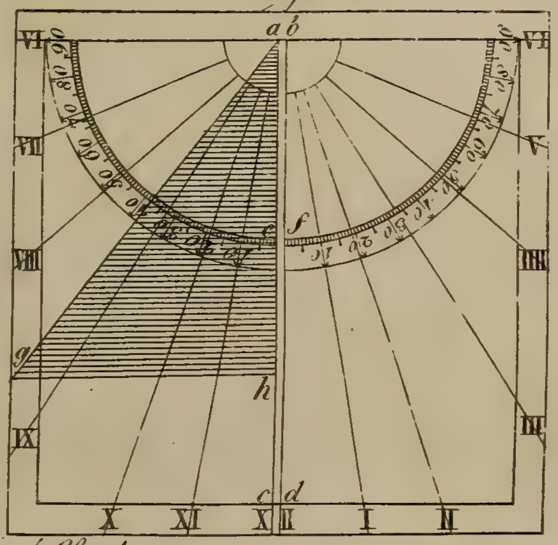
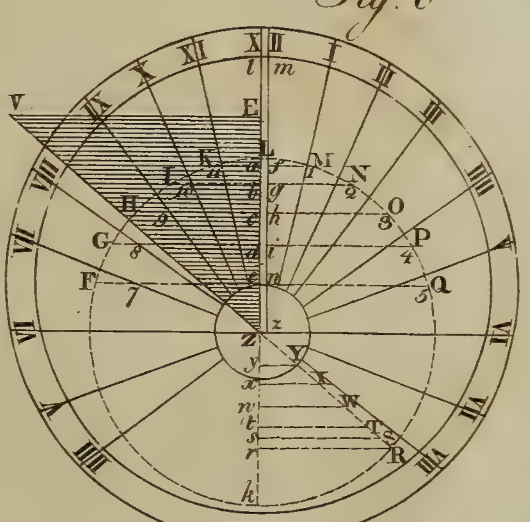
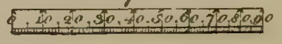


Fig. 6



Line of Chords



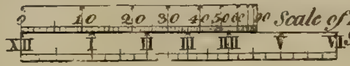


Fig. 7

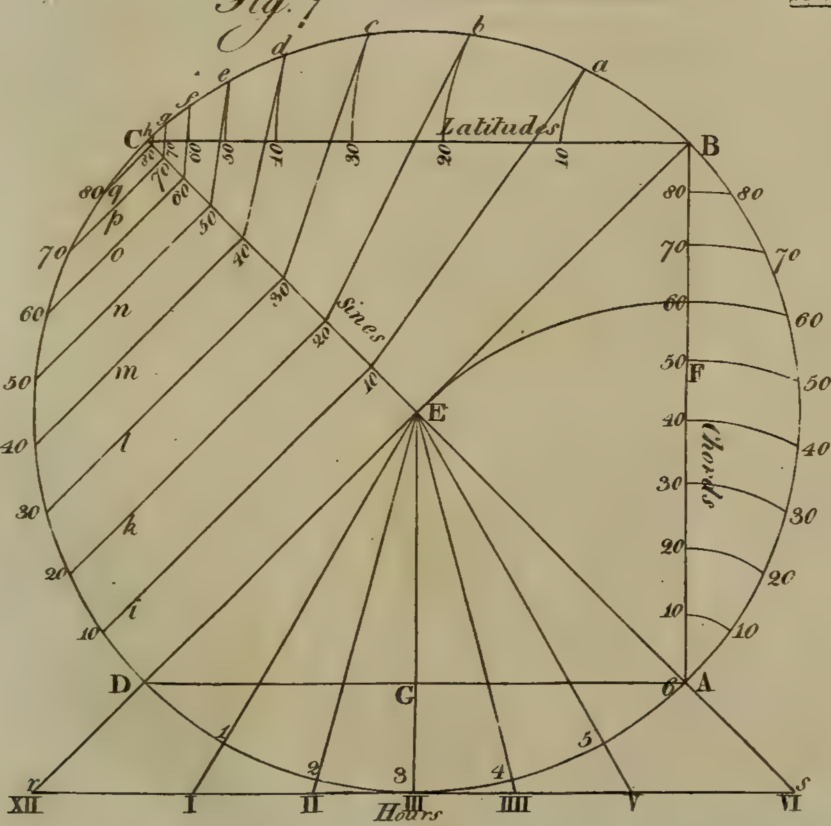
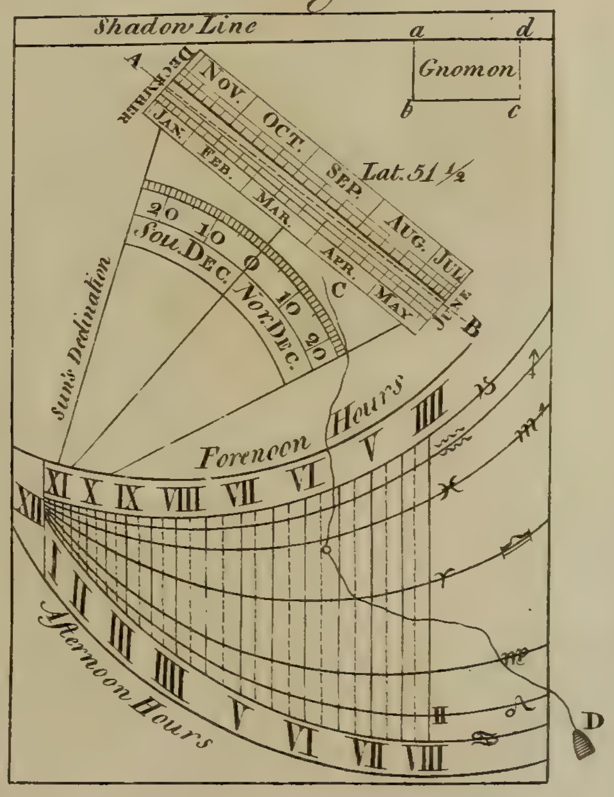
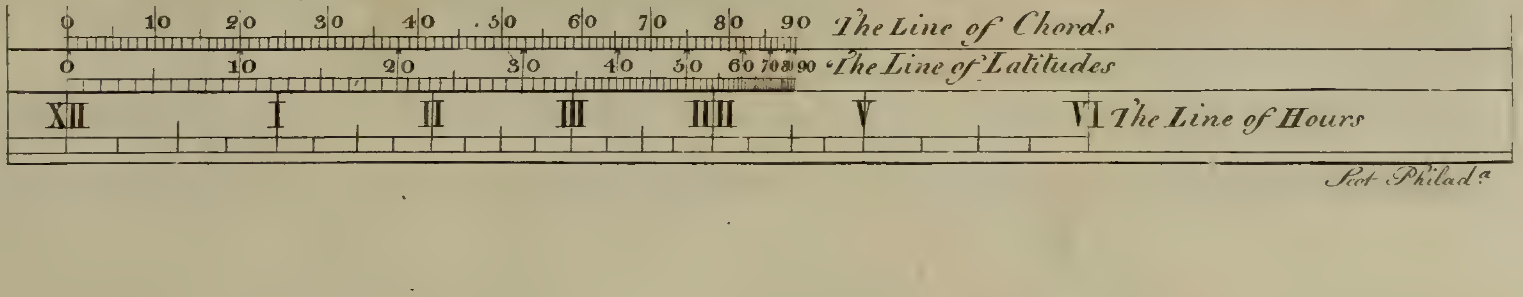


Fig. 8





Scot Philad^a

Plate CLVIII.

the centre of the plane is at *C*, but the centres of the quadrants are at *a* and *b*.

Lay a ruler over the point *b* (and keeping it there for the centre of all the afternoon hours in the quadrant *f b*) draw the hour-line of I through $11\frac{2}{3}$ degrees in the quadrant; the hour-line of II, through $24\frac{1}{4}$ degrees; of III, through $38\frac{1}{12}$ degrees; IV, through $53\frac{1}{2}$; and V, through $71\frac{1}{12}$: and becauſe the ſun riſes about four in the morning, on the longeſt days at London, continue the hour-lines of IV and V in the afternoon through the centre *b* to the oppoſite ſide of the dial.—This done, lay the ruler to the centre *a* of the quadrant *e g*; and through the like diviſions or degrees of that quadrant, viz. $11\frac{2}{3}$. $24\frac{1}{4}$, $38\frac{1}{12}$, $53\frac{1}{2}$, and $71\frac{1}{12}$, draw the forenoon hour-lines of XI, X, IX, VIII, and VII; and becauſe the ſun ſets not before eight in the evening on the longeſt days, continue the hour-lines of VII and VIII in the forenoon, through the centre *a*, to VII and VIII in the afternoon; and all the hour-lines will be finiſhed on this dial; to which the hours may be ſet, as in the figure.

Fig. 3.

Laſtly, through $51\frac{1}{2}$ degrees of either quadrant, and from its centre, draw the right line *a g* for the hypothenuſe or axis of the gnomon *a g i*; and from *g*, let fall the perpendicular *g i*, upon the meridian line *a i*, and there will be a triangle made, whoſe ſides are *a g*, *g i*, and *i a*. If a plate ſimilar to this triangle be made as thick as the diſtance between the lines *a c* and *b d*, and ſet upright between them, touching at *a* and *b*, its hypothenuſe *ag* will be parallel to the axis of the world, when the dial is truly ſet; and will caſt a ſhadow on the hour of the day.

N. B. The trouble of dividing the two quadrants may be ſaved if you have a ſcale with a line of chords upon it (as repreſented on the plate); for if you extend the compaſſes from 0 to 60 degrees of the line of chords, and with that extent, as a radius, deſcribe the two quadrants upon their reſpective centres, the above diſtances may be taken with the compaſſes upon the the lines, and ſet off upon the quadrants.

Fig. 4.

10 An erect ſouth dial.

To make an erect direct ſouth dial. Elevate the pole to the co-latitude of your place, and proceed in all reſpects as above taught for the horizontal dial, from VI in the morning to VI in the afternoon; only the hours muſt be reverſed, as in the figure; and the hypothenuſe *a g* of the gnomon *a g f*, muſt make an angle with the dial-plane equal to the co-latitude of the place. As the ſun can ſhine no longer on this dial than from ſix in the morning until ſix in the evening, there is no occaſion for having any more than 12 hours upon it.

11 Erect declining dial.

To make an erect dial, declining from the ſouth towards the eaſt or weſt. Elevate the pole to the latitude of your place, and ſcrew the quadrant of altitude to the zenith. Then, if your dial declines towards the eaſt (which we ſhall ſuppoſe it to do at preſent), count in the horizon the degrees of declination, from the eaſt point towards the north, and bring the lower end of the quadrant to that degree of declination at which the reckoning ends. This done, bring any particular meridian of your globe (as ſuppoſe the firſt meridian) directly under the graduated edge of the upper part of the brazen meridian, and ſet the hour to XII at noon. Then, keeping the quadrant of altitude at the degree of declination in the horizon, turn the globe eaſtward on its axis, and obſerve the degrees cut by the firſt meridian in the quadrant of altitude (counted from the zenith) as the hour-index comes to XI, X, IX, &c. in the forenoon, or as 15, 30, 45, &c. degrees of the equator paſs under the brazen meridian at theſe hours reſpectively; and the degrees then cut in the quadrant by the firſt meridan, are the reſpective diſtances of the forenoon hours from XII on the plane of the dial.—Then, for the afternoon hours, turn the quadrant of altitude round the zenith until it comes to the degree in the horizon oppoſite to that where it was placed before; namely, as far from the weſt point of the horizon towards the ſouth as it was ſet at firſt from the eaſt point towards the north; and turn the globe weſtward on its axis, until the firſt meridian comes to the brazen meridian again, and the hour-index to XII: then, continue to turn the globe weſtward, and as the index point to the afternoon hours I, II, III, &c. or as 15, 30, 45, &c. degrees of the equator paſs under the brazen meridian, the firſt meridian will cut the quadrant of altitude in the reſpective number of degrees from the zenith that each of theſe hours is from XII on the dial.—And note, that when the firſt meridian goes off the quadrant at the horizon in the forenoon, the hour-index ſhows the time when the ſun will come upon this dial; and when it goes off the quadrant in the afternoon, the index will point to the time when the ſun goes off the dial.

Plate CLVIII.

Having thus found all the hour-diſtances from XII lay them down upon your dial-plane, either by dividing a ſemicircle into two quadrants of 90 degrees each (beginning at the hour-line of XII), or by the line of chords, as above directed.

In all declining dials, the line on which the ſtile or gnomon ſtands (commonly called the *ſubſtile-line*) makes an angle with the twelve o'clock line, and falls among the forenoon hour-lines, if the dial declines towards the eaſt; and among the afternoon hour-lines, when the dial declines towards the weſt; that is, to the left hand from the twelve o'clock line in the former caſe, and to the right hand from it in the latter.

To find the diſtance of the ſubſtile from the twelve o'clock line: if your dial declines from the ſouth toward the eaſt, count the degrees of that declination in the horizon from the eaſt point toward the north, and bring the lower end of the quadrant of altitude to that degree of declination where the reckoning ends: then, turn the globe until the firſt meridian cuts the horizon in the like number of degrees, counted from the ſouth point toward the eaſt; and the quadrant, and firſt meridian will then croſs one another at right angles; and the number of degrees of the quadrant, which are intercepted between the firſt meridian and the zenith, is equal to the diſtance of the ſubſtile line from the twelve o'clock line; and the number of degrees of the firſt meridian, which are intercepted between the quadrant and the north pole, is equal to the elevation of the ſtile above the plane of the dial.

If the dial declines weſtward from the ſouth, count that declination from the eaſt point of the horizon towards the ſouth, and bring the quadrant of altitude to the degree in the horizon at which the reckoning ends; both for finding the forenoon hours, and diſtance of the ſubſtile from the meridian: and for the afternoon hours, bring the quadrant to the oppoſite degree in the horizon, Plate CLVIII.

zon, namely, as far from the weſt towards the north, and then proceed in all reſpects as above.

Thus we have finiſhed our declining dial; and in ſo doing, we made four dials, viz.

1. A north dial, declining eaſtward by the ſame number of degrees. 2. A north dial, declining the ſame number weſt. 3. A ſouth dial, declining eaſt. And, 4. A ſouth dial declining weſt. Only, placing the proper number of hours, and the ſtile or gnomon reſpectively, upon each plane. For (as abovementioned) in the ſouth-weſt plane, the ſubſtilar-line falls among the afternoon hours; and in the ſouth-eaſt, of the ſame declination, among the forenoon hours, at equal diſtances from XII. And ſo all the morning hours on the weſt decliner will be like the afternoon hours on the eaſt decliner: the ſouth eaſt decliner will produce the north-weſt decliner; and the ſouth-weſt decliner the north-eaſt decliner, by only extending the hour-lines, ſtile and ſubſtile, quite through the centre: the axis of the ſtile (or edge that caſts the ſhadow on the hour of the day) being in all dials whatever parallel to the axis of the world, and conſequently pointing towards the north pole of the heaven in north latitudes, and toward the ſouth pole in ſouth latitudes.

12 An eaſy method for conſtructing of dials.

But becauſe every one who would like to make a dial, may perhaps not be provided with a globe to aſſiſt him, and may probably not underſtand the method of doing it by logarithmic calculation; we ſhall ſhow how to perform it by the plain dialing lines, or ſcale of latitudes and hours (as repreſented on the Plate), and which may be had on ſcales commonly ſold by the mathematical inſtrument makers.

This is the eaſieſt of all mechanical methods, and by much the beſt, when the lines are truly divided: and not only the half hours and quarters may be laid down by all of them, but every fifth minute by moſt, and every ſingle minute by thoſe where the line of hours is a foot in length.

Fig. 5.

Having drawn your double meridian line ab, cd, on the plane intended for a horizontal dial, and croſſed it at right angles by the ſix o'clock line fe (as in fig. 3.), take the latitude of your place with the compaſſes, in the ſcale of latitudes, and ſet that extent from c to e, and from a to f, on the ſix o'clock line: then taking the whole ſix hours between the points of the compaſſes in the ſcale of hours, with that extent ſet one foot in the point c, and let the other foot fall where it will upon the meridian line cd, as at d. Do the ſame from f to b, and draw the right lines ed and fb, each of which will be equal in length to the whole ſcale of hours. This done, ſetting one foot of the compaſſes in the beginning of the ſcale at XII, and extending the other to each hour on the ſcale, lay off theſe extents from d to e for the afternoon hours, and from b to f for thoſe of the forenoon: this will divide the lines de and bf in the ſame manner as the hour-ſcale is divided at 1, 2, 3, 4, and 6; on which the quarters may alſo be laid down, if required. Then, laying a ruler on the point c, draw the firſt five hours in the afternoon, from that point, through the dots at the numeral figures 1, 2, 3, 4, 5, on the line de; and continue the lines of IIII and V through the centre c to the other ſide of the dial, for the like hours of the morning: which done, lay the ruler on the point a, and draw the laſt five hours in the forenoon through the dots 5, 4, 3, 2, 1, on the line fb; continuing the hour-lines of VII and VIII through the centre a to the other ſide of the dial, for the like hours of the evening; and ſet the hours to their reſpective lines, as in the figure. Laſtly, make the gnomon the ſame way as taught above for the horizontal dial, and the whole will be finiſhed.

Plate CLVIII.

To make an erect ſouth-dial, take the co-latitude of your place from the ſcale of latitudes, and then proceed in all reſpects for the hour-line as in the horizontal dial; only reverſing the hours, as in fig. 4. and making the angle of the ſtile's height equal to the co-latitude.

But, leſt the young dialiſt ſhould have neither globe nor wooden ſcale, we ſhall now ſhow him how he may make a dial without any of theſe helps. Only, if he has not a line of chords, he muſt divide a quadrant into 90 equal parts or degrees for taking the proper angle of the ſtile's elevation; which is eaſily done.

Fig. 6.

13 Horizontal dial.

With any opening of the compaſſes, as ZL, deſcribe the two ſemicircles LFk and LQk, upon the centres Z and z, where the ſix o'clock line croſſes the double meridian line, and divide each ſemicircle into 12 equal parts, beginning at L (though, ſtrictly ſpeaking, only the quadrants from L to the ſix o'clock line need be divided); then connect the diviſions which are equidiſtant from L, by the parallel lines KM, IN, HO, GP, and FQ. Draw VZ for the hypothenuſe of the ſtile, making the angle VZE equal to the latitude of your place; and continue the line VZ to R. Draw the line Rr parallel to the ſix o'clock line, and ſet off the diſtance aK from Z to Y, the diſtance bI from Z to X, cH from Z to W, dG from Z to T, and eF from Z to S. Then draw the lines Ss, Tt. Ww, Xx, and Yy, each parallel to Rr. Set off the diſtance yY from a to 11, and from f to 1; the diſtance xX from b to 10, and from g to 2; wW from c to 9, and from h to 3; tT from d to 8, and from i to 4; sS from e to 7, and from n to 5. Then laying a ruler to the centre Z, draw the forenoon hour-lines through the points 11, 10, 9, 8, 7; and laying it to the centre z, draw the afternoon lines through the points 1, 2, 3, 4, 5, continuing the forenoon lines of VII and VIII through the centre Z, to the oppoſite ſide of the dial, for the like afternoon hours, and the afternoon lines IIII and V through the centre z, to the oppoſite ſide, for the like morning hours. Set the hours to theſe lines as in the figure, and then erect the ſtyle or gnomon, and the horizontal dial will be finiſhed.

To conſtruct a ſouth dial, draw the line VZ, making an angle with the meridian ZL equal to the co-latitude of your place; and proceed in all reſpects as in the above horizontal dial for the ſame latitude, reverſing the hours as in fig. 4. and making the elevation of the gnomon equal to the co-latitude.

Perhaps it may not be unacceptable to explain the method of conſtructing the dialing lines, and ſome others; which is as follows:

14 Dialing lines, how conſtructed. Fig. 7.

With any opening of the compaſſes, as EA, according to the intended length of the ſcale, deſcribe the circle $ADCB$, and croſs it at right angles by the diameters CEA and DEB. Divided the quadrant AB firſt into 9 equal parts, and then each part into 10; ſo ſhall the quadrant be divided into 90 equal parts or degrees.

Plate CLVIII. degrees. Draw the right line *AFB* for the chord of this quadrant; and ſetting one foot of the compaſſes in the point *A*, extend the other to the ſeveral diviſions of the quadrant, and transfer theſe diviſions to the line *AFB* by the arcs, 10, 10, 20, 20, &c. and this will be a line of chords, divided into 90 unequal parts; which, if transferred from the line back again to the quadrant, will divide it equally. It is plain by the figure, that the diſtance from *A* to 60 in the line of chords, is juſt equal to *AE*, the radius of the circle from which that line is made; for if the arc 60, 60 be continued, of which *A* is the centre, it goes exactly through the centre *E* of the arc *AB*.

And therefore, in laying down any number of degrees on a circle, by the line of chords, you muſt firſt open the compaſſes ſo, as to take in juſt 60 degrees upon that line, as from *A* to 60: and then, with that extent, as a radius, deſcribe a circle, which will be exactly of the ſame ſize with that from which the line was divided: which done, ſet one foot of the compaſſes in the beginning of the chord line, as at *A*, and extend the other to the number of degrees you want upon the line; which extent, applied to the circle, will include the like number of degrees upon it.

Divide the quadrant *CD* into 90 equal parts, and from each point of diviſion draw right lines, as *i*, *k*, *l*, &c. to the line *CE*; all perpendicular to that line, and parallel to *DE*, which will divide *EC* into a line of ſines; and although theſe are ſeldom put among the dialing lines on a ſcale, yet they aſſiſt in drawing the line of latitudes. For if a ruler be laid upon the point *D*, and over each diviſion in the line of ſines, it will divide the quadrant *CB* into 90 unequal parts, as *Ba*, *Bb*, &c. ſhown by the right lines 10*a*, 20*b*, 30*c*, &c. drawn along the edge of the ruler. If the right line *BC* be drawn, ſubtending this quadrant, and the neareſt diſtances *Ba*, *Bb*, *Bc*, &c. be taken in the compaſſes from *B*, and ſet upon this line in the ſame manner as directed for the line of chords, it will make a line of latitudes *BC*, equal in length to the line of chords *AB*, and of an equal number of diviſions, but very unequal as to their lengths.

Draw the right line *DGA*, ſubtending the quadrant *DA*; and parallel to it, draw the right line *rs*, touching the quadrant *DA* at the numeral figure 3. Divide this quadrant into ſix equal parts, as 1, 2, 3, &c. and through theſe points of diviſion draw right lines from the centre *E* to the line *rs*, which will divide it at the points where the ſix hours are to be placed, as in the figure. If every ſixth part of the quadrant be ſubdivided into four equal parts, right lines drawn from the centre through theſe points of diviſion, and continued to the line *rs*, will divide each hour upon it into quarters.

F 8. 15 A dial on a card. In fig. 8. we have the repreſentation of a portable dial, which may be eaſily drawn on a card, and carried in a pocket book. The lines *ad*, *ab*, and *bc* of the gnomon, muſt be cut quite through the card; and as the end *ab* of the gnomon is raiſed occaſionally above the plane of the dial, it turns upon the uncut line *cd* as on a hinge. The dotted line *AB* muſt be ſlit quite through the card, and the thread *C* muſt be put thro' the ſlit, and have a knot tied behind, to keep it from being eaſily drawn out. On the other end of this thread is a ſmall plummet *D*, and on the middle of it a ſmall bead for ſhowing the hour of the day. Plate CLVIII.

To rectify this dial, ſet the thread in the ſlit right againſt the day of the month, and ſtretch the thread from the day of the month over the angular point where the curve lines meet at XII; then ſhift the bead to that point on the thread, and the dial will be rectified.

To find the hour of the day, raiſe the gnomon (no matter how much or how little) and hold the edge of the dial next the gnomon towards the ſun, ſo as the uppermoſt edge of the ſhadow of the gnomon may juſt cover the *ſhadow-line;* and the bead then playing freely on the face of the dial, by the weight of the plummet, will ſhow the time of the day among the hour-lines, as it is forenoon or afternoon.

To find the time of ſun-riſing and ſetting, move the thread among the hour-lines, until it either covers ſome one of them, or lies parallel betwixt any two; and then it will cut the time of ſun-riſing among the forenoon hours; and of ſun ſetting among the afternoon hours, for that day of the year to which the thread is ſet in the ſcale of months.

To find the ſun's declination, ſtretch the thread from the day of the month over the angular point at XII, and it will cut the ſun's declination, as it is north or ſouth, for that day, in the proper ſcale.

To find on what days the ſun enters the ſigns: when the bead, as above rectified, moves along any of the curve-lines which have the ſigns of the zodiac marked upon them, the ſun enters thoſe ſigns on the days pointed out by the thread in the ſcale of months.

The conſtruction of this dial is very eaſy, eſpecially if the reader compares it all along with fig. 1. of Plate CLIX. as he reads the following explanation of that figure.

Draw the occult line *AB* parallel to the top of the card, and croſs it at right angles with the ſix o'clock line *ECD*; then upon *C*, as a centre, with the radius *CA*, deſcribe the ſemicircle *AEL*, and divide it into 12 equal parts (beginning at *A*), as *Ar*, *As*, &c. and from theſe points of diviſion draw the hour lines *r*, *s*, *t*, *u*, *v*, *E*, *w*, and *x*, all parallel to the ſix o'clock line *EC*. If each part of the ſemicircle be ſubdivided into four equal parts, they will give the half-hour lines and quarters, as in fig. 2. Draw the right-line *ASDo*, making the angle *SAB* equal to the latitude of your place. Upon the centre *A* deſcribe the arch *RST*, and ſet off upon it the arcs *SR* and *ST*, each equal to $23\frac{1}{2}$ degrees, for the ſun's greateſt declination; and divide them into $23\frac{1}{2}$ equal parts, as in fig. 2. Thro' the interſection *D* of the lines *ECD* and *ADo*, draw the right line *FDG* at right angles to *ADo*. Lay a ruler to the points *A* and *R*, and draw the line *ARF* through $23\frac{1}{2}$ degrees of ſouth declination in the arc *SR*; and then laying the ruler to the points *A* and *T*, draw the line *ATG* through $23\frac{1}{2}$ degrees of north declination in the arc *ST*: ſo ſhall the lines *ARF* and *ATG* cut the line *FDG* in the proper lengths for the ſcale of months. Upon the centre *D*, with the radius *DF*, deſcribe the ſemicircle *FoG*; which divide into ſix equal parts, *Fm*, *mn*, *no*, &c. and from theſe points of diviſion draw the right lines *mh*, *ni*, *pk*, and *ql*, each parallel to *oD*. Then ſetting one foot of the compaſſes in the point *F*, extend the other to *A*, and deſcribe Plate CLIX. fig. 1.

Plate CLIX. fig. 1. compared with fig. 8. of preceding plate.

deſcribe the arc *AZH* for the tropic of ♑: with the ſame extent, ſetting one foot in *G*, deſcribe the arc *AEO* for the tropic of ♋. Next ſetting one foot in the point *h*, and extending the other to *A*, deſcribe the arc *AZI* for the beginnings of the ſigns ♒ and ♐; and with the ſame extent, ſetting one foot in the point *l*, deſcribe the arc *AN* for the beginnings of the ſigns ♊ and ♌. Set one foot in the point *i*, and having extended the other to *A*, deſcribe the arc *AK* for the beginnings of the ſigns ♓ and ♏; and with the ſame extent, ſet one foot in *k*, and deſcribe the arc *AM* for the beginnings of the ſigns ♉ and ♍. Then ſetting one foot in the point *D*, and extending the other to *A*, deſcribe the curve *AL* for the beginnings of ♈ and ♎; and the ſigns will be finiſhed. This done, lay a ruler from the point *A* over the ſun's declination in the arch *RST*; and where the ruler cuts the line *FDG*, make marks: and place the days of the months right againſt theſe marks, in the manner ſhown by fig. 2. Laſtly, draw the ſhadow-line *PQ* parallel to the occult line *AB*; make the gnomon, and ſet the hours to their reſpective lines, as in fig. 2. and the dial will be finiſhed.

16 Univerſal dials.

There are ſeveral kinds of dials called *univerſal*, becauſe they ſerve for all latitudes. One, of Mr Pardie's conſtruction, was formerly conſidered as the beſt. It conſiſts of three principal parts; the firſt whereof is called the horizontal plane *(A)*, becauſe in practice it muſt be parallel to the horizon. In this plane is fixed an upright pin, which enters into the edge of the ſecond part *BD*, called the meridional plane, which is made of two pieces, the loweſt whereof *(B)* is called the *quadrant*, becauſe it contains a quarter of a circle, divided into 90 degrees; and it is only into this part, near *B*, that the pin enters. The other piece is a ſemicircle *(D)* adjuſted to the quadrant, and turning in it by a groove, for raiſing or depreſſing the diameter *(EF)* of the ſemicircle, which diameter is called the *axis of the inſtrument*. The Third piece is a circle *(G)*, divided on both ſides into 24 equal parts, which are the hours. This circle is put upon the meridional plane ſo, that the axis *(EF)* may be perpendicular to the circle, and the point *C* be the common centre of the circle, ſemicircle, and quadrant. The ſtraight edge of the ſemicircle is chamfered on both ſides to a ſharp edge, which paſſes through the centre of the circle. On one ſide of the chamfered part, the firſt ſix months of the year are laid down, according to the ſun's declination for their reſpective days, and on the other ſide the laſt ſix months. And againſt the days on which the ſun enters the ſigns, there are ſtraight lines drawn upon the ſemicircle, with the characters of the ſigns marked upon them. There is a black line drawn along the middle of the upright edge of the quadrant, over which hangs a thread *(H)*, with its plummit *(I)*, for levelling the inſtrument. *N. B.* From the 23d of September to the 20th of March, the upper ſurface of the circle muſt touch both the centre *C* of the ſemicircle, and the line of ♈ and ♎; and from the 20th of March to the 23d of September, the lower ſurface of the circle muſt touch that centre and line.

Plate CLIX. fig. 2.

To find the time of the day by this dial. Having ſet it on a level place in ſun-ſhine, and adjuſted it by the levelling ſcrews *k* and *l*, until the plumb line hangs over the back line upon the edge of the quadrant, and parallel to the ſaid edge; move the ſemicircle in the quadrant, until the line of ♈ and ♎ (where the circle touches) comes to the latitude of your place in the quadrant: then turn the whole meridional plane *BD*, with its circle *G*, upon the horizontal plane *A*, until the edge of the ſhadow of the circle falls preciſely on the day of the month in the ſemicircle; and then the meridional plane will be due north and ſouth, the axis *EF* will be parallel to the axis of the world, and will caſt a ſhadow upon the true time of the day among the hours on the circle.

Plate CLIX.

N. B. As, when the inſtrument is thus rectified, the quadrant and ſemicircle are in the plane of the meridian, ſo the circle is then in the plane of the equinoctial. Therefore, as the ſun is above the equinoctial in ſummer (in northern latitudes), and below it in winter; the axis of the ſemicircle will caſt a ſhadow on the hour of the day, on the upper ſurface of the circle, from the 20th of March till the 23d of September; and from the 23d of September to the 20th of March the hour of the day will be determined by the ſhadow of the ſemicircle upon the lower ſurface of the circle. In the former caſe, the ſhadow of the circle falls upon the day of the month, on the lower part of the diameter of the ſemicircle; and in the latter caſe, on the upper part.

Fig. 3.

The method of laying down the months and ſigns upon the ſemicircle is as follows. Draw the right line *ACB* equal to the diameter of the ſemicircle *ADB*, and croſs it in the middle at right angles with the line *ECD*, equal in length to *ADB*; then *EC* will be the radius of the circle *FCG*, which is the ſame as that of the ſemicircle. Upon *E*, as a centre, deſcribe the circle *FCG*, on which ſet off the arcs *Ch* and *Ci*, each equal to 23½ degrees, and divide them accordingly into that number for the ſun's declination. Then laying the edge of a ruler over the centre *E*, and alſo over the ſun's declination for every fifth day of each month (as in the card-dial), mark the points on the diameter *AB* of the ſemicircle from *a* to *g*, which are cut by the ruler; and *there* place the days of the months accordingly, anſwering to the ſun's declination. This done, ſetting one foot of the compaſſes in *C*, and extending the other to *a* or *g*, deſcribe the ſemicircle *a b c d e f g*; which divide into ſix equal parts, and through the points of diviſion draw right lines parallel to *CD*, for the beginning of the ſines (of which one half are on one ſide of the ſemicircle and the other half on the other), and ſet the characters of the ſines to their proper lines, as in the figure.

17 A new one by Mr G. Wright. Plate CLX. fig. 1.

A univerſal dial of a very ingenious conſtruction, has lately been invented by Mr G. Wright of London. The hour-circle or arch *E*, and latitude arch *C*, are the portions of two meridian circles; one fixed, and the other moveable. The hour or dial plate *SEN* at top is fixed to the arch *C*, and has an index that moves with the hour-circle *E*; therefore the conſtruction of this dial is perfectly ſimilar to the conſtruction of the meridians and hour-circle upon a common globe. The peculiar problems to be performed by this inſtrument are, 1. *To find the latitude of any place.* 2. *The latitude of the place being known, to find the time by the ſun and ſtars.* 3. *To find the ſun or ſtar's azimuth and altitude.*

Previous to uſe, this inſtrument ſhould be in a well-adjuſted

Fig. 1

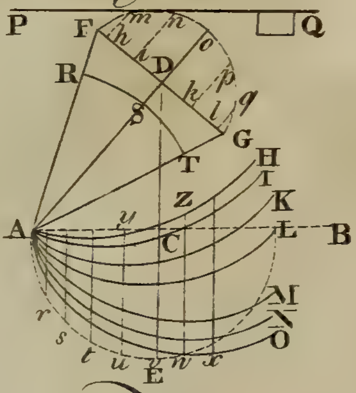


Fig. 2

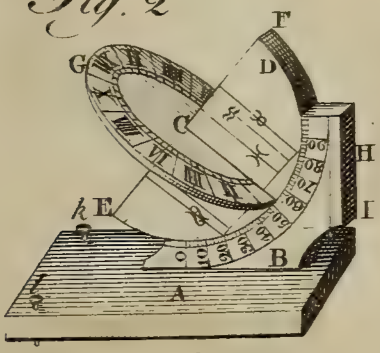


Fig. 4

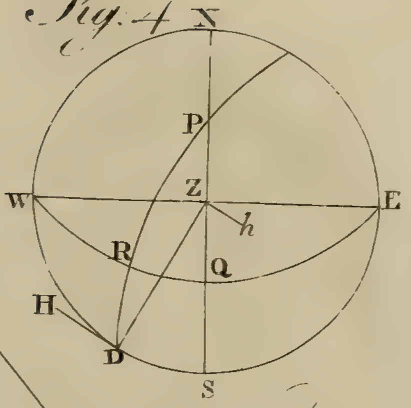


Fig. 3

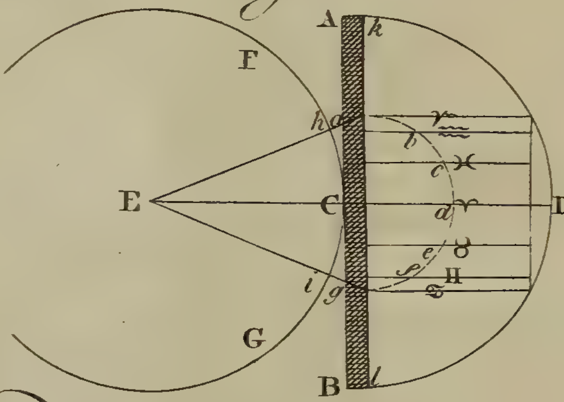


Fig. 8

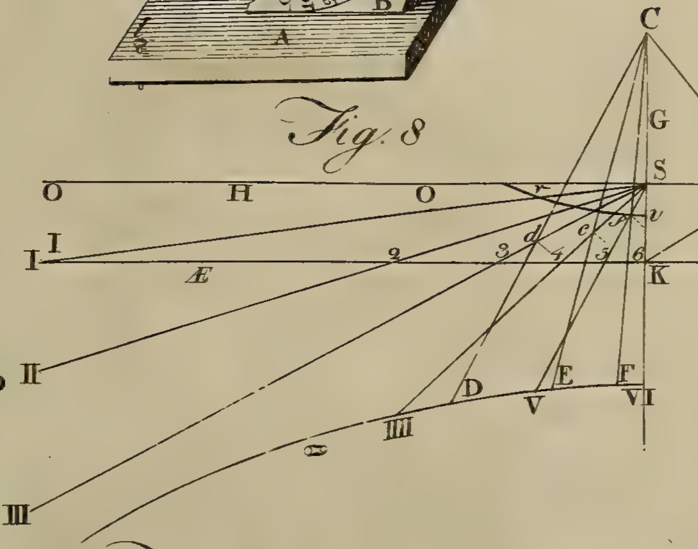


Fig. 6

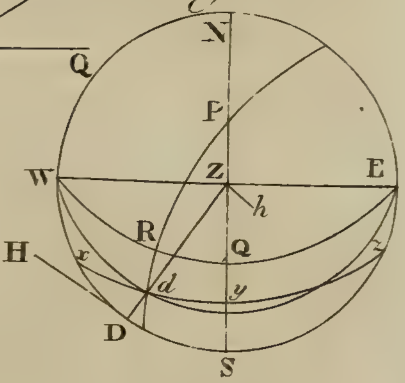


Fig. 5

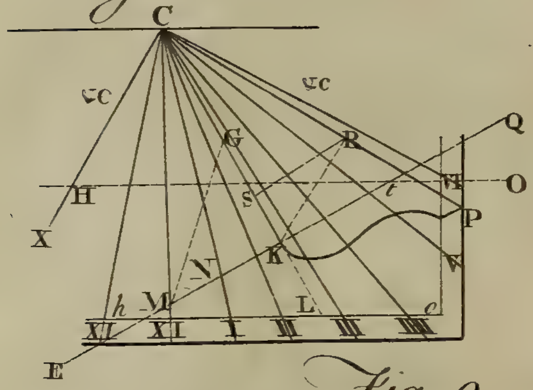


Fig. 7

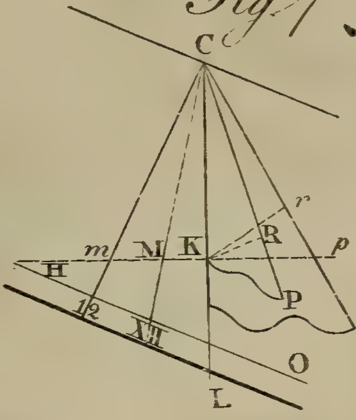


Fig. 10

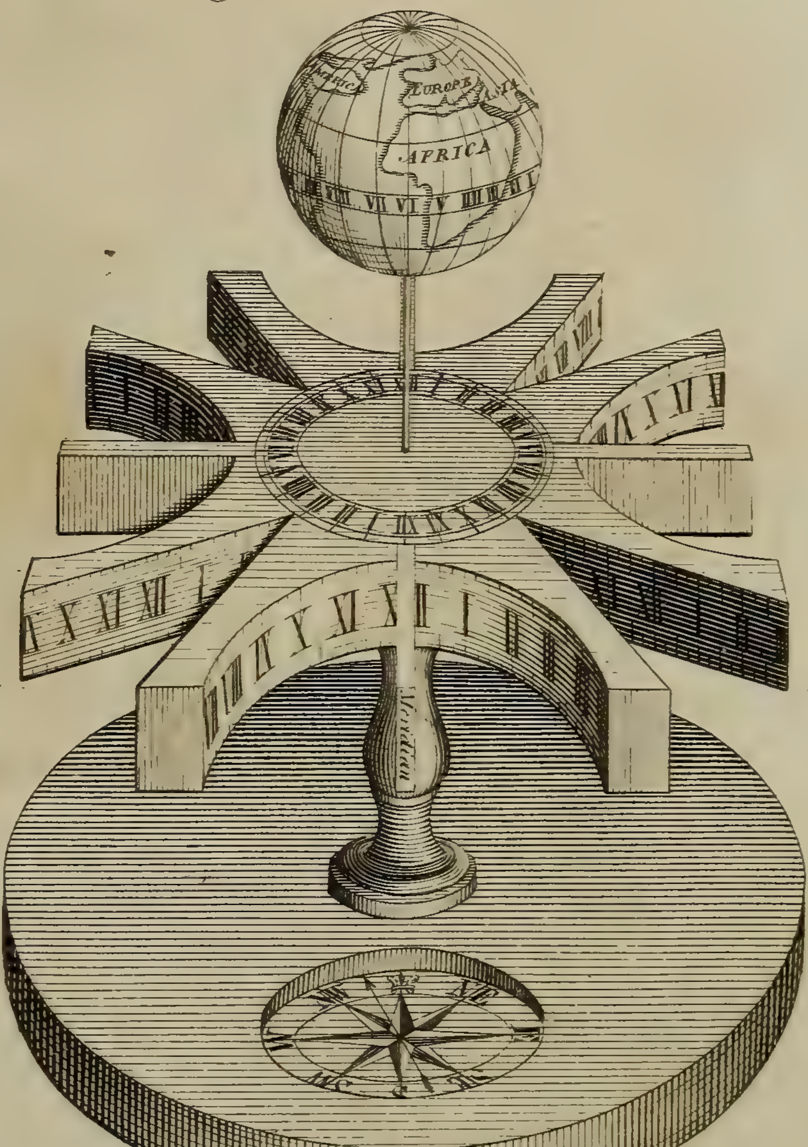
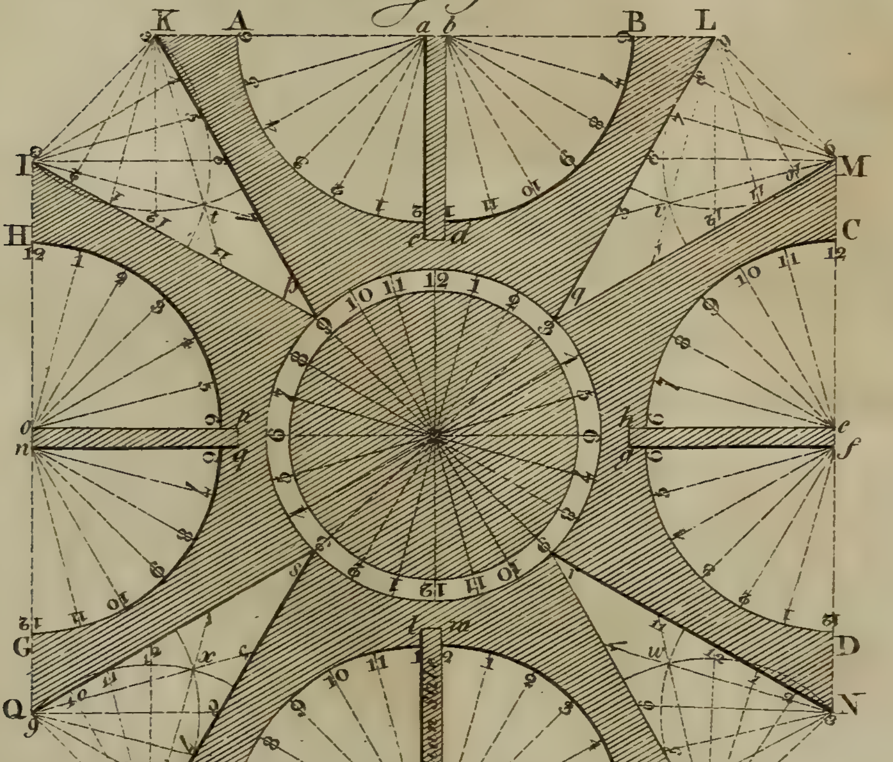


Fig. 9



Scot Philad.^a

DIALING.

Plate CLX.

Fig. 1.

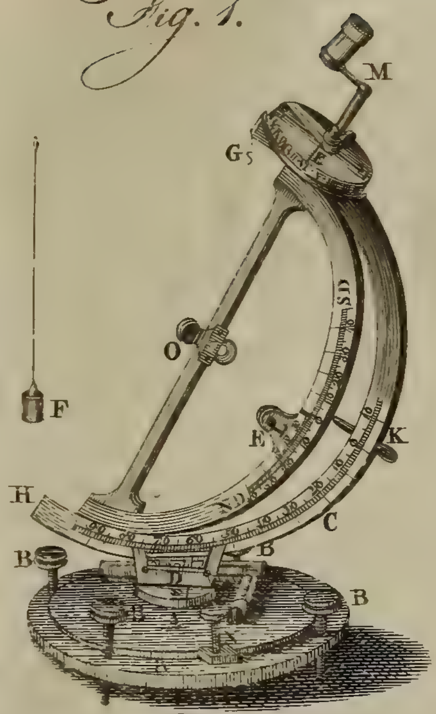


Fig. 2.

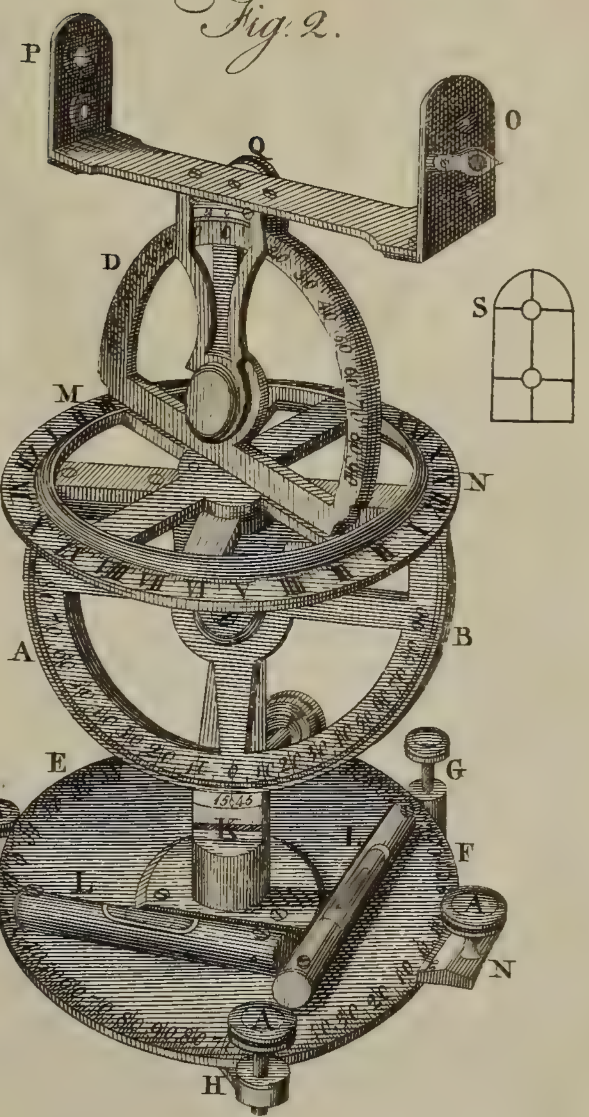


Fig. 3.

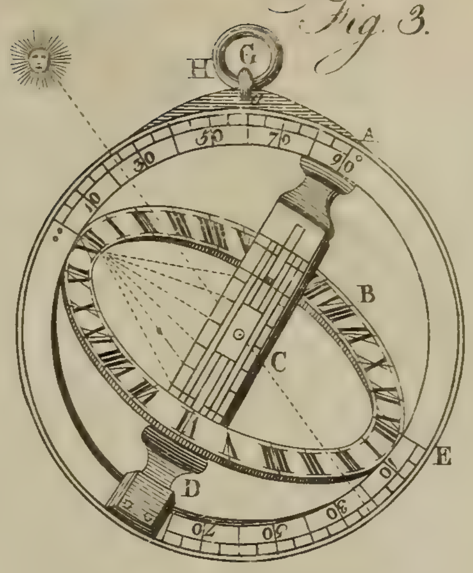


Fig. 4.

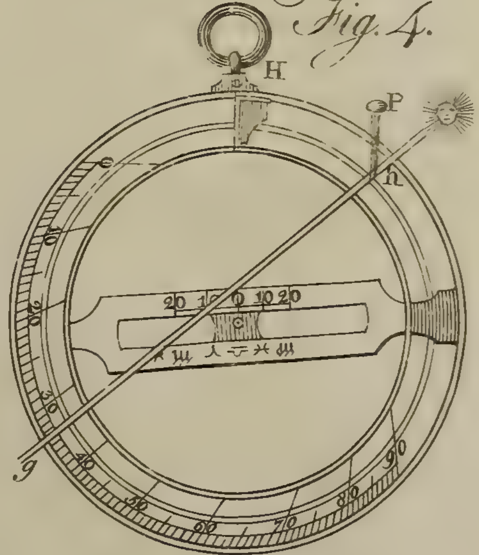


Fig. 5.

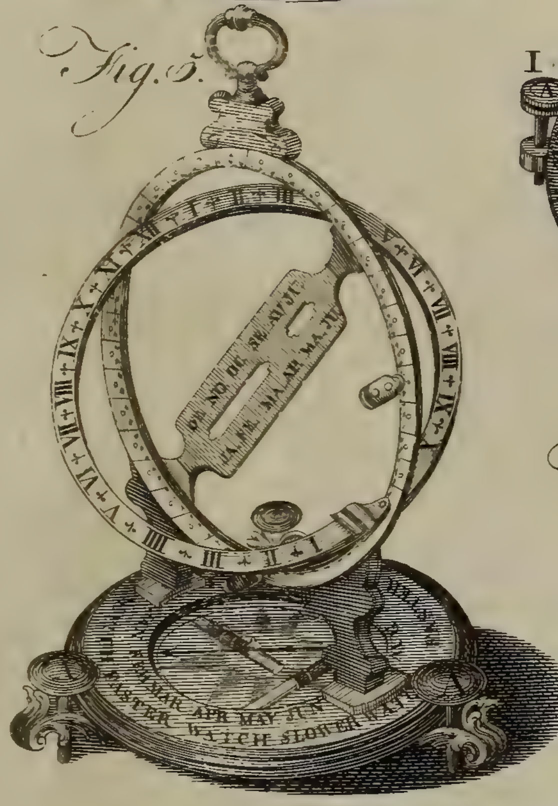


Fig. 10.

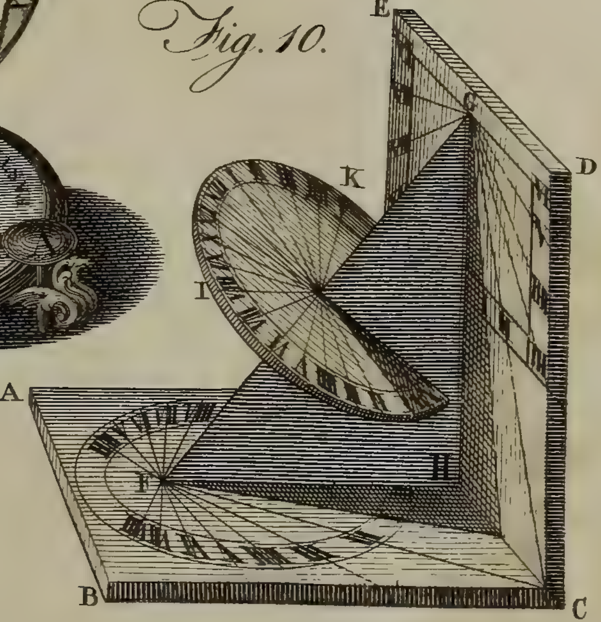
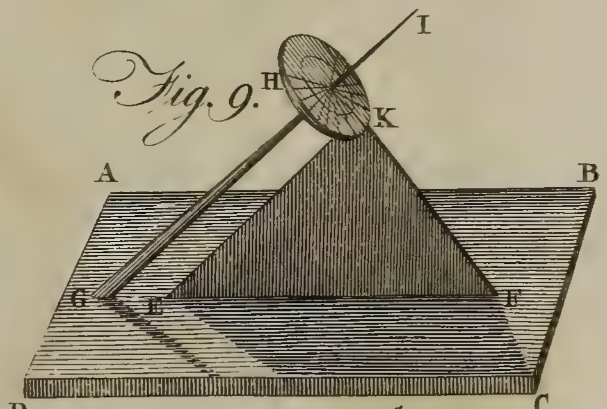


Fig. 9.



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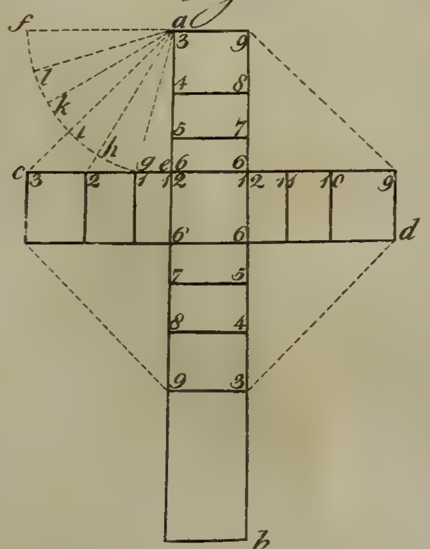


Fig. 7.

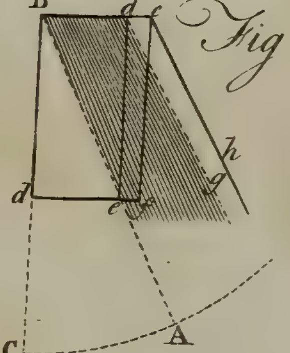
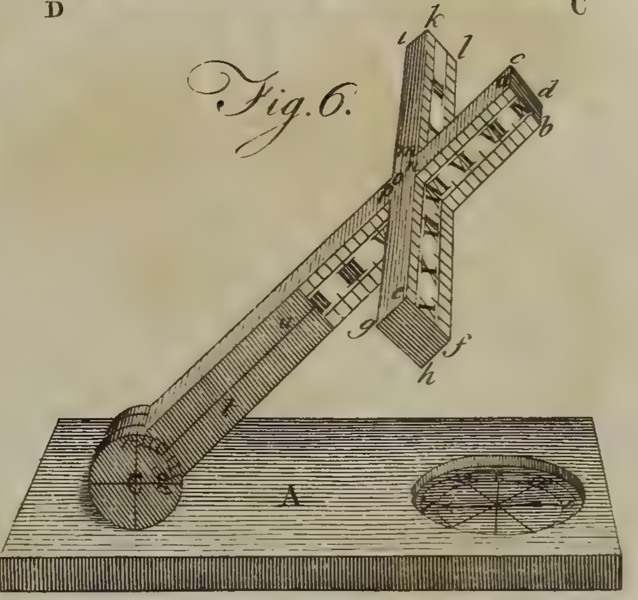


Fig. 6.



Thackara & Vallance Sculp^t.

Plate CLX. Fig. 1.

adjuſted ſtate: to perform which, you try the levels of the horizontal plates *A a*, by firſt turning the ſcrews *BBBB* till the bubbles of air on the glaſs tubes of the ſpirit-levels (levels are at right angles to each other) which are central or in the middle, and remain ſo when you turn the upper plate *A* half round its centre; but if they ſhould not keep ſo, there are ſmall ſcrews at the end of each level, which admit of being turned one way or the other as may be requiſite till they are ſo. The plates *Aa* being thus made horizontal, ſet the latitude arch or meridian *C* ſteadily between the two-grooved ſides that hold it (one of which is ſeen at *D*), by the ſcrew behind. On this ſide *D* is divided the nonius or vernier, correſponding with the diviſions on the latitude arch *C*, and which may be ſubdivided into 5 minutes of a degree, and even leſs if required. The latitude arch *C* is to be ſo placed in *D*, that the pole *M* may be in a vertical poſition; which is done by making 90° on the arch at bottom coincide with the 0 of the nonius. The arch is then fixed by the tightening ſcrew at the back of *D*. Hang a ſilken plumb-line on the hook at *G*: which line is to coincide with a mark at the bottom of the latitude arch at *H*, all the while you move the upper plate *A* round its centre. If it does not ſo, there are four ſcrews to regulate this adjuſtment, two of which paſs through the baſe *I* into the plate *A*: the other two ſcrews faſten the nonius piece *D* together; which when unſcrewed a thread or two, the nonius piece may be eaſily moved to the right or left of 90° as may be found requiſite.

Prob. 1. *To find the latitude of the place.* Faſten the latitude and hour circles together, by placing the pin *K* into the holes; ſlide the nonius piece *E* on the hour-circle to the ſun's declination for the given day; the ſun's declination you may know in the ephemeris by White, or other almanacs for every day in the year. The nonius piece *E* muſt be ſet on that portion of the hour-circle marked *ND* to *SD*, according as the ſun has north or ſouth declination. About 20 minutes or a quarter of an hour before noon, obſerve the ſun's ſhadow or ſpot that paſſes through the hole at the axis *O*, and gently move the latitude arch *C* down in its groove at *D* till you obſerve the ſpot exactly fall on the croſs line on the centre of the nonius piece *L*; and by the falling of this ſpot, ſo long as you obſerve the ſun to increaſe in altitude, you depreſs the arch *C*: but at the inſtant of its ſtationary appearance the ſpot will appear to go no lower; then fix the arch by the ſcrew at the back of *D*, and the degrees thereby cut by the nonius on the arch will be the latitude of the place required: if great exactneſs is wanted, allowance ſhould be made for the refraction of the atmoſphere, taken from ſome nautical or aſtronomical treatiſe.

Prob. 2. *The latitude of the place being given to find the time by the ſun and ſtars.* From an ephemeris as before, you find the ſun's declination for the day north or ſouth, and ſet the nonius piece *E* on the arch accordingly. Set the latitude arch *C*, by the nonius at *D*, to the latitude of the place; and place the magnifying glaſs at *M*, by which you will very correctly ſet the index carrying a nonius to the upper XII at *S*. Take out the pin *K*, ſlacken the horizontal ſcrew *N*, and gently move, either to the right or left as you ſee neceſſary, the hour-circle *E*, at the ſame time with the other hand moving the horizontal plate *A* round its axis to the right and left, till the latitude arch *C* falls into the meridian; which you will know by the ſun's ſpot falling exactly in the centre of the nonius piece, or where the lines interſect each other. The time may be now read off exactly to a minute by the nonius on the dial-plate at top, and which will be the time required. The horizontal line drawn on the nonius piece *L*, not ſeen in the figure, being the parallel of declination or path that the ſun-dial makes, it therefore can fall on the centre of that line at no other time but when the latitude arch *C* is in the meridian or due north and ſouth. Hence the hour-circle, on moving round with the pole, muſt give the true time on the dial-plate at top. There is a hole to the right, and croſs hairs to the left, of the centre axis hole *O*, where the ſun's rays paſs through; whence the ſun's ſhadow or ſpot will alſo appear on the right and left of the centre on the nonius piece *L*, the holes of which are occaſionally uſed as ſights to obſerve through. If the ſun's rays are too weak for a ſhadow, a dark glaſs to ſkreen the eye is occaſionally placed over the hole. The moſt proper time to find a true meridian is three or four hours before or after noon; and take the difference of the ſun's declination from noon at the time you obſerve. If it be the morning, the difference is that and the preceding day; if afternoon, that and the following day: and the meridian being once found exact, the hour-circle *E* is to be brought into this meridian, a fixed place made for the dial, and an object to obſerve by it alſo fixed for it at a great diſtance. The ſights *LO* muſt at all times be directed againſt this fixed object, to place the dial truly in the meridian, proper for obſerving the planets, moon, or bright ſtars by night.

Plate CLX.

Prob. 3. *To find the ſun's azimuth and altitude.* The latitude arch *C* being in the meridian, bring the pole *M* into the zenith, by ſetting the latitude-arch to 90°. Faſten the hour-circle *E* in the meridian, by putting in the pin *K*; fix the horizontal plates by the ſcrew *N*; and ſet the index of the dial-plate to XII. which is the ſouth point: Now take out the pin *K*, and gently move the hour-circle *E*; leaving the latitude arch fixed, till the ſun's rays or ſpot paſſing through the centre-hole in the axis *O* fall on the centre line of the hour-circle *E*, made for that purpoſe. The *azimuth* in time may then be read off on the dial-plate at top by the magnifying glaſs. This time may be converted into degrees, by allowing at the rate of 15 for every hour. By ſliding the nonius piece *E*, ſo that the ſpot ſhall fall on the croſs line thereon, the altitude may be taken at the ſame time if it does not exceed 45 degrees. Or the altitude may be taken more univerſally, by fixing the nonius piece *E* to the 0 on the diviſions, and ſliding down the latitude arch in ſuch a manner in the groove at *D*, till the ſpot falls exactly on the centre of the nonius *E*. The degrees and minutes then ſhown by the nonius at *D*, taken from 90°, will be the altitude required. By looking through the ſight holes *L*, *O*, the altitude of the moon, planets, and ſtars, may be eaſily taken. Upon this principle it is ſomewhat adapted for levelling alſo: by lowering the nonius piece *E*, equal altitudes of the ſun may be had; and by raiſing it higher, equal depreſſions.

More completely to anſwer the purpoſes of a good theodolite, of levelling, and the performance of pro-

Plate CLX.

blems in practical aſtronomy, trigonometry, &c. Mr W. Jones of Holborn divides the horizontal plate *D* into 368°, and an oppoſite nonius on the upper plate *A*, ſubdividing the degrees into 5 or more minutes. A teleſcope and ſpirit-level applies on the latitude arch at *H G* by two ſcrews, making the latitude arch a vertical arch; and the whole is adapted to triangular ſtaffs with parallel plates, ſimilar to thoſe uſed with the beſt theodolites.

18
An equinoctial dial more univerſal.
Fig. 2.

A dial more univerſal for the performance of problems than the above, though in ſome particulars not ſo convenient and accurate, is made by Mr Jones and other inſtrument-makers in London. It conſiſts of the common equatorial circles reduced to a portable ſize, and inſtead of a teleſcope carries a plain ſight. Its principal parts conſiſt of the ſight-piece *OP*, moveable over the declination's ſemicircle *D*. It has a nonius *Q* to the ſemicircle. A dark glaſs to ſkreen the eye applies occaſionally over either of the holes at *O*: theſe holes on the inner ſide of the piece are interſected by croſs lines, as ſeen in the figure below; and to the ſight *P* two pieces are ſcrewed, the lower having a ſmall hole for the ſun's rays or ſhadow, and the upper two croſs hairs or wires.

The declination circle or arch *D* is divided into two, 90° each; and is fixed perpendicularly on a circle with a chamfered edge, containing a nonius diviſion that ſubdivides into ſingle minutes the under equatorial circle *MN*, which in all caſes repreſents the equator, and is divided into twice 12 hours, and each hour into five minutes. At right angles below this equatorial circle is fixed the ſemicircle of altitude *AB*, divided into two quadrants of 90° each. This arch ſerves principally to meaſure angles of altitude and depreſſion; and it moves centrally on an upright pillar fixed in the horizontal circle *EF*. This circle *EF* is divided into four quadrants of 90° each, and againſt it there is fixed a ſmall nonius plate at *N*. The horizontal circle may be turned round its centre or axis; and two ſpirit levels, *LL* are fixed on it at right angles to one another.

We have not room to detail the great variety of aſtronomical and trigonometrical problems that may be ſolved by this general inſtrument, as deſcribed in Jones's *Inſtrumental Dialing*. One example connected with our preſent purpoſe may here ſuffice, viz. *To find the time when the latitude is given*. Suppoſing the inſtrument to be well adjuſted by the directions hereafter given. The meridian of the place ſhould be firſt obtained to place the inſtrument in, which is ſettled by a diſtant mark, or particular cavities to receive the ſcrews at *I G H*, made in the baſe it ſtands on. The meridian is beſt found by equal altitudes of the ſun. In order to take theſe, you ſet the middle mark of the nonius on the declination arch *D* at 0, and fix it by the ſcrew behind; then ſet the horary or hour circle to XII. The circle *EF* being next made horizontal, you direct the ſights to the ſun, by moving the horizontal circle *EF* and altitude ſemicircle *AB*: the degrees and minutes marked by the nonius on the latter will be the altitude required. To take *equal* altitudes, you obſerve the ſun's altitude in the morning two or three hours before noon by the ſemicircle *AB*: leave the inſtrument in the ſame ſituation perfectly unaltered till the afternoon, when by moving the horizontal circle *EF*, only find the direction of the ſight or the ſun's ſpot to be juſt the ſame, which will be an equal altitude with the morning. The place of the horizontal circle *EF* againſt the nonius at each time of obſervation is to be carefully noted; and the middle degree or part between each will be the place where the ſemicircle *AB*, and ſight *OP*, will ſtand or coincide with, when directed to the ſouth or north, according to the ſun's ſituation north or ſouth at noon at the place of obſervation. Set the index or ſight-piece *OP* very accurately to this middle point, by directing the ſight to ſome diſtant object; or againſt it, let one be placed up: this object will be the meridian mark, and will always ſerve at any future time. To find the time, the meridian being thus previouſly known by equal altitudes of the ſun (or ſtar), and determined by the meridian mark made at a diſtance, or by the cavities in the baſe to ſet the ſcrew in: Place the equatorial accordingly, and level the horizontal circle *EF* by the ſpirit-levels thereon. Set the ſemicircle *AB* to the latitude of the place, and the index of the ſights *O P* to the declination of the ſun, found by the ephemeris, as before directed. Turn the ſemicircle *D* till the ſight-holes are accurately directed to the ſun, when the nonius on the hour circle *MN* will ſhow the time. It may eaſily be known when the ſun's rays are direct through, by the ſpot falling on the lower interſectors of the marks acroſs the hole at *O*. See the figure *S* adjoining.

Plate CLX.

The adjuſtments of this equatorial dial are to be made from the following trials. 1*ſt*, to adjuſt the levels *LL* on *EF*: Place the 0 of any of the diviſions on *EF* to the middle mark or ſtroke on the nonius at *N*; bring the air-bubbles in the levels in the centres of each caſe, by turning the ſeveral ſcrews at *ICH*: this being exactly done, turn the circle *EF* two 90° or half round: if the bubble of air then remains in the centre, they are right, and properly adjuſted for uſe; but if they are not, you make them ſo by turning the neceſſary ſcrews placed for that purpoſe at the ends of the level-caſes by means of a turnſcrew, until you bring them to that fixed poſition, that they will return when the plate *EF* is turned half round. 2*dly*, To adjuſt the line of ſight *O P*: Set the nonius to 0 on the declination arch *D*, the nonius on the hour-circle to VI, and the nonius on the ſemicircle *AB* to 90°. Direct to ſome part of the horizon where there may be a variety of fixed objects. Level the horizontal circle *EF* by the levels *LL*, and obſerve any object that may appear on the centre of the croſs wires. Reverſe the ſemicircle *A B*, viz. ſo that the oppoſite 90° of it be applied to the nonius, obſerving particularly that the other nonii preſerve their ſituation. If then the remote object formerly viewed ſtill continues in the centre of the croſs wires, the line of ſight *O P* is truly adjuſted; but if not, unſcrew the two ſcrews of the frame carrying the croſs wires, and move the frame till the interſection appears againſt another or new object, which is half way between the firſt and that which the wires were againſt on the reverſion. Return the ſemicircle *AB* to its former poſition: when, if the interſection of the wires be found to be againſt the half-way object, or that to which they were laſt divided, the line of ſight is adjuſted; if not, the operation of obſerving the interval of the two objects, and applying half way, muſt be repeated.

It is neceſſary to obſerve, that one of the wires ſhould

Plate CLX.

ſhould be in the plane of the declination circle, and the other wire at right angles; the frame containing the wires is made to ſhift for that purpoſe.

The hole at *P* which forms the ſun's ſpot is alſo to be adjuſted by directing the ſight to the ſun, that the centre of the ſhadow of the croſs hairs may fall exactly on the upper hole: the lower frame with the hole is then to be moved till the ſpot falls exactly on the lower ſight-hole.

Laſtly, it is generally neceſſary to find the correction always to be applied to the obſervations by the ſemicircle of altitude *AB*. Set the nonius to 0 on the declination arch *D*, and the nonius to XII on the equator or hour-circle: Turn the ſight to any fixed and diſtinct object, by moving the arch *AB* and circle *EF* only: Note the degree and minute of the angle of altitude or depreſſion: Reverſe the declination ſemicircle by placing the nonius on the hour-circle to the oppoſite XII: Direct the ſight to the ſame object again as before. If the altitude or depreſſion now given be the ſame as was obſerved in the former poſition, no correction is wanted; but if not the ſame, half the difference of the two angles is the correction to be added to all obſervations or rectifications made with that quadrant by which the leaſt angle was taken, or to be ſubtracted from all obſervations made with the other quadrant. Theſe ſeveral adjuſtments are abſolutely neceſſary previous to the uſe of the inſtrument; and when once well done, will keep ſo, with care, a conſiderable time.

19 **Univerſal ring-dial.** Fig. 3, 4, 5.

The *Univerſal* or *Aſtronomical Equinoctial Ring-Dial*, is an inſtrument of an old conſtruction, that alſo ſerves to find the hour of the day in any latitude of the earth (ſee fig. 3.). It conſiſts of two flat rings or circles, uſually from 4 to 12 inches diameter, and of a moderate thickneſs; the outward ring *AE* repreſenting the meridian of the place it is uſed at, contains two diviſions of 90° each oppoſite to one another, ſerving to let the ſliding piece *H*, and ring *G* (by which the dial is uſually ſuſpended), be placed on one ſide from the equator to the north pole, and on the other ſide to the ſouth, according to the latitude of the place. The inner ring *B* repreſents the equator, and turns diametrically within the outer by means of two pivots inſerted in each end of the ring at the hours XII.

Acroſs the two circles is ſcrewed to the meridian a thin pierced plate or bridge, with a curſor *C*, that ſlides along the middle of the bridge: this curſor has a ſmall hole for the ſun to ſhine through. The middle of this bridge is conceived as the axis of the world, and its extremities as the poles: on the one ſide are delineated the 12 ſigns of the zodiac, and ſometimes oppoſite the degrees of the ſun's declination; and on the other ſide the days of the month throughout the year. On the other ſide of the outer ring *A* are the diviſions of 90°, or a quadrant of altitude: It ſerves, by the placing of a common pin *P* in the hole *h* (ſee fig. 4.), to take the ſun's altitude or height, and from which the latitude of the place may eaſily be found.

20 **Its uſe.**

Uſe of the dial. Place the line *a* in the middle of the ſliding piece *H* over the degree of latitude of the place. Suppoſe, for example, 51½ for London; put the line which croſſes the hole of the curſor *C* to the day of the month or the degree of the ſign. Open the inſtrument till the two rings be at right angles to each other, and ſuſpend it by the ring *G*; that the axis of the dial repreſented by the middle of the bridge be parallel to the axis of the earth, viz. the north pole to the north, and *vice verſa*. Then turn the flat ſide of the bridge towards the ſun, ſo that his rays paſſing through the ſmall hole in the curſor may fall exactly in a line drawn through the middle of the concave ſurface of the inner ring or hour-circle, the bright ſpot by which ſhows the hour of the day in the ſaid concave ſurface of the dial. *Note*, The hour XII cannot be ſhown by this dial, becauſe the outer ring being then in the plane of the meridian, excludes the ſun's rays from the inner; nor can this dial ſhow the hour when the ſun is in the equinoctial, becauſe his rays then falling parallel to the plane of the inner circle or equinoctial, are excluded by it.

To take the altitude of the ſun by this dial, and with the declination thereby to find the *latitude of the place*: Place a common pin *p* in the hole *h* projecting in the ſide of the meridian where the quadrant of altitude is: then bring the centre mark of the ſliding-piece *H* to the 0 or middle of the two diviſions of latitude on the other ſide, and turn the pin towards the ſun till it cuts a ſhadow over the degree of the quadrant of altitude; then what degree the ſhadow cuts is the altitude. Thus, in fig. 4. the ſhadow *h g* appears to cut 35°, the altitude of the ſun.

The ſun's *declination* is found by moving the curſor in the ſliding piece till the mark acroſs the hole ſtands juſt againſt the day of the month; then, by turning to the other ſide of the bridge, the mark will ſtand againſt the ſun's declination.

In order to find the *latitude* of the place, obſerve that the latitude and declination be the ſame, viz. both north or ſouth; ſubtract the declination from the meridian or greateſt daily altitude of the ſun, and the remainder is the complement of the latitude; which ſubtracted from 90°, leaves the latitude. Example:

	Deg.	min.
The meridian altitude may be	57	48
The ſun's declination for the day	19	18
Complement of latitude	38	30
	90	0
The latitude - - -	51	30

But if the latitude and declination be contrary, add them together, and the ſum is the complement of the latitude. This dial is ſometimes mounted on a ſtand, with a compaſs, two ſpirit-levels, and adjuſting ſcrews, &c. &c. (ſee fig. 5.), by which it is rendered more uſeful and convenient for finding the ſun's azimuth, altitudes, variation of the needle, declinations of planes, &c. &c.

21 **Univerſal croſs-dial.** Fig. 6, 7, 8.

An *Univerſal Dial on a plain croſs*, is deſcribed by Mr Ferguſon. It is moveable on a joint *C*, for elevating it to any given latitude on the quadrant *C o* 90, as it ſtands upon the horizontal board *A*. The arms of the croſs ſtand at right angles to the middle part; and the top of it, from *a* to *n*, is of equal length with either of the arms *n e* or *m k*. See fig. 6.

This dial is rectified by ſetting the middle line *t u* to the

Plate
CLX.

the latitude of the place on the quadrant, the board *A* level, and the point *N* northward by the needle; thus, the plane of the croſs will be parallel to the plane of the equator. Then, from III o'clock in the morning till VI, the upper edge *k l* of the arm *i o* will caſt a ſhadow on the time of the day on the ſide of the arm *c m*; from VI till IX, the lower edge *i* of the arm *i o* will caſt a ſhadow on the hours on the ſide *o q*. From IX in the morning to XII at noon, the edge *a b* of the top part *a n* will caſt a ſhadow on the hours on the arm *n e f*; from XII to III in the afternoon, the edge *c d* of the top part will caſt a ſhadow on the hours on the arm *k l m*; from III to VI in the evening, the edge *g h* will caſt a ſhadow on the hours on the part *p q*; and from VI to IX, the ſhadow of the edge *e f* will ſhow the time on the top part *a n*. The breadth of each part *a b*, *e f*, &c. muſt be ſo great, as never to let the ſhadow fall quite without the part or arm on which the hours are marked, when the ſun is at his greateſt declination from the equator.

To determine the breadth of the ſides of the arms which contain the hours, ſo as to be in juſt proportion to their length; make an angle *ABC* (fig. 7.) of 23½ degrees, which is equal to the ſun's greateſt declination; and ſuppoſe the length of each arm, from the ſide of the long middle part, and alſo the length of the top part above the arms, to be equal to *B d*. Then, as the edges of the ſhadow, from each of the arms, will be parallel to *B e*, making an angle of 23½ degrees with the ſide *B d* of the arm, when the ſun's declination is 23½°; it is plain, that if the length of the arm be *B d*. the leaſt breadth that it can have, to keep the edge *B e* of the ſhadow *B e g d* from going off the ſide of the arm *d e* before it comes to the end of it *e d*, muſt be equal to *e d* or *d B*. But in order to keep the ſhadow within the quarter diviſions of the hours, when it comes near the end of the arm, the breadth of it ſhould be ſtill greater, ſo as to be almoſt doubled, on account of the diſtance between the tips of the arms.

The hours may be placed on the arms, by laying down the croſs *a b c d* (fig. 8.) on a ſheet of paper; and with a black-lead pencil held cloſe to it, drawing its ſhape and ſize on the paper. Then take the length *a e* in the compaſſes, and with one foot in the corner *a*, deſcribe with the other the quadrant *e f*. Divide this arc into ſix equal parts, and through the points of diviſion draw light lines *a g*, *a h*, &c. continuing three of them to the arm *c e*, which are all that can fall upon it; and they will meet the arm in theſe points through which the lines that divide the hours from each other, as in fig. 6. are to be drawn right acroſs it. Divide each arm, for the three hours contained in it, in the ſame manner; and ſet the hours to their proper places, on the ſides of the arms, as they are marked in fig. 33. Each of the hour ſpaces ſhould be divided into four equal parts, for the half hours and quarters, in the quadrant *e f*; and right lines ſhould be drawn through theſe diviſion-marks in the quadrant, to the arms of the croſs, in order to determine the places thereon where the ſubdiviſions of the hours muſt be marked.

This is a very ſimple kind of univerſal dial; it is eaſily made, and has a pretty uncommon appearance in a garden.

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22
Eaſy method of drawing a dial by the univerſal mechanical dial.
Fig. 9.

Fig. 9. is called a *Univerſal Mechanical Dial*, as by its equinoctial circle an eaſy method is had of deſcribing a dial on any kind of plane. For example: Suppoſe a dial is required on an horizontal pane. If the plane be immoveable, as *ABCD*, find a meridian line as *GF*; or if moveable, aſſume the meridian at pleaſure: then by means of the triangle *EKF*, whoſe baſe is applied on the meridian line, raiſe the equinoctial dial *H* till the index *GI* becomes parallel to the axis of the earth, (which is ſo, if the angle *KEF* be equal to the elevation of the pole), and the 12 o'clock line on the dial hang over the meridian line of the plane or the baſe of the triangle. If then, in the night-time or a darkened place, a lighted candle be ſucceſſively applied to the axis *GI*, ſo as the ſhadow of the index or ſtile *GI* fall upon one hour-line after another, the ſame ſhadow will mark out the ſeveral-hour lines on the plane *A B C D*. Noting the points therefore on the ſhadow, draw lines through them to *G*; then an index being fixed on *G*, according to the angle *IGF*, its ſhadow will point out the ſeveral hours by the light of the ſun. If a dial were required on a vertical plane, having raiſed the equinoctial circle as directed, puſh forward the index *GI* till the tip thereof *I* touch the plane. If the plane be inclined to the horizon, the elevation of the pole ſhould be found on the ſame; and the angle of the triangle *KEF* ſhould be made equal thereto.

23
Dials on three planes by one gnomon.
Fig. 10.

Mr Ferguſon deſcribes a method of making *three dials on three different planes, ſo that they may all ſhow the time of the day by one gnomon.* On the flat board *ABC* deſcribe an horizontal dial, with its gnomon *FGH*, the edge of the ſhadow of which ſhows the time of the day. To this horizontal board join the upright board *EDC*, touching the edge *GH* of the gnomon; then making the top of the gnomon at *G* the centre of the vertical ſouth dial, deſcribe it on the board *EDC*. Beſides, on a circular plate *IK* deſcribe an equinoctial dial, and, by a ſlit *c d* in the XII o'clock line from the edge to the centre, put it on the gnomon *EG* as far as the ſlit will admit. The ſame gnomon will ſhow the ſame hour on each of theſe dials.

Plate
CLIX.
Fig 10.

An Univerſal Dial, ſhowing the hours of the day by a terreſtrial globe, and by the ſhadows of ſeveral gnomons, at the ſame time; together with all the places of the earth which are then enlightened by the ſun; and thoſe to which the ſun is then riſing, or on the meridian, or ſetting. This dial is made of a thick ſquare piece of wood, or hollow metal. The ſides are cut into ſemicircular hollows, in which the hours are placed; the ſtile of each hollow coming out from the bottom thereof, as far as the ends of the hollows project. The corners are cut out into angles, in the inſides of which the hours are alſo marked; and the edge of the end of each ſide of the angle ſerves as a ſtile for caſting a ſhadow on the hours marked on the other ſide.

In the middle of the uppermoſt ſide, or plane, there is an equinoctial dial; in the centre whereof an upright wire is fixed, for caſting a ſhadow on the hours of that dial, and ſupporting a ſmall terreſtrial globe on its top.

The whole dial ſtands on a pillar, in the middle of a round horizontal board, in which there is a compaſs and magnetic needle, for placing the meridian ſtile toward

Plate CLIX. ward the ſouth. The pillar has a joint with a quadrant upon it, divided into 90 degrees (ſuppoſed to be hid from ſight under the dial in the figure) for ſetting it to the latitude of any given place.

The equator of the globe is divided into 24 equal parts, and the hours are laid down upon it at theſe parts. The time of the day may be known by theſe hours, when the ſun ſhines upon the globe.

To rectify and uſe this dial, ſet it on a level table or ſole of a window, where the ſun ſhines, placing the meridian ſtile due ſouth, by means of the needle; which will be, when the needle points as far from the north fleur-de-lis toward the weſt, as it declines weſtward, at your place. Then bend the pillar in the joint, till the black line on the pillar comes to the latitude of your place in the quadrant.

The machine being thus rectified, the plane of its dial part will be parallel to the equator, the wire or axis that ſupports the globe will be parallel to the earth's axis, and the north pole of the globe will point toward the north pole of the heavens.

The ſame hour will then be ſhown in ſeveral of the hollows, by the ends of the ſhadows of their reſpective ſtiles: the axis of the globe will caſt a ſhadow on the ſame hour of the day, in the equinoctial dial, in the centre of which it is placed, from the 20th of March to the 23d of September; and, if the meridian of your place on the globe be ſet even with the meridian ſtile, all the parts of the globe that the ſun ſhines upon, will anſwer to thoſe places of the real earth which are then enlightened by the ſun. The places where the ſhade is juſt coming upon the globe, anſwer to all thoſe places of the earth to which the ſun is then ſetting: as the places where it is going off, and the light coming on, anſwer to all the places of the earth where the ſun is then riſing. And laſtly, if the hour of VI be marked on the equator in the meridian of your place (as it is marked on the meridian of London in the figure) the diviſion of the light and ſhade on the globe will ſhow the time of the day.

The northern ſtile of the dial (oppoſite to the ſouthern or meridian one) is hid from the ſight in the figure, by the axis of the globe. The hours in the hollow to which that ſtile belongs, are alſo ſuppoſed to be hid by the oblique view of the figure: but they are the ſame as the hours in the front-hollow. Thoſe alſo in the right and left hand ſemicircular hollows are moſtly hid from ſight; and ſo alſo are all thoſe on the ſides next the eye of the four acute angles.

The conſtruction of this dial is as follows:

Fig. 9. On a thick ſquare piece of wood, or metal, draw the lines *a c* and *b d*, as far from each other as you intend for the thickneſs of the ſtile *a b c d*; and in the ſame manner, draw the like thickneſs of the other three ſtiles, *e f g h i k l m*, and *n o p q*, all ſtanding outright as from the centre.

With any convenient opening of the compaſſes, as *aA*, (ſo as to leave proper ſtrength of ſtuff when *KI* is equal to *aA*), ſet one foot in *a*, as a centre, and with the other foot deſcribe the quadrantal arc *Ac*. Then, without altering the compaſſes, ſet one foot in *b* as a centre, and with the other foot deſcribe the quadrant *d B*. All the other quadrants in the figure muſt be deſcribed in the ſame manner, and with the ſame opening of the compaſſes, on their centres *e f i k*, and *n o*; and each quadrant divided into ſix equal parts, for as many hours, as in the figure; each of which parts muſt be ſubdivided into 4, for the half-hours and quarters. Plate CLIX.

At equal diſtances from each corner, draw the right lines *I p* and *K p*, *L q*, and *M q N r* and *O r*, *P s* and *Q s*; to form the four angular hollows *I p K*, *L q M*, *N r O*, and *P s Q*, making the diſtances between the tips of theſe hollows, as *I K*, *L M*, *N O*, and *P Q*, each equal to the radius of the quadrants; and leaving ſufficient room within the angular points *p q r* and *s*, for the equinoctial in the middle.

To divide the inſides of theſe angles properly for the hour-ſpaces thereon, take the following method.

Set one foot of the compaſſes in the point *I* as a centre, and open the other to *K*; and with that opening deſcribe the arc *Kt*: then, without altering the compaſſes, ſet one foot in *K*, and with the other foot deſcribe the arc *I t*. Divide each of theſe arcs, from *I* and *K* to their interſection at *t*, into four equal parts; and from their centres *I* and *K* through the points of diviſion, draw the right lines *I* 3, *I* 4, *I* 5, *I* 6, *I* 7; and *K* 2, *K* 1, *K* 12, *K* 11; and they will meet the ſides *K p* and *I p* of the angle *I p K* where the hours thereon muſt be placed. And theſe hour-ſpaces in the arcs muſt be ſubdivided into four equal parts, for the half hours and quarters.—Do the like for the other three angles, and draw the dotted lines, and ſet the hours in the inſides where thoſe lines meet them, as in the figure: and the like hour-lines will be parallel to each other in all the quadrants and in all the angles.

Mark points for all theſe hours on the upper ſide: and cut out all the angular hollows, and the quadrantal ones quite through the places where their four gnomons muſt ſtand; and lay down the hours on their inſides, (as in fig. 10.), and ſet in their gnomons, which muſt be as broad as the dial is thick; and this breadth and thickneſs muſt be large enough to keep the ſhadows of the gnomons from ever falling quite out at the ſides of the hollows, even when the ſun's declination is at the greateſt.

Laſtly, draw the equinoctial dial in the middle, all the hours of which are equidiſtant from each other; and the dial will be finiſhed.

As the ſun goes round, the broad end of the ſhadow of the ſtile *a c b d* will ſhow the hours in the quadrant *Ac*, from ſun-riſe till VI in the morning; the ſhadow from the end *M* will ſhow the hours on the ſide *Lq* from V to IX in the morning; the ſhadow of the ſtile *e f g h* in the quadrant *Dg* (in the long days) will ſhow the hours from ſun-riſe till VI in the morning; and the ſhadow of the end *N* will ſhow the morning-hours, on the ſide *O r*, from III to VII.

Juſt as the ſhadow of the northern ſtile *a b c d* goes off the quadrant *Ac*, the ſhadow of the ſouthern ſtile *i k l m* begins to fall within the quadrant *F l*, at VI in the morning; and ſhows the time, in that quadrant, from VI till XII at noon; and from noon till VI in the evening in the quadrant *m E*. And the ſhadow of the end *O* ſhows the time from XI in the forenoon till III in the afternoon, on the ſide *r N*; as the ſhadow of the end *P* ſhows the time

from

Plate CLIX. from IX in the morning till I o'clock in the afternoon, on the ſide Qs.

At noon, when the ſhadow of the eaſtern ſtile $efgh$ goes off the quadrant hG (in which it ſhowed the time from VI in the morning till noon, as it did in the quadrant gD from ſun-riſe till VI in the morning), the ſhadow of the weſtern ſtile $nopq$ begins to enter the quadrant Hp; and ſhows the hours thereon from XII at noon till VI in the evening: and after *that* till ſunſet, in the quadrant qG: and the end Q caſts a ſhadow on the ſide Ps from V in the evening till IX at night, if the ſun be not ſet before that time.

The ſhadow of the end I ſhows the time on the ſide Kp from III till VII in the afternoon; and the ſhadow of the ſtile $abcd$ ſhows the time from VI in the evening till the ſun ſets.

The ſhadow of the upright central wire, that ſupports the globe at top, ſhows the time of the day, in the middle or equinoctial dial, all the ſummer half-year, when the ſun is on the north ſide of the equator.

Having ſhown how to make ſun-dials by the aſſiſtance of a good globe, or of a dialing ſcale, we ſhall now proceed to the method of conſtructing dials arithmetically; which will be more agreeable to thoſe who have learned the elements of trigonometry, becauſe globes and ſcales can never be ſo accurate as the logarithms in finding the angular diſtances of the hours. Yet as a globe may be found exact enough for ſome other requiſites in dialing, we ſhall take it in occaſionally.

The conſtruction of ſun-dials on all planes whatever may be included in one general rule: intelligible, if that of a horizontal-dial for any given latitude be well underſtood. For there is no plane, however obliquely ſituated with reſpect to any given place, but what is parallel to the horizon of ſome other place; and therefore if we can find that other place by a problem on the terreſtrial globe, or by a trigonometrical calculation, and conſtruct a horizontal dial for it; that dial applied to the plane where it is to ſerve will be a true dial for that place.—Thus, an erect direct ſouth dial in 51½ degrees north latitude, would be a horizontal-dial on the ſame meridian, 90 degrees ſouthward of 51½ degrees north latitude: which falls in with 38½ degrees of ſouth latitude. But if the upright plane declines from facing the ſouth at the given place, it would ſtill be a horizontal plane 90 degrees from that place, but for a different longitude, which would alter the reckoning of the hours accordingly.

Case I. 1. Let us ſuppoſe that an upright plane at London declines 36 degrees weſtward from facing the ſouth, and that it is required to find a place on the globe to whoſe horizon the ſaid plane is parallel; and alſo the difference of longitude between London and that place.

Rectify the globe to the latitude of London, and bring London to the zenith under the braſs meridian; then that point of the globe which lies in the horizon at the given degree of declination (counted weſtward from the ſouth point of the horizon) is the place at which the abovementioned plane would be horizontal. —Now, to find the latitude and longitude of that place, keep your eye upon the place, and turn the globe eaſtward until it comes under the graduated edge of the braſs meridian; then the degree of the braſs meridian that ſtands directly over the place is its latitude; and the number of degrees in the equator, which are intercepted between the meridian of London and the braſs meridian, is the place's difference of longitude. Plate CLIX.

Thus, as the latitude of London is 51½ degrees north, and the declination of the place is 36 degrees weſt; elevate the north pole 51½ degrees above the horizon, and turn the globe until London comes to the zenith, or under the graduated edge of the meridian; then count 36 degrees on the horizon weſtward from the ſouth point, and make a mark on that place of the globe over which the reckoning ends, and bringing the mark under the graduated edge of the braſs meridian, it will be found to be under 30¼ degrees in ſouth latitude: keeping it there, count in the equator the number of degrees between the meridian of London and the brazen meridian (which now becomes the meridian of the required place), and you will find it to be 42¾. Therefore an upright plane at London, declining 36 degrees weſtward from the ſouth, would be a horizontal plane at that place, whoſe latitude is 30¼ degrees ſouth of the equator, and longitude 42¾ degrees weſt of the meridian of London.

Which difference of longitude being converted into time, is 2 hours 51 minutes.

The vertical-dial declining weſtward 36 degrees at London, is therefore to be drawn in all reſpects as a horizontal-dial for ſouth latitude 30¼ degrees; ſave only that the reckoning of the hours is to anticipate the reckoning of the horizontal-dial by 2 hours 51 minutes: for ſo much ſooner will the ſun came to the meridian of London, than to the meridian of any place whoſe longitude is 42¾ degrees weſt from London.

2. But to be more exact than the globe will ſhow us, we ſhall uſe a little trigonometry.

Let $NESW$ be the horizon of London, whoſe zenith is Z, and P the north pole of the ſphere; and let Zh be the poſition of a vertical plane at Z, declining weſtward from S (the ſouth) by an angle of 36 degrees; on which plane an erect-dial for London at Z is to be deſcribed. Make the ſemidiameter ZD perpendicular to Zh; and it will cut the horizon in D, 36 degrees weſt of the ſouth S. Then a plane, in the tangent HD, touching the ſphere in D, will be parallel to the plane Zh; and the axis of the ſphere will be equally inclined to both theſe planes. Fig. 4.

Let WQE be the equinoctial, whoſe elevation above the horizon of Z (London) is 38¼ degrees; and PRD be the meridian of the place D, cutting the equinoctial in R. Then it is evident, that the arc RD is the latitude of the place D (where the plane Zh would be horizontal) and the arc RQ is the difference of longitude of the planes Zh and DH.

In the ſpherical triangle WDR, the arc WD is given, for it is the complement of the plane's declination from S to ſouth; which complement is 54° (*viz.* 90°—36°:) the angle at R, in which the meridian of the place D cuts the equator, is a right angle; and the angle RWD meaſures the elevation of the equinoctial above the horizon of Z, namely 31½ degrees. Say therefore, As radius is to the co-ſine of the plane's declination from the ſouth, ſo is the co-ſine of the latitude of Z to the ſine of RD the latitude of D: which is of a different denomination

Plate CLIX.

denomination from the latitude of Z, becauſe Z and D are on different ſides of the equator.

As radius - - - - 10.00000
To co-ſine 36° 0′ = RQ 9.90796
So co-ſine 51° 30′ = QZ 9.79415

To ſine 30° 14 = DR (9.70211) = the lat. of D, whoſe horizon is parallel to the vertical plane Zh at Z.

N. B. When radius is made the firſt term, it may be omitted; and then by ſubtracting it mentally from the ſum of the other two, the operation will be ſhortened. Thus, in the preſent caſe,

To the logarithmic ſine of WR = * 54° 0′ 9.90796
Add the logarithmic ſine of RD = † 38° 30′ 9.79415

Their ſum—radius - - - - - - - 9.70211

gives the ſame ſolution as above. And we ſhall keep to this method in the following part of this article.

To find the difference of longitude of the places D and Z, ſay, As radius is to the co-ſine of 38½ degrees, the height of the equinoctial at Z, ſo is the co-tangent of 36 degrees, the plane's declination, to the co-tangent of the difference of longitudes. Thus,

To the logarithmic ſine of ‡ 51° 30′ 9.89354
Add the logarithmic tang. of § 54° 0′ 10.13874

Their ſum—radius - - - - - - - 10.03228

is the neareſt tangent of 47° 8′ = WR; which is the co-tangent of 42° 52′ = RQ, the difference of longitude ſought. Which difference, being reduced to time, is 2 hours 51½ minutes.

3. And thus having found the exact latitude and longitude of the place D, to whoſe horizon the vertical plane at Z is parallel, we ſhall proceed to the conſtruction of a horizontal dial for the place D, whoſe latitude is 30° 14′ ſouth; but anticipating the time at D by 2 hours 51 minutes (neglecting the ½ min. in practice), becauſe D is ſo far weſtward in longitude from the meridian of London; and this will be a true vertical dial at London, declining weſtward 36 degrees.

Fig. 5.

Aſſume any right line CSL for the ſubſtile of the dial, and make the angle KCP equal to the latitude of the place (*viz.* 30° 14′), to whoſe horizon the plane of the dial is parallel; then CRP will be the axis of the ſtile, or edge that caſts the ſhadow on the hours of the day, in the dial. This done, draw the contingent line EQ, cutting the ſubſtilar line at right angles in K; and from K make KR perpendicular to the axis CRP. Then KG (= KR) being made radius, that is, equal to the chord of 60° or tangent of 45° on a good ſector, take 42° 52′ (the difference of longitude of the places Z and D) from the tangents, and having ſet it from K to M, draw CM for the hour-line of XII. Take KN, equal to the tangent of an angle leſs by 15 degrees than KM; that is, the tangent of 27° 52′: and through the point N draw CN for the hour-line of I. The tangent of 12° 52′ (which is 15° leſs than 27° 42′), ſet off the ſame way, will give a point between K and N, through which the hour-line of II is to be drawn. The tangent of 20° 8′ (the difference between 45° and 52° 52′) placed on the other ſide of CL, will determine the point through which the hour-line of III is to be drawn: to which 2° 8′, if the tangent of 15° be added, it will make 17° 8′; and this ſet off from K towards Q on the line EQ, will give the point for the hour-line of IV: and ſo of the reſt.—The forenoon hour-lines are drawn the ſame way, by the continual addition of the tangents 15°, 30°, 45°, &c. to 42° 52′ (= the tangent of KM) for the hours of XI, X, IX, &c. as far as neceſſary; that is, until there be five hours on each ſide of the ſubſtile. The ſixth hour, accounted from that hour or part of the hour on which the ſubſtile falls, will be always in a line perpendicular to the ſubſtile, and drawn through the centre C.

Plate CLIX,

4. In all erect dials, CM, the hour-line of XII, is perpendicular to the horizon of the place for which the dial is to ſerve; for that line is the interſection of a vertical plane with the plane of the meridian of the place, both which are perpendicular to the plane of the horizon: and any line HO, or ho, perpendicular to CM, will be a horizontal line on the plane of the dial, along which line the hours may be numbered; and CM being ſet perpendicular to the horizon, the dial will have its true poſition

5. If the plane of the dial had declined by an equal angle toward the eaſt, its deſcription would have differed only in this, that the hour-line of XII would have fallen on the other ſide of the ſubſtile CL, and the line HO would have a ſubcontrary poſition to what it has in this figure.

6. And theſe two dials, with the upper points of their ſtiles turned toward the north pole, will ſerve for other two planes parallel to them; the one declining from the north toward the eaſt, and the other from the north toward the weſt, by the ſame quantity of angle. The like holds true of all dials in general, whatever be their declination and obliquity of their planes to the horizon.

CASE II. 7. If the plane of the dial not only declines, but alſo reclines, or inclines. Suppoſe its declination from fronting the ſouth S be equal to the arc SD on the horizon; and its reclination be equal to the arc Dd of the vertical circle DZ: then it is plain, that if the quadrant of altitude ZdD on the globe cuts the point D in the horizon, and the declination is counted upon the quadrant from D to d; the interſection of the hour-circle PRd, with the equinoctial WQE, will determine Rd, the latitude of the place d, whoſe horizon is parallel to the given plane Zh at Z; and RQ will be the difference in longitude of the places at d and Z.

Fig 6.

Trigonometrically thus: Let a great circle paſs thro' the three points, W, d, E; and in the triangle WDd, right angled at D, the ſides WD and Dd are given; and thence the angle DWd is found, and ſo is the hypothenuſe Wd. Again, the difference, or the ſum, of DWd and DWR, the elevation of the equinoctial above the horizon of Z, gives the angle dWR; and the hypothenuſe of the triangle WRd was juſt now found; whence the ſides Rd and WR are found, the former being the latitude of the place d, and the latter the complement of RQ, the difference of longitude ſought.

Thus,

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* The co-ſine of 36.0, or of RQ.

† The co-ſine of 51.30, or of QZ.

‡ The co-ſine of 38.30, or of WDR.

§ The co-tangent of 36.0, or of DW.

Plate CLIX. Thus, if the latitude of the place Z be 52° 10′ north; the declination $S\,D$ of the plane Zh (which would be horizontal at d) be 36°, and the reclination be 15°, or equal to the arc Dd; the ſouth latitude of the place d, that is, the arc Rd, will be 15° 9′; and $R\,Q$, the difference of the longitude, 36° 2′. From theſe data, therefore, let the dial (fig. 7.) be deſcribed, as in the former example.

8. There are ſeveral other things requiſite in the practice of dialing; the chief of which ſhall be given in the form of arithmetical rules, ſimple and eaſy to thoſe who have learned the elements of trigonometry. For in practical arts of this kind, arithmetic ſhould be uſed as far as it can go; and ſcales never truſted to, except in the final conſtruction, where they are abſolutely neceſſary in laying down the calculated hour-diſtances on the plane of the dial.

Rule I. *To find the angles which the hour-lines on any dial make with the ſubſtile.* To the logarithmic ſine of the given latitude, or of the ſtile's elevation above the plane of the dial, add the logarithmic tangent of the hour (*) diſtance from the meridian, or from the (†) ſubſtile; and the ſum minus radius will be the logarithmic tangent of the angle ſought.

Fig. 5. For KC is to KM in the ratio compounded of the ratio of KC to KG ($=KR$) and of KG to KM; which making CK the radius 10,000000, or 10,0000, or 10, or 1, are the ratio of 10,000000, or of 10,0000, or of 10, or of 1, to $KG \times KM$.

Thus, in a horizontal dial, for latitude 51° 30′, to find the angular diſtance of XI in the forenoon, or I in the afternoon, from XII.

To the logarithmic ſine of 51° 30′ 9.89354‡
Add the logarithmic tang. of 51° 0′ 9.42805

The ſum—radius is - 9.32159 = the logarithmic tangent of 11° 50′, or of the angle which the hour-line of XI or I makes with the hour of XII.

And by computing in this manner, with the ſine of the latitude, and the tangents of 30, 45, 60, and 75°, for the hours of II, III, IIII, and V in the afternoon; or of X, IX, VIII, and VII in the forenoon; you will find their angular diſtances from XII to be 24° 18′, 38° 3′, 53° 35′, and 71° 6′; which are all that there is occaſion to compute for.——And theſe diſtances may be ſet off from XII by a line of chords; or rather, by taking 1000 from a ſcale of equal parts, and ſetting that extent as a radius from C to XII; and then, taking 209 of the ſame parts (which are the natural tangent of 11° 50′), and ſetting them from XII to XI and I, on the line ho, which is perpendicular to C XII: and ſo for the reſt of the hour-lines, which in the table of natural tangents, againſt the above diſtances, are 451, 782, 1355, and 2920, of ſuch equal parts from XII, as the radius C XII contains 1000, And, laſtly, ſet off 1257 (the natural tangent of 51° 30′) for the angle of the ſtile's height, which is equal to the latitude of the place. Plate CLIX.

Rule II. *The latitude of the place, the ſun's declination, and his hour diſtance from the meridian, being given, to find* (1.) *his altitude*, (2.) *his azimuth.* (1.) Let d be the ſun's place, $d\,R$ his declination; and, in the triangle $P\,Z\,d$, $P\,d$ the ſum, or the difference, of $d\,R$, and the quadrant $P\,R$, being given by the ſuppoſition, as alſo the complement of the latitude $P\,Z$, and the angle $d\,P\,Z$, which meaſures the horary diſtance of d from the meridian; we ſhall (by Caſe 4. of Keill's oblique ſpheric Trigonometry) find the baſe $Z\,d$, which is the ſun's diſtance from the zenith, or the complement of his altitude. Fig. 6.

And (2.) as ſine $Z\,d$: ſine $P\,d$: : ſine dPZ : dZP, or of its ſupplement $D\,Z\,S$, the azimuthal diſtance from the ſouth.

Or the practical rule may be as follows.

Write A for the ſign of the ſun's altitude, L and l for the ſine and co-ſine of the latitude, D and d for the ſine and co-ſine of the ſun's declination, and H for the ſine of the horary diſtance from VI.

Then the relation of H to A will have three varieties.

1. When the declination is toward the elevated pole, and the hour of the day is between XII and VI; it is $A=LD+Hld$, and $H=\frac{A-LD}{ld}$,

2. When the hour is after VI, it is $A=LD-Hld$, and $H=\frac{LD+A}{ld}$

3. When the declination is toward the depreſſed pole, we have $A=Hld-LD$, and $H=\frac{A+LD.}{ld}$

Which theorems will be found uſeful, and expeditious enough for ſolving thoſe problems in geography and dialing which depend on the relation of the ſun's altitude to the hour of the day.

Example I. Suppoſe the latitude of the place to be $51\frac{1}{2}$ degrees north: the time five hours diſtant from XII, that is, an hour after VI in the morning, or before VI in the evening; and the ſun's declination 20° north. *Required the ſun's altitude.*

Then to log. L=log. ſin. 51° 30′ 1.89354**
add log. D=log. ſin. 20° 0′ 1.53405

Their ſum 1.42759 gives LD=logarithm of 0.267664, in the natural ſines.

And, to log. H=log. ſin. †† 15° 0′ 1.41300
add { log. l=log. ſin. ‡‡ 38° 0′ 1 79414
add { log. d=log. ſin. §§ 70° 0′ 1.97300

Their ſum 1.18014 gives Hld=logarithm of 0.151408, in the natural ſines.

And

(*) That is, of 15, 30, 45, 60, 75°, for the hours of I, II, III, IIII, V, in the afternoon; and XI, X, IX, VIII, VII, in the afternoon.

(†) In all horizontal dials, and erect north or ſouth dials, the ſubſtile and meridian are the ſame; but in all declining dials, the ſubſtile line makes an angle with the meridian.

(‡) In which caſe, the radius CK is ſuppoſed to be divided into 10,0000 equal parts.

** Here we conſider the radius as unity, and not 10,00000; by which, inſtead of the index 9, we have—1 as above; which is of no farther uſe than making the work a little eaſier.

†† The diſtance of one hour VI.

‡‡ The co-latitude of the place.

§§ The co-declination of the ſun.

Plate CLIX.

And theſe two numbers (0.267664 and 0.151408) make 0.419072 $=A$; which, in the table, is the neareſt natural ſine of 24° 47′, the ſun's altitude ſought.

The ſame hour-diſtance being aſſumed on the other ſide of VI, then $LD-Hld$ is 0.116256, the ſine of 6° 40½; which is the ſun's altitude at V in the morning, or VII in the evening, when his north declination is 20°.

But when the declination is 20° ſouth (or towards the depreſſed pole) the difference $Hld-LD$ becomes negative; and thereby ſhows, that an hour before VI in the morning, or paſt VI in the evening, the ſun's centre is 6° 40½ below the horizon.

Examp. 2. From the ſame *data*, to find the ſun's *azimuth*. If H, L, and D, are given, then (by par. 2. of Rule II.) from H having found the altitude and its complement Zd: and the arc Pd (the diſtance from the pole) being given; ſay, As the co-ſine of the altitude is to the ſine of the diſtance from the pole, ſo is the ſine of the hour-diſtance from the meridian to the ſine of the azimuth diſtance from the meridian.

Let the latitude be 51° 30′ north, the declination 15° 9′ ſouth, and the time II h. 24 m. in the afternoon, when the ſun begins to illuminate a vertical wall, and it is required to find the poſition of the wall.

Then, by the foregoing theorems, the complement of the altitude will be 81° 32½′, and Pd the diſtance from the pole being 109° 5′, and the horary diſtance from the meridian, or the angle dPZ, 36°.

To log. ſin. 74° 51′	-	1.98464
Add log. ſin. 36° 0′	-	1.76922
And from the ſum	-	1.75386
Take the log. ſin. 81° 32½′	-	1.99525
Remains		1.75861 = log. ſin.

35°, the azimuth diſtance ſought.

When the altitude is given, find from thence the hour, and proceed as above.

This praxis is of ſingular uſe on many occaſions; in finding the declination of vertical planes more exactly than in the common way, eſpecially if the tranſits of the ſun's centre are obſerved by applying a ruler with ſights, either plain or teleſcopical, to the wall or plane whoſe declination is required. In drawing a meridian line, and finding the magnetic variation. In finding the bearings of places in terreſtrial ſurveys; the tranſits of the ſun over any place, or his horizontal diſtance from it, being obſerved, together with the altitude and hour. And thence determining ſmall differences of longitude. In obſerving the variations at ſea, &c.

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improved declinator.

The *declination*, *inclination*, and *reclination*, of planes, are frequently taken with a ſufficient degree of accuracy by an inſtrument called a *declinator* or *declinatory*.

Plate CLXI. fig. 6.

The conſtruction of this inſtrument, as ſomewhat improved by Mr Jones, is as follows: On a mahogany board $ABIK$, is inſerted a ſemicircular arch $AGEB$ of ivory or box-wood, divided into two quadrants of 90° each, beginning from the middle G. On the centre C turns a vertical quadrant DFE, divided into 90°, beginning from the baſe E; on which is a moveable index CF, with a ſmall hole at F for the ſun's rays to paſs thro', and form a ſpot on a mark at C. The lower extremity of the quadrant at E is pointed, to mark the linear direction of the quadrant when applied to any other plane; as this quadrant takes off occaſionally, and a plumb-line P hangs at the centre on C, for taking the inclinations and reclinations of planes. At H, on the plane of the board, is inſerted a compaſs of points and degrees, with a magnetical needle turning on a pivot over it. The addition of the moveable quadrant and index conſiderably extend the utility of the declinator, by rendering it convenient for taking *equal altitudes* of the ſun, the ſun's altitude, and bearing, at the ſame time, &c.

Plate CLXI.

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To take by it the declination, &c. and to find a meridian line.

To apply this inſtrument in taking the declination of a wall or plane: Place the ſide ACB in an horizontal direction to the plane propoſed, and obſerve what degree or point of the compaſs the N part of the needle ſtands over from the north or the ſouth, and it will be the *declination* of the plane from the north or ſouth accordingly. In this caſe, allowance muſt be made for the variation of the needle (if any) at the place; and which, if not previouſly known, will render this operation very inaccurate. At London it is now 22° 30′ to the weſt.

Another way more exact may be uſed, when the ſun ſhines out half an hour before noon. The ſide ACB being placed againſt the plane, the quadrant muſt be ſo moved on the ſemicircle AGB, and the index CF on DE, till the ſun's rays paſſing through the hole at F fall exactly on the mark at G, and continued ſo till the ſun requires the index to be raiſed no higher: you will then have the meridian or greateſt altitude of the ſun; and the angle contained between G and E will be the declination required. The poſition of CE is the meridian or 12 o'clock line. But the moſt exact way for taking the declination of a plane, or finding a meridian line, by this inſtrument, is, in the forenoon, about two or three hours before 12 o'clock, to obſerve two or three heights or altitudes EF of the ſun; and at the ſame time the reſpective angular polar diſtances GE from G: write them down; and in the afternoon watch for the ſame, or one of the ſame altitudes, and mark the angular diſtances or diſtance on the quadrant AG: Now, the diviſion or degree exactly *between* the two noted angular diſtances will be the true meridian, and the diſtance at which it may fall from the C, of the diviſions at G will be the declination of the plane. The reaſon for obſerving two or three altitudes and angles in the morning is, that in caſe there ſhould be clouds in the afternoon, you may have the chance of one correſponding altitude.

The quadrant occaſionally takes off at C, in order to place it on the ſurface of a pedeſtal or plane intended for an horizontal dial; and thereby from equal altitudes of the ſun, as above, draw a meridian or 12 o'clock line to ſet the dial by.

The baſe $ABIK$ ſerves to take the inclination and reclination of planes. In this caſe, the quadrant is taken off, and the plummet P is fitted on a pin at the centre C: then the ſide IGK being applied to the plane propoſed, as QL (fig. 7.) of the plumb-line cuts the ſemicircle in the point G, the plane is horizontal; or if it cut the quadrant in any point at S, then will GCS be the angle of inclination. Laſtly, if applying the

Plate CLXI. the ſide ACB (fig. 7.) to the plane, the plummet cuts G, the plane is vertical; or if it cuts either of the quadrants, it is accordingly the angle of reclination. Hence, if the quantity of the angle of inclination be compared with the elevation of the pole and equator, it is eaſily known whether the plane be inclined or reclined.

Of the double Horizontal Dial, and the Babylonian *and* Italian *Dials.*

To the *gnomonic* projection, there is ſometimes added a *ſtereographic* projection of the hour-circles, and the parallels of the ſun's declination, on the ſame horizontal plane; the upright ſide of the gnomon being ſloped into an edge, ſtanding perpendicularly over the centre of the projection: ſo that the dial, being in its due poſition, the ſhadow of *that* perpendicular edge is a vertical circle paſſing through the ſun, in the ſtereographic projection.

The months being duly marked on this dial, the ſun's declination, and the length of the day at any time, are had by inſpection (as alſo his altitude, by means of a ſcale of tangents). But its chief property is, that it may be placed true, whenever the ſun ſhines, without the help of any other inſtrument.

Fig. 6. Let d be the ſun's place in the ſtereographic projection, $xdyz$ the parallel of the ſun's declination, Zd a vertical circle through the ſun's centre, Pd the hour-circle; and it is evident, that the diameter NS of this projection being placed duly north and ſouth, theſe three circles will paſs through the point d. And therefore, to give the dial its due poſition, we have only to turn its gnomon toward the ſun, on a horizontal plane, until the hour on the common gnomonic projection coincides with that marked by the hour-circle Pd, which paſſes through the interſection of the ſhadow Zd with the circle of the ſun's preſent declination.

The Babylonian and Italian dials reckon the hours, not from the meridian as with us, but from the ſun's riſing and ſetting. Thus, in Italy, an hour before ſun-ſet is reckoned the 23d hour; two hours before ſun-ſet the 22d hour; and ſo of the reſt. And the ſhadow that marks them on the hour-lines, is *that* of the point of a ſtile. This occaſions a perpetual variation between their dials and clocks, which they muſt correct from time to time, before it ariſes to any ſenſible quantity, by ſetting their clocks ſo much faſter or ſlower. And in Italy, they begin their day, and regulate their clocks, not from ſun-ſet, but from about mid-twilight, when the *Ave-Maria* is ſaid; which corrects the difference that would otherwiſe be between the clock and the dial.

The improvements which have been made in all ſorts of inſtruments and machines for meaſuring time, have rendered ſuch dials of little account. Yet, as the theory of them is ingenious, and they are really, in ſome reſpects, the beſt contrived of any for vulgar uſe, a general idea of their deſcription may not be unacceptable.

Fig. 8. Let fig. 8. repreſent an erect direct ſouth wall, on which a Babylonian dial is to be drawn, ſhowing the hours from ſun-riſing; the latitude of the place, whoſe horizon is parallel to the wall, being equal to the angle KCR. Make, as for a common dial, KG=KR (which is perpendicular to CR) the radius of the equinoctial $\AE Q$, and draw RS perpendicular to CK for the ſtile of the dial; the ſhadow of whoſe point R is to mark the hours, when SR is ſet upright on the plane of the dial. Plate CLXI.

Then it is evident, that, in the contingent line $\AE Q$, the ſpaces K1, K2, K3. &c. being taken equal to the tangents of the hour-diſtances from the meridian, to the radius KG, one, two, three, &c. hours after ſun riſing, on the equinoctial day; the ſhadow of the point R will be found, at theſe times, reſpectively in the points 1, 2, 3, &c.

Draw, for the like hours after ſun-riſing, when the ſun is in the tropic of Capricorn ♑ V, the like common lines CD, CE, CF, &c. and at theſe hours the ſhadow of the point R will be found in thoſe lines reſpectively. Find the ſun's altitudes above the plane of the dial at theſe hours; and with their co-tangents Sd, Se, Sf, &c. to radius SR, deſcribe arcs interſecting the hour-lines in the points d, e, f, &c. ſo ſhall the right lines 1d, 2e, 3f, &c. be the lines of I, II, III, &c. hours after ſun-riſing.

The conſtruction is the ſame in every other caſe; due regard being had to the difference of longitude of the place at which the dial would be horizontal, and the place for which it is to ſerve: and likewiſe, taking care to draw no lines but what are neceſſary; which may be done partly by the rules already given for determining the time that the ſun ſhines on any plane; and partly from this, that on the tropical days, the hyperbola deſcribed by the ſhadow of the point R limits the extent of all the hour-lines.

Of the right placing of Dials, and having a true Meridian Line for the regulating of Clocks and Watches.

The plane on which the dial is to reſt being duly prepared, and every thing neceſſary for fixing it, you may find the hour tolerably exact by a large equinoctial ring-dial, and ſet your watch to it. And then the dial may be fixed by the watch at your leiſure.

If you would be more exact, take the ſun's altitude by a good quadrant, noting the preciſe time of obſervation by a clock or watch. Then compute the time for the altitude obſerved; and ſet the watch to agree with that time, according to the ſun. A Hadley's quadrant is very convenient for this purpoſe: for by it you may take the angle between the ſun and his image reflected from a baſon of water; the half of which angle, ſubtracting the refraction, is the altitude required. This is beſt done in ſummer; and the nearer the ſun is to the prime vertical (the eaſt or weſt azimuth) when the obſervation is made, ſo much the better.

Or, in ſummer, take two equal altitudes of the ſun in the ſame day; one any time between 7 and 10 in the morning, the other between 2 and 5 in the afternoon; noting the moments of theſe two obſervations by a clock or watch: and if the watch ſhows the obſervations to be at equal diſtances from noon, it agrees exactly with the ſun: if not, the watch muſt be corrected by half the difference of the forenoon and afternoon intervals; and then the dial may be ſet true by the watch.

Thus, for example, ſuppoſe you had taken the ſun's altitude when it was 20 minutes paſt VIII in the morning

Plate CLXI. ing by the watch; and found, by obſerving in the afternoon, that the ſun had the ſame altitude 10 minutes before IIII; then it is plane; that the watch was 5 minutes too faſt for the ſun: for 5 minutes after XII is the middle time between VIII h. 20m. in the morning, and III h. 50m. in the afternoon; and therefore to make the watch agree with the ſun, it muſt be ſet back five minutes.

26 A Meridian line. A good *meridian line*, for regulating clocks or watches, may be had by the following method.

Make a round hole, almoſt a quarter of an inch diameter, in a thin plate of metal; and fix the plate in the top of a ſouth window, in ſuch a manner, that it may recline from the zenith at an angle equal to the co-latitude of your place, as nearly as you can gueſs: for then the plate will face the ſun directly at noon on the equinoctial days. Let the ſun ſhine freely thro' the hole into the room; and hang a plumb-line to the ceiling of the room, at leaſt five or ſix feet from the window, in ſuch a place as that the ſun's rays, tranſmitted through the hole, may fall upon the line when it is noon by the clock; and having marked the ſaid place on the ceiling, take away the line.

Having adjuſted a ſliding bar to a dove-tail groove, in a piece of wood about 18 inches long, and fixed a hook into the middle of the bar, nail the wood to the abovementioned place on the ceiling, parallel to the ſide of the room in which the window is; the groove and bar being towards the floor: Then hang the plumb-line upon the hook in the bar, the weight or plummet reaching almoſt to the floor; and the whole will be prepared for the farther and proper adjuſtment.

This done, find the true ſolar time by either of the two laſt methods, and thereby regulate your clock. Then, at the moment of next noon by the clock when the ſun ſhines, move the ſliding-bar in the grove, until the ſhadow of the plumb-line biſects the image of the ſun (made by his rays tranſmitted thro' the hole) on the floor, wall, or on a white ſcreen placed on the north-ſide of the line; the plummet or weight at the end of the line hanging freely in a pail of water placed below it on the floor.—But becauſe this may not be quite correct for the firſt time, on account that the plummet will not ſettle immediately, even in water; it may be farther corrected on the following days, by the above method, with the ſun and clock; and ſo brought to a very great exactneſs.

N. B. The rays tranſmitted through the hole will caſt but a faint image of the ſun, even on a white ſcreen, unleſs the room be ſo darkened that no ſunſhine may be allowed to enter but what comes thro' the ſame hole in the plate. And always, for ſome time before the obſervation is made, the plummet ought to be immerſed in a jar of water, where it may hang freely; by which means the line will ſoon become ſteady, which otherwiſe would be apt to continue ſwinging.

Deſcription of two New Inſtruments for facilitating the practice of Dialing.

I. *The* DIALING *Sector*, contrived by the late Mr Benjamin Martin, is an inſtrument by which dials are drawn in a more eaſy, expeditious, and accurate manner. It is repreſented on the plate as now made by Mr Jones of Holborn. The principal lines on it are the *line of latitudes* and the *line of hours*. They are found on moſt of the common plane ſcales and ſectors; but in a manner that greatly confines and diminiſhes their uſe; for, firſt, they are of a *fixed length*; and, ſecondly, *too ſmall* for any degree of accuracy. But in this new *ſector*, the *line of latitudes* is laid down, as it is called *ſectorwiſe*, viz. one line of latitudes upon each leg of the ſector, beginning in the centre of the joint, and diverging to the end (as upon other ſectors), where the extremes of the two lines at 90° and 90° are nearly one inch apart, and their length $11\frac{1}{4}$ inches: which length admits of great exactneſs; for at the 70th degree of latitude, the diviſions are to quarters of a degree or 15 minutes. This accuracy of the diviſions admits of a peculiar advantage, namely, that it may be equally communicated to any length from 1 to 23 inches, by taking the *parallel* diſtances (ſee fig. 5.), viz. from 10 to 10, 20 to 20, 30 to 30, and ſo on as is done in like caſes on the lines of ſines, tangents, &c. Hence its univerſal uſe for drawing dials of any prepared ſize. The line of hours for this end is adapted and placed contiguous to it on the ſector, and of a ſize large enough for the very minutes to be diſtinct on the part where they are ſmalleſt, which is on each ſide of the hour of III. Plate CLXI. fig. 4.

From the conſtruction of the line of hours before ſhown, the diviſions on each ſide of the hour III are the ſame to each end, ſo that the hour-line properly is only a *double line of three hours*. Hence a line of 3 hours anſwers all the purpoſes of a line of 6, by taking the double extent of 3, which is the reaſon why upon the ſector the line of hours extends only to $4\frac{1}{2}$.

To make uſe of the *line of latitude* and *line of hours* on the ſector: As ſingle ſcales only, they will be found more accurate than thoſe placed on the common ſcales and ſectors, in which the hours are uſually ſubdivided, but into 5 minutes, and the line of latitudes into whole degrees. But it is ſhown above how much more accurately theſe lines are divided on the *dialing ſector*. As an example of the great exactneſs with which horizontal and other dials may be drawn by it, on account of this new *ſectoral* diſpoſition of theſe ſcales, and how all the advantages of their great length are preſerved in any leſſer length of the VI o'clock line *c e* and *a f*: Apply either of the diſtances of *c e* or *a f* to the line of latitude at the given latitude of London, ſuppoſe 51° 32′ on one line to 51° 32′ on the other, in the manner ſhown in fig. 5. and then taking all the hours, quarters, &c. from the hour-ſcale by ſimilar parallel extents, you apply them upon the lines *e d* and *f b* as before deſcribed. Fig. 2.

As the hour lines on the ſector extend to but $4\frac{1}{2}$, the *double diſtance* of the hour 3, when uſed either *ſingly* or *ſectorally*, muſt be taken, to be firſt applied from 51° 32′ on the latitudes, to its contact on the XII o'clock line, before the ſeveral hours are laid off. The method of drawing a vertical north or ſouth dial is perfectly the ſame as for the above horizontal one; only reverſing the hours as in fig. 1. and making the angle of the ſtile's height equal to the complement of the latitude 38° 28′.

The method of drawing a *vertical declining dial* by the ſector, is almoſt evident from what has been already ſaid in dialing. But more fully to comprehend the

Plate CLXI.

the matter, it muſt be conſidered there will be a variation of particulars as follow: 1. Of the *ſubſtile* or *line* over which the ſtile is to be placed; 2. The height of the ſtile above the plane; 3. The difference between the meridian of the place and that of the plane, or their difference of longitude. From the given *latitude of the place*, and *declination of the plane*, you calculate the three requiſites juſt mentioned, as in the following example. Let it be required to make an *erect ſouth dial*, declining from the meridian *weſtward* 28° 43′. in the latitude of London 51° 32′. The firſt thing to be found is the diſtance of the ſubſtilar line *G B* (fig. 3.) from the meridian of the plane *G* XII. The analogy from this is: *As radius is to the ſine of the declination, ſo is the co-tangent of the latitude to the tangent of the diſtance ſought*, viz. As radius : 28° 43′ : : tang. 38° 28′ : tangent 20° 55′. This and the following analogy may be as accurately worked on the Gunter's line of ſines, tangents, &c. properly placed on the ſector, as by the common way from logarithms. Next, To find the plane's difference of longitude. *As the ſine of the latitude is to radius, ſo is the tangent of the declination to the tangent of the difference of longitude*, viz. As s 51° 32′ : radius : : tang. 28° 43′ : tang. 35° 0′. Laſtly to find the height of the ſtile: *As radius is to the co-ſine of the latitude, ſo is the co-ſine of the declination to the ſine of the ſtile's height*, viz. Radius : s 38° 28′ : : s 61° 17′ : s 33° 5′.

Fig. 3.

The three requiſites thus obtained, the dial is drawn in the following manner: Upon the meridian line *G* XII, with any radius *G C* deſcribe the arch of a circle, upon which ſet off 20° 55′ from *C* to *B*, and draw *G B*, which will be the ſubſtilar line, over which the ſtile of the dial muſt be placed.

At right angles to this line *G B*, draw *A Q* indefinitely through the point *G*: then from the ſcale of latitudes take the height of the ſtile 33° 5′, and ſet it each way from *G* to *A* and *Q*. Laſtly, take the double length of 3 on the hour-line in your compaſſes, and ſetting one foot in *A* or *Q*, with the other foot mark the line *G B* in *D*, and join *A D Q D*, and then the triangle *A D Q* is completed upon the ſubſtile *G B*.

To lay off the hours, the plane's difference of longitude being 35°, equal to 2h. 20 min. in time, allowing 15° to an hour, ſo that there will be 2h. 20′ between the point *D* and the meridian *G* XII, in the line *A D*. Therefore, take the firſt 20′ of the hour-ſcale in your compaſſes, and ſet off from *D* to 2; then take 1 h. 20′, and ſet off from *D* to 1; 2h. 20′, and ſet off from *D* to 12; 3h. 20′, from *D* to 11; 4h. 20′ from *D* to 10; and 5h. 20′ from *D* to 9, which will be 40 from *A*.

Then, on the other ſide of the ſubſtilar line *G B*, you take 40′ from the beginning of the ſcale, and ſet off from *D* to 3; then take 1 h. 40′, and ſet off from *D* to 4; alſo 2h. 40′, and ſet off from *D* to 5; and ſo on to 8, which will be 20′ from *Q*. Then from *G* the centre, through the ſeveral points 2, 1, 12, 11, 10, 9, on one ſide, and 3, 4, 5, 6, 7, 8, on the other, you draw the hour-lines, as in the figure they appear. The hour of VIII need only be drawn for the morning; for the ſun goes off from this *weſt decliner* 20′ before VIII in the evening.—The quarters, &c. are all ſet off in the ſame manner from the hour ſcale as the above hours were.

Plate CLXI.

The next thing is fixing the ſtile or gnomon, which is always placed in the ſubſtilar line *G B*, and which is already drawn. The ſtile above the plane has been found to be 33° 5: therefore with any radius *G B* deſcribe an obſcure arch, upon which ſet off 33° 5′ from *B* to *S*, and draw *G S*, and the angle *S G B* will be the true height of the gnomon above the ſubſtile *G B*.

II. The *Dialing Trigon* is another new inſtrument of great utility in the practice of dialing; and was alſo contrived by the late Mr Martin. It is compoſed of two graduated ſcales and a plane one. On the ſcale *A B* is graduated the line of latitudes; and on the ſcale *A C*, the line of hours: theſe properly conjoined with the plane ſcale *B D*, as ſhown in the figure, truly repreſent the gnomonical triangle, and is properly called a *dialing trigon*. The hour-ſcale *A C* is here of its full length; ſo that the hours, halves, quarters, &c. and every ſingle minute (if required) may be immediately ſet off by a ſteel point; and from what has before been obſerved in regard to the ſector, it muſt appear that this method by the trigon is the moſt expeditious way of drawing dials that any mechaniſm of this ſort can afford. As an example of the application of this trigon in the conſtruction of an horizontal dial for the latitude of London 51° 32′, you muſt proceed as follows: Apply the trigon to the 6 o'clock line *a f* (fig. 1.) on the morning ſide, ſo that the line of latitudes may coincide with the 6 o'clock line, and the beginning of the diviſions coincide with the centre *a*; and at 51° 32′ of the line of latitudes place the 6 o'clock edge of the line of hours, and the other end or beginning of the ſcale cloſe againſt the plane ſcale *c d*, as by the figure at *d*; and faſtening theſe bars down by the ſeveral pins placed in them to the paper and board, then the hours, quarters, &c. are all marked off with a ſteel point inſtantly, and the hour-lines drawn through them as before, and as ſhown in the figure. When this is done for the ſide *a f* or morning hours, you move the ſcale of latitudes and hours to the other ſide *c e*, or afternoon ſide, and place the hour-ſcale to 51° 32′ as before, and puſh down the hours, quarters, &c. and draw the lines through them for the afternoon hours, which is clearly repreſented in the figure.

In like manner is an *erect north* or *ſouth* dial drawn (ſee fig 2.), the operation being juſt the ſame, only reverſing the hours as in the figure, and marking the angles of the ſtile's height equal to the complement of the latitude.

This trigon may be likewiſe uſed for drawing *vertical declining dials* (fig. 3.), as it is with the ſame facility applied to the lines *A Q*, *G B*, and the hours and quarters marked off as before directed.

Mr Jones graduates on the ſcale *B D* of the trigon a line of chords, which is found uſeful for laying off the neceſſary angles of the ſtile's height. The ſcales of this trigon, when not in uſe, lie very cloſe together, and pack up into a portable caſe for the pocket.

Fig. 1.

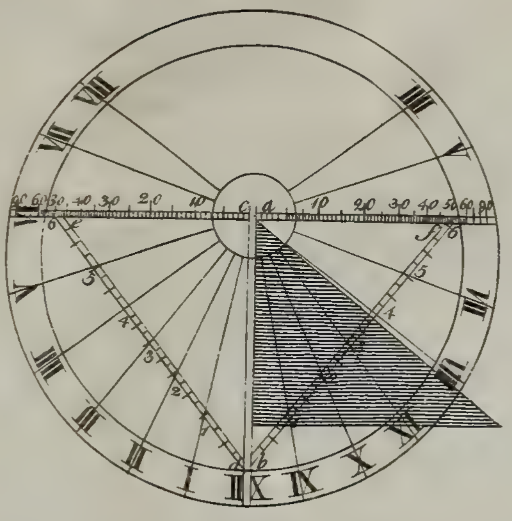


Fig. 2.

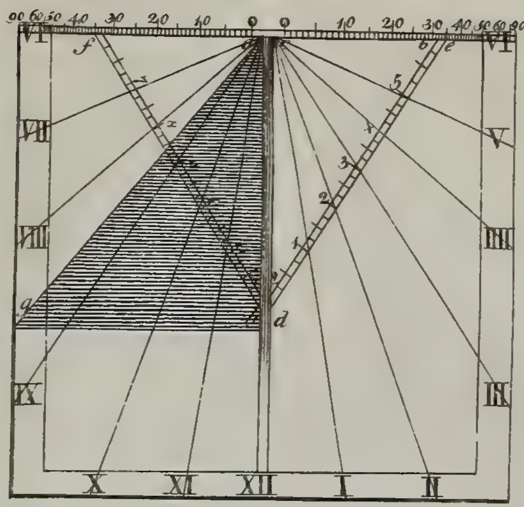


Fig. 3.

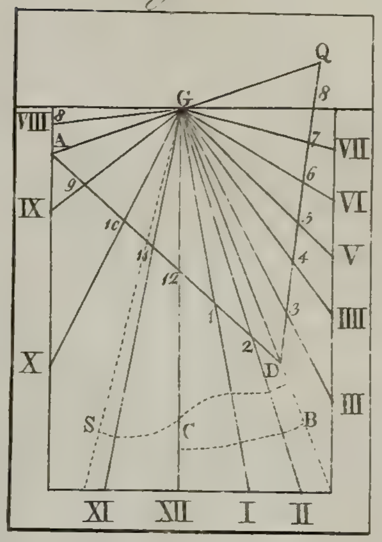


Fig. 4.

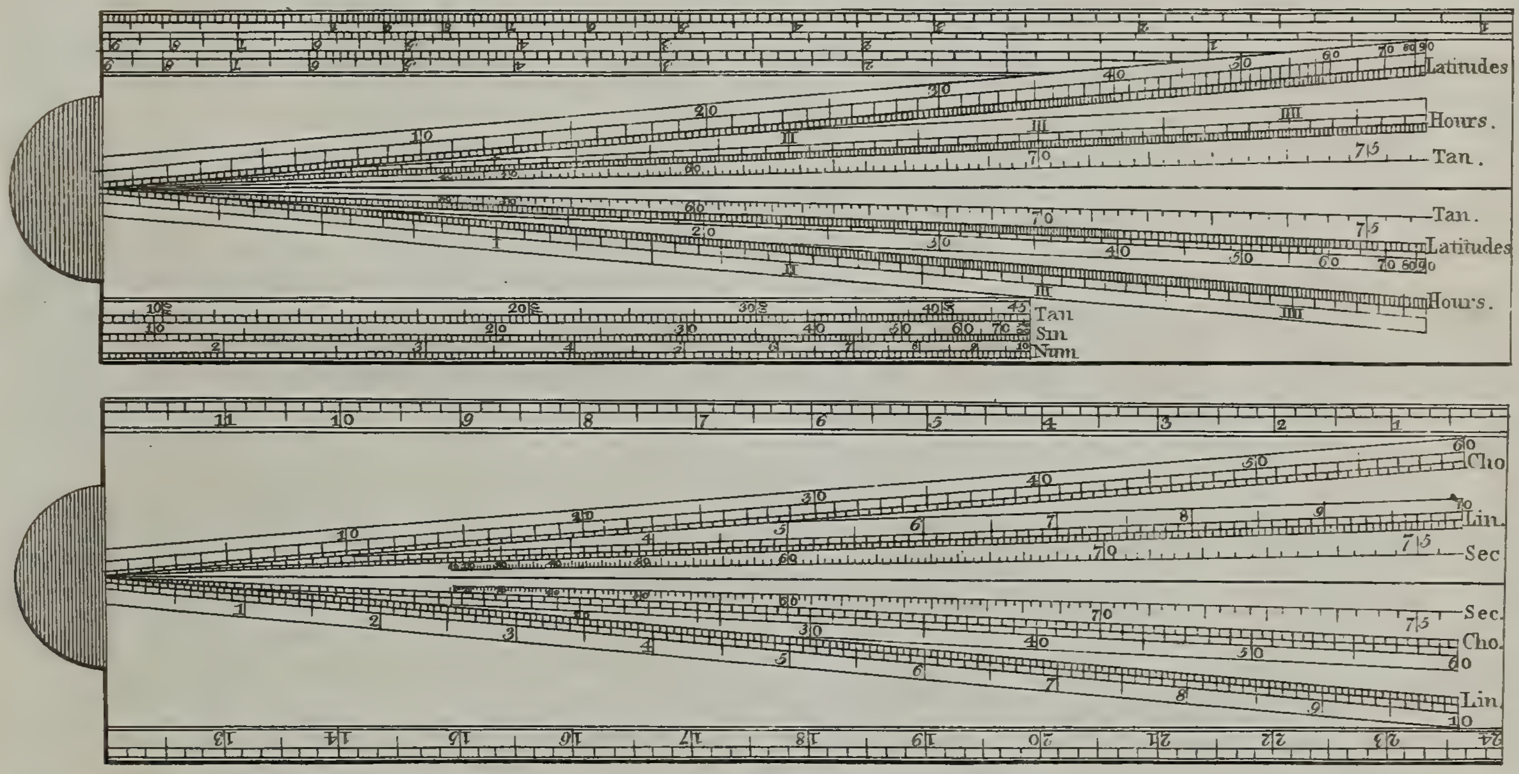


Fig. 5.

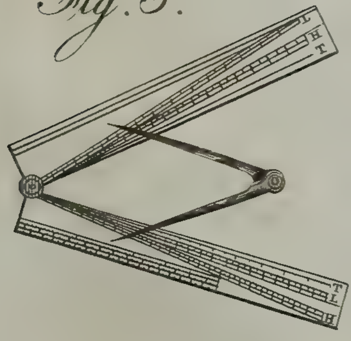


Fig. 6.

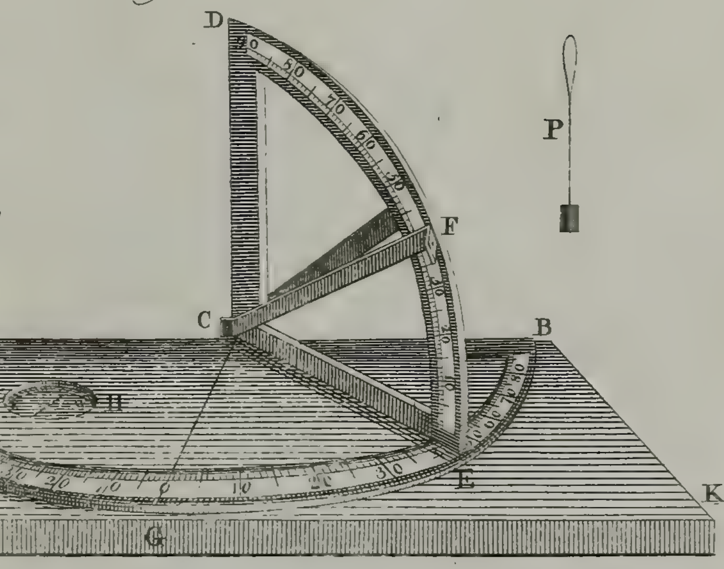


Fig. 8.

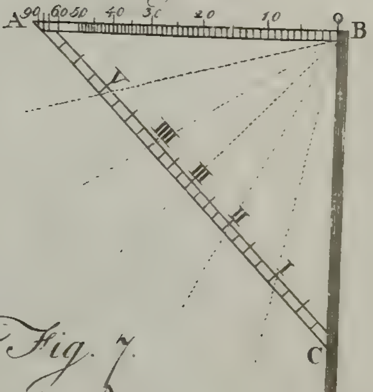
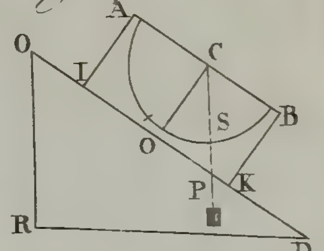


Fig. 7.



Thackara & Vallance, Sculpt.

Dialing Lines or *Scales*, are graduated lines, placed on rules, or the edges of quadrants, and other inſtruments, to expedite the conſtruction of dials. See Plate CLVIII.

Dialing-Sector. See Dialing, p. 803, and Plate CLXI.

Dialing-Sphere, is an inſtrument made of braſs, with ſeveral ſemicircles ſliding over one another, on a moving horizon, to demonſtrate the nature of the doctrine of ſpherical triangles, and to give a true idea of the drawing of dials on all manner of planes.

Dialing-Trigon. See Dialing, p. 804, and Plate CLXI.

Dialing, in a mine, called alſo *Plumming*, is the uſing of a compaſs (which they call *dial)* and a long line, to know which way the load or vein of ore inclines, or where to ſhift an air-ſhaft, or bring an adit to a deſired place.

DIALIS, in antiquity, a Latin term ſignifying ſomething that belongs to Jupiter.—The word is formed from Διος, the genitive of Ξευς, Jupiter.

Flamen Dialis. See Flamen.

DIALITHA, in the writings of the ancients, a word uſed to expreſs the elegant ornaments of the Greeks and Romans, compoſed of gold and gems. They alſo called theſe *lithocolla*, "cemented ſtones or gems;" the gold being in this caſe as a cement to hold the ſtones together. They wore bracelets and other ornamental things about their habits thus made; and their cups and table-furniture for magnificent treats, were of this kind. The green ſtones were found to ſucceed beſt of all in theſe things; and the emerald and greeniſh topaz, or, as we call it, chryſolite, were moſt in eſteem for this purpoſe. This uſe of the ſtones explains what Pliny very often ſays of them in his deſcription: *Nihil jucundius aurum decet*, "Nothing becomes gold better:" this he ſays of the green topaz or chryſolite; and this and many other like paſſages have greatly perplexed the critics, who did not hit upon this explication.

DIALLING, or Dialing. See Dialing.

DIALOGISM, in rhetoric, is uſed for the ſoliloquy of perſons deliberating with themſelves. See Soliloquy.

DIALOGUE, in matters of literature, a converſation between two or more perſons either by writing or by word of mouth.

Compoſition and Stile of written Dialogue. As the end of ſpeech is converſation, no kind of writing can be more natural than dialogue, which repreſents this. And accordingly we find it was introduced very early, for there are ſeveral inſtances of it in the Moſaic hiſtory. The ancient Greek writers alſo fell very much into it, eſpecially the philoſophers, as the moſt convenient and agreeable method of communicating their ſentiments and inſtructions to mankind. And indeed it ſeems to be attended with very conſiderable advantages, if well and judiciouſly managed. For it is capable to make the drieſt ſubjects entertaining and pleaſant, by its variety, and the different characters of the ſpeakers. Beſides, things may be canvaſſed more minutely, and many leſſer matters, which ſerve to clear up a ſubject, may be introduced with a better grace, by queſtions and anſwers, objections and replies, than can be conveniently done in a continued diſcourſe. There is likewiſe a further advantage in this way of writing, that the author is at liberty to chooſe his ſpeakers: and therefore, as Cicero has well obſerved, when we imagine that we hear perſons of an eſtabliſhed reputation for wiſdom and knowledge talking together, it neceſſarily adds a weight and authority to the diſcourſe, and more cloſely engages the attention. The ſubject-matter of it is very intenſive: for whatever is a proper argument of diſcourſe, public or private, ſerious or jocoſe; whatever is fit for wiſe and ingenious men to talk upon, either for improvement or diverſion; is ſuitable for a dialogue.

From this general account of the nature of dialogue, it is eaſy to perceive what kind of ſtyle beſt ſuits it. Its affinity with Epistles, ſhows there ought to be no great difference between them in this reſpect. Indeed, ſome have been of opinion, that it ought rather to ſink below that of an epiſtle, becauſe dialogues ſhould in all reſpects repreſent the freedom of converſation; whereas epiſtles ought ſometimes to be compoſed with care and accuracy, eſpecially when written to ſuperiors. But there ſeems to be little weight in this argument, ſince the deſign of an epiſtle is to ſay the ſame things, and in the ſame manner, as the writer judges would be moſt fit and proper for him to ſpeak, if preſent. And the very ſame thing is deſigned in a dialogue, with reſpect to the ſeveral perſons concerned in it. Upon the whole, therefore, the like plain, eaſy, and ſimple ſtile, ſuited to the nature of the ſubject, and the particular characters of the perſons concerned, ſeems to agree to both.

But as greater ſkill is required in writing dialogues than letters, we ſhall give a more particular account of the principal things neceſſary to be regarded in their compoſition, and illuſtrate them chiefly from Cicero's excellent Dialogues concerning an Orator. A dialogue, then, conſiſts of two parts, an *introduction*, and *the body of the diſcourſe*.

1. The *introduction* acquaints us with the place, time, perſons, and occaſion, of the converſation. Thus Cicero places the ſcene of his dialogues at Craſſus's country ſeat; a very proper receſs, both for ſuch a debate and the parties engaged in it. And as they were perſons of the firſt rank, and employed in the greateſt affairs of ſtate, and the diſcourſe held them for two days; he repreſents it to have happened at the time of a feſtival, when there was no buſineſs done at Rome, which gave them an opportunity to be abſent.

And becauſe the greateſt regard is to be had in the choice of the perſons, who ought to be ſuch as are well acquainted with the ſubject upon which they diſcourſe; in theſe dialogues of Cicero, the two principal diſputants are Craſſus and Antony, the greateſt orators of that age, and therefore the moſt proper perſons to diſpute upon the qualifications neceſſary for their art. One would think it ſcarce neceſſary to obſerve, that the conference ſhould be held by perſons who lived at the ſame time, and ſo were capable to converſe together. But yet ſome good writers have run into the impropriety of feigning dialogues between perſons who lived at diſtant times. Plato took this method, in which he has been followed by Macrobius. But others, who have been willing to bring perſons to diſcourſe together, who lived in different ages, without ſuch inconſiſtency, have wrote dialogues of the dead. Lucian has made himſelf moſt remarkable in this way. As to the number of perſons in a dialogue, they may be more or leſs: ſo many as can conveniently carry on a converſation without diſorder or confuſion may be admitted. Some of Cicero's dialogues have only two, others three or more, and thoſe concerning an orator ſeven. And it is convenient they ſhould all, in ſome reſpects, be perſons of different characters and abilities; which contributes both to the variety and beauty of the diſcourſe, like the different attitude of figures in a picture. Thus, in Cicero's dialogues laſt mentioned, Craſſus excelled in art, Antony principally for the force of his genius, Catullus for the purity of his ſtile. Scevola for his ſkill in the law, Cæſar for wit and humour; and though Sulpitius and Cotta, who were young men, were both excellent orators, yet they differed in their manner. But there ſhould be always one chief perſon who is to have the main part of the converſation; like the hero in an epic poem or a tragedy, who excels the reſt in action; or the principle figure in a picture, which is moſt conſpicuous. In Plato's dialogues, this is Socrates; and Craſſus, in thoſe of Cicero above mentioned.

It is uſual, likewiſe, in the introduction, to acquaint us with the occaſion of the diſcourſe. Indeed this is not always mentioned; as in Cicero's dialogue of the parts of oratory, where the ſon begins immediately with deſiring his father to inſtruct him in the art. But it is generally taken notice of, and moſt commonly repreſented, as accidental. The reaſon of which may be, that ſuch diſcourſes appear moſt natural; and may likewiſe afford ſome kind of apology for the writer in managing his different characters, ſince the greateſt men may be ſuppoſed not always to ſpeak with the utmoſt exactneſs in an accidental converſation. Thus Cicero, in his dialogues concerning an orator, makes Craſſus occaſionally fall upon the ſubject of oratory, to divert the company from the melancholy thoughts of what they had been diſcourſing of before, with relation to the public diſorders, and the dangers which threatened their country. But the introduction ought not to be too long and tedious. Mr Addiſon complains of this fault in ſome authors of this kind. "For though (as he ſays) ſome of the fineſt treatiſes of the moſt polite Latin and Greek writers are in dialogue, as many very valuable pieces of French, Italian, and Engliſh, appear in the ſame dreſs; yet in ſome of them there is ſo much time taken up in ceremony, that, before they enter on their ſubject, the dialogue is half over."

2. We come now to the *body* of the diſcourſe, in which ſome things relating to the perſons, and others to the ſubject, are proper to be remarked.

And as to the *perſons*, the principal thing to be attended to is to keep up a juſtneſs of character through the whole. And the diſtinct characters ought to be ſo perfectly obſerved, that from the very words themſelves it may be always known who is the ſpeaker. This makes dialogue more difficult than ſingle deſcription, by reaſon of the number and variety of characters which are to be drawn at the ſame time, and each of them managed with the greateſt propriety. The principal ſpeaker ſhould appear to be a perſon of great ſenſe and wiſdom, and beſt acquainted with the ſubject. No queſtion ought to be aſked him, or objection ſtarted to what he ſays, but what he ſhould fairly anſwer. And what is ſaid by the reſt ſhould principally tend to promote his diſcourſe, and carry it through in the moſt artful and agreeable manner. Where the argument is attended with difficulties, one another perſon or more may be introduced, of equal reputation, or near it, but of different ſentiments, to oppoſe him and maintain the contrary ſide of the queſtion. This gives opportunity for a thorough examination of the point on both ſides, and anſwering all objections. But if the combatants are not pretty equally matched, and maſters of the ſubject, they will treat it but ſuperficially. And through the whole debate there ought not to be the leaſt wrangling, peeviſhneſs, or obſtinacy: nothing but the appearance of good-humour and good breeding, the gentleman and the friend, with a readineſs to ſubmit to conviction and the force of truth, as the evidence ſhall appear on one ſide or the other. In Cicero, theſe two characters are Craſſus and Antony. And from them Mr Addiſon ſeems to have taken his Philander and Cynthio, in his *Dialogues upon the uſefulneſs of ancient medals*, which are formed pretty much on Cicero's plan. Where younger perſons are preſent, or ſuch who are not equally acquainted with the ſubject, they ſhould be rather upon the inquiry than diſpute: And the queſtions they aſk ſhould be neither too long nor too frequent; that they may not too much interrupt the debate, or appear over talkative before wiſer and more experienced perſons. Sulpitius and Cotta ſuſtain this character in Cicero, and Eugenius in Mr Addiſon. And it is very convenient there ſhould be one perſon of a witty and jocoſe humour, to enliven the diſcourſe at proper ſeaſons, and make it the more entertaining, eſpecially when the dialogue is drawn out to any conſiderable length. Cæſar has this part in Cicero. And in Mr Addiſon, Cynthio is a perſon of this turn, and oppoſes Philander in a merry way. Mr Addiſon's ſubject admitted of this: but the ſeriouſneſs and gravity of Cicero's argument required a different ſpeaker for the jocoſe part. Many perſons ought not to ſpeak immediately one after another. Horace's rule for plays is:

> To crowd the ſtage is odious and abſurd.
> Let no fourth actor ſtrive to ſpeak a word.

Though Scaliger and others think a fourth perſon may ſometimes be permitted to ſpeak in the ſame ſcene without confuſion. However, if this is not commonly to be allowed upon the ſtage, where the actors are preſent, and may be diſtinguiſhed by their voice and habit; much leſs in a dialogue, where you have only their names to diſtinguiſh them.

With regard to the *ſubject*, all the arguments ſhould appear probable at leaſt, and nothing be advanced which may ſeem weak or trivial. There ought alſo to be an union in dialogue, that the diſcourſe may not ramble, but keep up to the main deſign. Indeed, ſhort and pleaſant progreſſions are ſometimes allowable for the eaſe and entertainment of the reader. But every thing ſhould be ſo managed, that he may ſtill be able to carry on the thread of the diſcourſe in his mind, and keep the main argument in view, till the whole is finiſhed. The writers of dialogue have not confined their diſcourſes to any certain ſpace of time; but either concluded them with the day, or broke off when their ſpeakers have been tired, and reaſſumed them again the next day. Thus Cicero allows two days for his three dialogues concerning an orator; But Mr Addiſon extends his to three days, allowing a day for each. Nor has the ſame method always been obſerved in compoſing dialogues. For ſometimes the writer, by way of narrative, relates a diſcourſe which paſſed between other perſons. Such are the dialogues of Cicero and Mr Addiſon laſt mentioned, and many others both of the ancients and moderns. But, at other times, the ſpeakers are introduced in perſon, as talking to each other. This, as Cicero obſerves, prevents the frequent repetition of thoſe words, *he ſaid*, and *he replied*; and by placing the hearer, as it were, in the converſation, gives him a more lively repreſentation of the diſcourſe, which makes it the more affecting. And therefore Cicero, who wrote his *dialogue of old age* in this manner, in which Cato, who was then in years, largely recounts the ſatisfactions of life which may be enjoyed in old age, tells his friend Atticus, he was himſelf ſo affected with that diſcourſe, that when he reviewed it ſometimes, he fancied they were not his own words, but Cato's. There are ſome other dialogues of Cicero written in the ſame way; as that *Of friendſhip*, and *Of the parts of Oratory*. And both Plato and Lucian generally choſe this method.

Dialogue, in dramatic compoſition. See Poetry, chap. ii. 22, 23.

DIALTHÆA, in pharmacy, an unguent much uſed as a reſolvent; ſo called from Althæa, or marſhmallows, which is the principal ingredient in it.

DIALUM, in botany: A genus of the monogynia order, belonging to the diandria claſs of plants. The corolla is pentapetalous: no calyx; the ſtamina at the upper ſide of the receptacle.

DIALYSIS, in grammar, a mark or character, conſiſting of two points, ··, placed over two vowels of a word in order to ſeparate them, becauſe otherwiſe they would make them a diphthong, as *Moſaïc*, &c.

DIAMASTIGOSIS, a feſtival at Sparta in honour of Diana Orthia, which received that name απο του μαϛιγουν, from *whipping*, becauſe boys where whipped before the altar of the goddeſs. Theſe boys, called Bomonicæ, were originally free born Spartans, but in the more delicate ages they were of mean birth, and generally of a ſlaviſh origin. This operation was performed by an officer in a ſevere and unfeeling manner; and that no compaſſion ſhould be raiſed, the prieſt ſtood near the altar with a ſmall light ſtatue of the goddeſs, which ſuddenly became heavy and inſupportable if the laſh of the whip was more lenient or leſs rigorous. The parents of the children attended the ſolemnity, and exhorted them not to commit any thing either by fear or groans, that might be unworthy of Laconian education. Theſe flagellations were ſo ſevere, that the blood guſhed in profuſe torrents, and many expired under the laſh of the whip, without uttering a groan, or betraying any marks of fear. Such a death was reckoned very honourable; and the corpſe was buried with much ſolemnity with a garland of flowers on its head. The origin of this feſtival is unknown. Some ſuppoſe that Lycurgus firſt inſtituted it to inure the youth of Lacedemon to bear labour and fatigue, and render them inſenſible to pain and wounds. Others maintain, that it is a mitigation of an oracle, which ordered that human blood ſhould be ſhed on Diana's altar: and according to their opinion, Oreſtes firſt introduced that barbarous cuſtom, after he had brought the ſtatue of Diana Taurica into Greece. There is another tradition which mentions that Pauſanias, as he was offering prayers and ſacrifices to the gods, before he engaged with Mardonius, was ſuddenly attacked by a number of Lydians who diſturbed the ſacrifice, and were at laſt repelled with ſtaves and ſtones, the only weapons with which the Lacedemonians were provided at that moment. In commemoration of this, therefore, that whipping of boys was inſtituted at Sparta, and after that the Lydian proceſſion.

DIAMETER, in geometry, a right line paſſing thro' the centre of a circle, and terminated at each ſide by the circumference thereof. See Geometry.

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